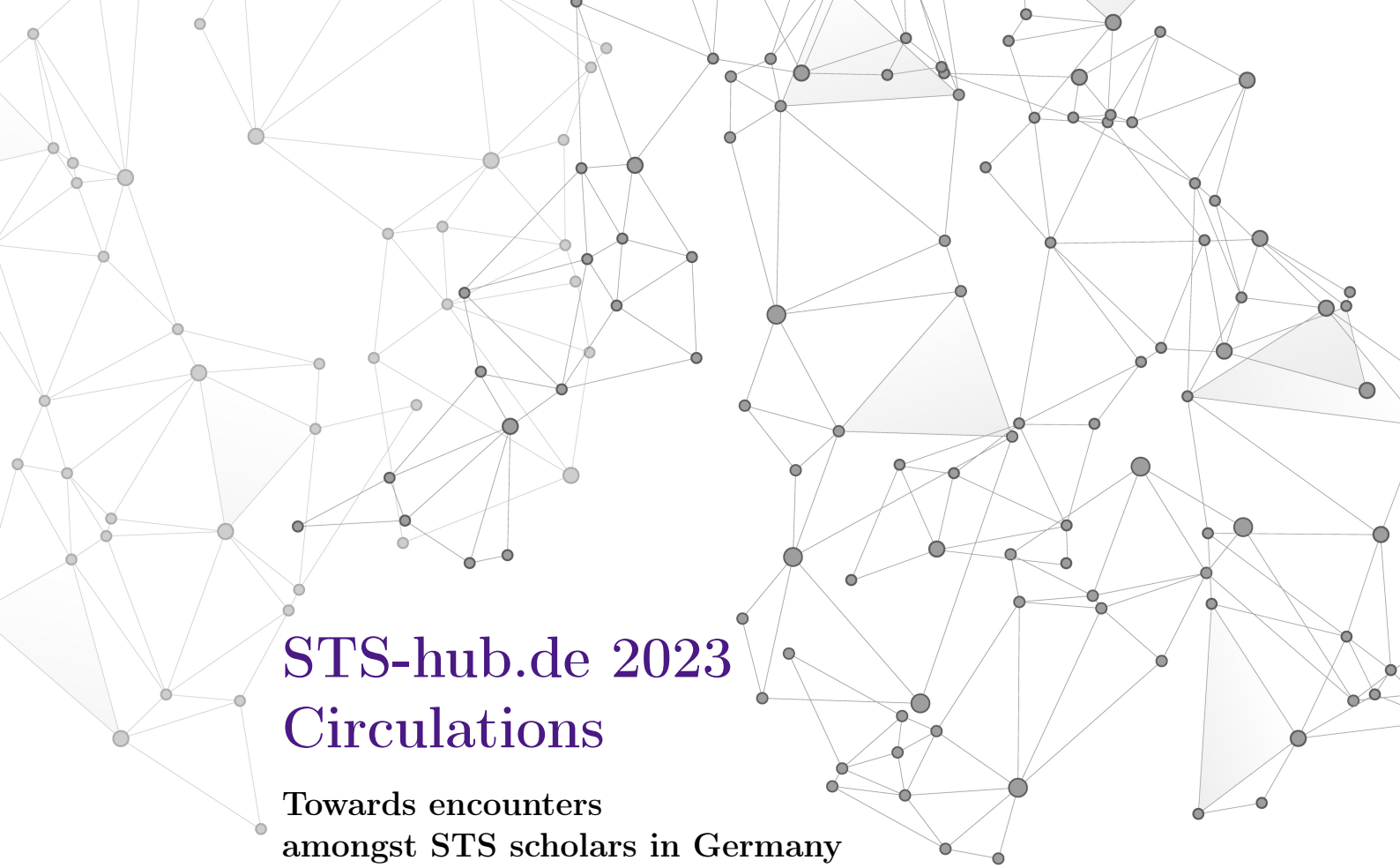


STS-hub.de 2023 Circulations

Towards encounters amongst STS scholars in Germany

STS-hub.de Conference 15-17th March 2023
C.A.R.L, RWTH Aachen

The Programme

The Steering and Managing Committee

Ingmar Lippert (Brandenburg University of Technology Cottbus-Senftenberg) (chair) and, alphabetically ordered, Stefan Böschen (RWTH Aachen University), Paula Helm (University of Amsterdam), Jan-Felix Schrape (University of Stuttgart), Cornelius Schubert (TU Dortmund), Mareike Smolka (RWTH Aachen University), Jan-Peter Voß (RWTH Aachen University) and Lisa Wiedemann (Helmut-Schmidt-Universität/Universität der Bundeswehr Hamburg), supported by Sandra Abels (TU Dortmund)

The Local Organising Committee

Stefan Böschen (chair) and, alphabetically ordered, Sonja Berg, Lilia Bolz, Ana de la Varga, Lennart Göpfert & the Leonardo team, Stefan John, Sally Römgens and Mareike Smolka (all RWTH Aachen University)

Acknowledgements for financial and institutional support Bundesministerium für Bildung und Forschung; stsing – Doing STS in and Through Germany; GWTF – Gesellschaft for Wissenschafts- und Technikforschung e.V; INSIST – Interdisciplinary network for Studies Investigating Science and Technology; Sektion Wissenschafts- und Technikforschung der DGS (Deutsche Gesellschaft für Soziologie); Arbeitskreis Politik, Wissenschaft und Technik der DVPW (Deutsche Vereinigung für Politikwissenschaft); humtec – Human Technology Center at RWTH Aachen; c:o/re Käte Hamburger Kolleg Aachen Cultures of Research; and RWTH Aachen University. Further support was provided by Kommission Wissenschaftsforschung of the Deutschen Gesellschaft für Erziehungswissenschaft; the professorship for Wissenschafts- und Techniksoziologie at Technische Universität Dortmund and the Team Innovativ Beratung UG.

Do you have a question? Check out our Frequently Asked Questions page `sts-hub.de/faq`, and contact us via `programme@sts-hub.de` if your question is not yet addressed.

Social media Use the hashtag `#STShubDe` to communicate about the event on Twitter and in the Fediverse.

Welcome

Hub, panels, papers

General Information

Hub structure

Hub structure with panels

Hub structure details with panels and contributions

Welcome and General Information

Welcome

Welcome to the first STS-hub.de

Welcome!

It is a great pleasure to welcome you to this first STS-hub.de! Its theme is circulations. Circulations are key to scientific and technological developments, and circulations shape STS. The theme encourages us to consider how concepts, researchers, formats, methodologies and other devices travel, and are transformed on the way, with a range of effects – epistemic and otherwise. This Hub focuses on circulations, and 197 contributions have reacted to our call and the calls of the decentrally organised panels. We, the steering and managing committee as well as the local organising committee, are overwhelmed by the amount of contributions to the hub – powered by 514 appearances of you. We thank you very much for all your efforts in making this new event possible and a conference to be remembered.

When we set out to organise this hub, we recognised several international fora, such as EASST and 4S for circulating STS research; yet, we missed a regional opportunity for scholars strongly linked to and affiliated with the German academic system, which might shape STS research in unique ways. At the same time, nationally, we identified a range of well established and recently emerging networks and associations committed to various forms of STS. With the hub, our guiding principle was an inclusive format that would allow the identities of networks and associations as well as of individual scholars to grow and to be maintainted, without having to subscribe to a unifying organisation. To power this inclusive orientation, we profited from the symbolic support by stsing, GWTF, the DGS Sektion Wissenschafts- und Technikforschung, the AK Politik, Wissenschaft und Technik in the DVPW as well as INSIST.

Centrally placed in this hub's programme are two keynotes, the Wednesday keynote by Uli Felt on 'Infrastructuring circulations' and the Thursday keynote by Susann Wagenknecht 'Circulate and leak', followed by an 'Open Forum #WeDoSTS'. With the latter we invite you to address with us ques-

tions of power within STS, considering power relation and their (a)symmetries and abuse as these play out within STS, across labour relations (#IchBinHanna, #IamReyhan), conflicts over data and authorship, to gendered discrimination and sexual harassment – invited experts are Fanny Oehme (German Research Ombudsman), Claudia Gertraud Schwarz-Plaschg (University of Edinburgh, mobiliser of #MeTooSTS and #WeDoSTS) and Daniel Müller (Network against the abuse of power in science).

The Programme, next, guides you through the history of the hub, then details the conference theme. Subsequently, a section on 'General Information' provides you with practical details such as venue specifications, IT, Covid-19 but also directs you to special infrastructure we provide at this hub, dedicated rooms that you can use for informal meetings throughout the conference.

The 2023 STS-hub.de, thanks to the group of colleagues and team at RWTH and from across Germany and beyond, allows us to join at Aachen to enjoy three days of intellectual and other forms of social interaction. With over 400 expected participants (we closed registrations at 400) and 65 sessions, it is clear the community with an interest in doing STS in Germany is strong and lively. The hub serves you to let your thoughts circulate, to circulate your ideas and concerns, to learn about what circulates within STS and beyond! Thank you for joining!

Looking very much forward to meeting you in person!

Till then with kind regards,

Ingmar Lippert

(for the STS-hub.de Steering and Management Committee)

Welcome by the Local Organising Committee

Welcome to RWTH Aachen University!

The local organising team is very pleased that the first edition of STS-hub.de will take place in Aachen, where a community of STS scholars is emerging. Although this community is relatively young, a lot has happened here already. Researchers are working on questions of science and technology at the Human Technology Center and the Käte Hamburger Kolleg 'Cultures of Research' which host the STS-hub. At the same time, other networks and institutes within and beyond the Faculty of Philosophy are pursuing STS research not only at the intersection of, for example, sociology, political science, history, and philosophy, but also across the humanities and social sciences, on the one hand, and science and technology development, on the other. For us, the inter- and transdisciplinary linking of different

perspectives on science and technology is of particular importance. For this purpose, STS researchers in Aachen collaborate closely with scientists and engineers as well as companies and civil society to both study and participate in 'science-and-innovation-in-the-making'. Against this backdrop, hosting the STS-hub in Aachen provides a wonderful opportunity to engage in conversations about what it means to do STS research at German Technical Universities and in German-speaking contexts more broadly.

The importance of this conference for the STS location Aachen is reflected in the conference theme: circulations. Interdisciplinary integration plays a key role in the excellence strategy of RWTH Aachen University. At the same time, however, the challenging question arises as to how different disciplinary perspectives fit and move forward together. We do not simply seek to open up circulations of knowledge and skills, but search for ways to co-steer the flows of these circulations. This is where STS can play a decisive role although we are still at the very beginning of our journey here in Aachen. That is why we are looking forward to exchanges with you about STS and its further interdisciplinary development in Germany. One of our main objectives for this STS-hub is to build a community across disciplinary and institutional homes.

A small disclaimer at the end: Since this is the first time that an STS-hub takes place, perhaps not everything will run smoothly. But that will not stop us from having an inspiring conference together. With this in mind, we from the local organising team wish us all a stimulating time in Aachen and are certainly looking forward to many exciting conversations.

Best regards,

The Aachen Team

Background and history of the STS-hub.de

The 2023 STS-hub.de in Aachen is the first of its kind. It is the result of an ongoing discussion among STS researchers, scholarly associations and networks in Germany with the aim to provide opportunities to meet and exchange ideas, to connect people across our diverse academic backgrounds. Following a meeting of 'German' STS scholars at the EASST2018 conference in Lancaster, which counted over a hundred participants, numerous individuals, new initiatives, and existing associations started to work together to set up a platform that would serve as a meeting space for all different kinds of STS researchers. Initial meetings were held after conferences in Berlin in 2019, 2020, and 2021 and the idea was developed to initiate

a new event that would eventually become the STS-hub.de: a decentral conference.

Several questions motivated us. How do we practice STS in Germany? Which are the different scholarly fields doing STS in this region? How do these relate to each other and which topics stimulate joint interdisciplinary and integrated STS research? Which institutions and actors participate in German STS research communities? To explore such questions, we envisage STS-hub.de as a series of conferences that connect existing STS networks, associations, research groups and individual scholars. We project a bi-yearly rhythm for these hubs, that would be held in between EASST conference years.

The hub is a moving conference. We expect it to move from location to location, showcasing different STS communities and approaches. As a novel format, the hub is still flexible in what it will and can achieve. As such, it depends on the input from all interested parties and will hopefully serve as an interface to connect heterogeneous actors and institutions in order to sustain the ongoing shaping and composition of STS in Germany.

Theme: Circulations

Circulation is one of the key organising principles of present-day societies, but at the same time constitutes contested dynamics. We call for empirical studies and critical reflections on the circulation of research objects, knowledge, instruments, experts, and skills in technoscientific configurations. Contributions could approach circulation with familiar STS sensitising concepts, such as *infrastructure*, *translation*, *power*, and *care*. So, let's circulate!

How are circulations enabled and constrained by social, material, economic, environmental, and other infrastructures? With a view to infrastructures, we recognise that the circulation of COVID-19 across borders and continents has partly been contingent on its transportation through air passengers. Its circulation through our bodies and communities has turned the virus into a critical object of research. For knowledge about the virus to be produced and disseminated, the peer review system has been accelerated so as to facilitate the circulation of ideas, drafts, and publications. Likewise, digital platforms have afforded the circulation of virological concepts across disciplinary and professional boundaries.

How are scientific concepts, methodologies, instruments, and technologies translated when circulating from one place to another? Technoscientific entities circulate and transform within heterogeneous relational

webs (through paper, air, bodies, models, data, markets, images, hashtags). To follow how technologies, such as the renowned Zimbabwe Bush Pump and the Pap smear, circulate and are reconfigured locally to be made applicable in different contexts, we need to study practices of translation. The examination of circulations within complex systems, such as electricity grids, powerplants, and air traffic, enables a better understanding of how scale is being made at the local, regional and global level.

Who has the power to control the scale, speed, and directions of circulation within networks? While some knowledge is made to circulate at high speed among communities of experts and wider publics, other knowledge might better remain confined to the laboratory – knowledge about CRISPR-babies may be a case in point. Who can govern the flow of knowledge once it leaves the laboratory, and whether it can be governed at all, turns into a publicly debated matter of concern? For example, knowledge about the safety of childhood vaccinations or environmental challenges circulates in and through online communities, where it becomes increasingly difficult to distinguish between 'scientific facts' and 'fake news'. This has generated new debates about the circulation of knowledge and the epistemological status of truth.

How do we as STS scholars carefully relate to circulation in interactions with our informants, public communication, and academic writing? Circulations are never innocent – they can come at high costs for some while benefitting others. Costs and profits often emerge from the intertwinement of different systems of circulation. The circulation of socioeconomic value is contingent on the material circulation of waste in oceans as well as knowledge about their contamination. To circulate or not to circulate evokes questions of solidarity and of violence. Is there a responsibility of STS to resist, disrupt, or prevent some forms of circulation? Which circulations do we care for maintaining?

General Information

Timing of panels and individual papers

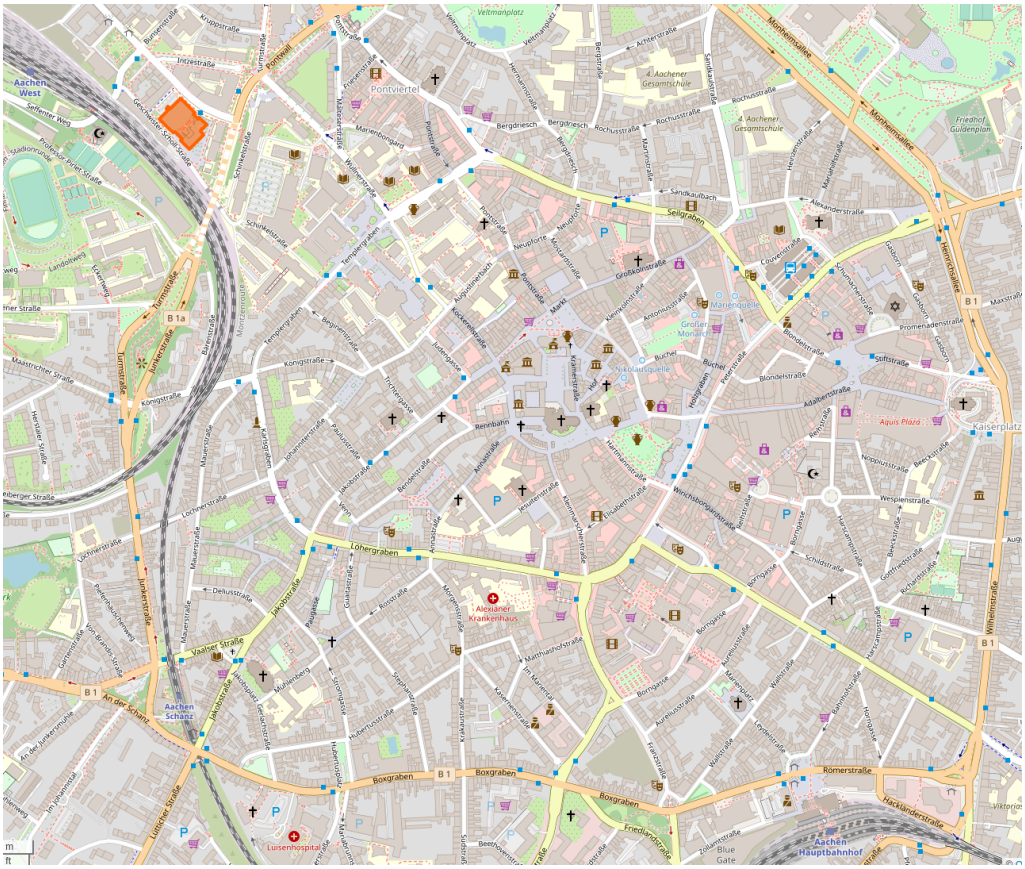
When are sessions taking place? Six 120-minute panel session time slots have been scheduled from 15 to 17 March, with one session slot on Wednesday, three session slots on Thursday and two on Friday. We are using up to ten panel rooms at a time, so any one panel is up against that number of alternatives. For the timings of specific panels, consult the Programme schedule that shows what is happening chronologically while also showing locations and convenors.

Moving papers In order to improve the conference experience for those participants who like to panel-hop, panel organisers were asked to indicate the distribution of papers across the panel sessions. We ask panel organisers *not* to subsequently alter the order and if someone withdraws last-minute, we ask that you all have the patience to then either have discussion in the 'spare time' or a break, and hence retain papers in the allocated sessions.

The venue

Address

C.A.R.L. (Central Auditorium for
Research and Learning)
Claßenstraße 11
52070 Aachen



Aachen city center map

Wheelchair accessibility

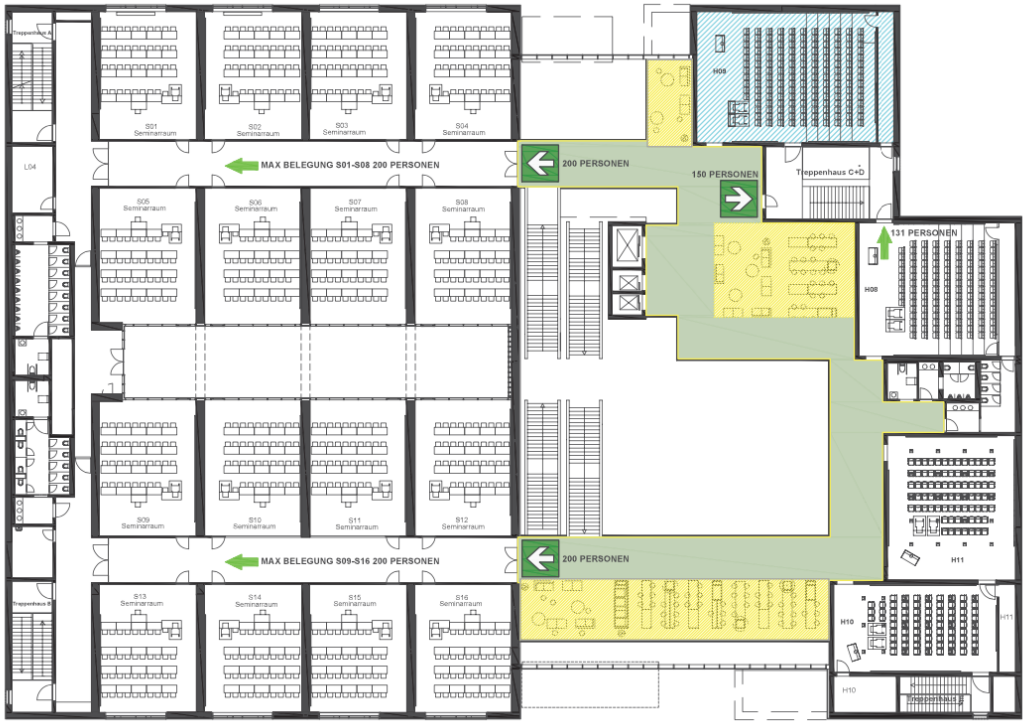
The building, its close environment are accessible by wheelchair; inside the building you can find an elevator.

Getting to C.A.R.L.

To go from the Central Train Station to the hub venue, C.A.R.L., (marked orange), it takes 30 min by foot and 15 min by bus (3A to Ponttor) or 5 min by regional train (from Aachen Central Station to Aachen Westbahnhof).

C.A.R.L.'s environment

Floor plan



C.A.R.L floor plan

Food and drinks

As we refrain from registration fees for this conference, we can only provide drinks during the coffee breaks (in **Room S08**) and fingerfood at the reception (including vegan and vegetarian options).

For lunch and dinner, you can find restaurants and bars on our website (find addresses at `sts-hub.de/eat`).

COVID-19 recommendation

Testing In light of the corona situation, we kindly ask you to take a Corona self-test before joining the event. This will help us all stay safe and healthy. If you are experiencing any symptoms, please refrain from attending the event in person.

Masks While wearing masks is no longer mandatory, please know that you are more than welcome to wear masks for your own and others' comfort.

Corona Warn App check-in code

Wifi, computers, sound and visualisation

Wifi You can access wifi via `eduroam`.

Computers Bring your own device! The rooms are *not* equipped with computers.

Visualisation Each room comes with a projector (the German 'Beamer'). Projectors provide HDMI and VGA connectivity. Each seminar room comes also with a whiteboard and a magnetic wall; bring whiteboard markers/magnets yourself, if you like to use these.

Sound If you need sound or even microphones, bring your own speakers and mics. Ideally, coordinate this with your respective panel coordinator.

Need help? See page 35 for IT support.

Registration and information desk

The desk's opening times are

Wednesday 1pm to 6pm (15th of March),

Thursday 8am to 6pm (16th of March) and

Friday 8am to 1pm (17th of March).

Your Conference badge You can pick up your conference badge at the registration and information desk in the entry hall of C.A.R.L. where most events will take place.

The Programme This document is made digitally available for you as a PDF file, only. It will not be handed out in a printed version, allowing us to minimise the Hub's environmental footprint and reduce costs.

Need help with local venue and IT? Contact the student assistants wearing blue t-shirts with the Leonardo logo at the venue. They will be available for questions about the local organisation of the event and help out with any IT-related issues.

Leonardo logo

Photography

Photographs will be taken during the Hub's duration. Given the size of the group, we are not able to ask everyone's permission to use the pictures. However, if you come across a picture that includes yourself that you don't want us to expose it, we will remove it from our media channels immediately upon request; contact the 'Registration and information desk' during the Hub, afterwards please write to `programme@sts-hub.de`.

Special rooms

Publishers' and community lounge We provide a space for mutual encounters and welcomings between *Mattering Press* and *Transcript* and our community. As part of our community, *stsing* has also announced a stall. Visit **Room 07**.

Chat & meet Use **Room S04** as an informal meeting room throughout the conference – informal circulations. No booking needed. S04 has movable chairs, so several small groups can use it simultaneously.

Cloakroom and storage Use **Room S16** for your coat and storing luggage. However, items in that room are not secured. For small valuable items, you may use **lockers** available on the main floor.

Programme

Wednesday, March 15, 2023

10:00–13:00: Preconference meetings

INSIST Early Career Researcher Barcamp

Room S01

Panel organised by Franz Kather (INSIST) and Jan Dittrich (Uni Bremen, Institut für Ethnologie und Kulturwissenschaft)

Panel abstract During our pre-conference early career researcher (ECR) event, we wish to facilitate – aside from the much needed space for ECR to meet and exchange – the formulation of issues, needs and ideas specific to this status group within the peculiarities of the STS and broader science studies research landscape: What do we need in order to successfully research, write and build professional and personal networks? And in what ways can we organize to accomplish these? The BarCamp is set to let these (or entirely other) topics emerge based on your input and ideas and will offer the opportunity to give both thought out inputs and spontaneous lightning talks while offering a degree of structuring to these debates – all while centering around bringing you together.

Registration required. Visit `insist-network.com`.

14:00–15:30: Welcome address and opening

Welcome address

Room H02

Panel organised by Stefan Böschen (RWTH Aachen University, Chair of Technology and Society)

Panel abstract The Welcome Session will take up the conference theme to explain the basic idea of the STS Hub. At the same time, we want to make visible what is happening at the STS site RWTH Aachen University, while also addressing the specific challenges.

16:00–18:00: Session slot 1

Experimental democracy (1/3)

Room S01

Panel organised by Jan-Peter Voß (RWTH Aachen University, Chair of Technology and Society) and Stefan Böschen (RWTH Aachen University, Chair of Technology and Society)

Panel abstract From an STS point of view, both science and democracy are "in the making". Major transformations over the last 50 years are discussed under alleged shifts "from mode1 to mode2 knowledge production" and "from government to governance". On both sides this reflects a reflexivization of modern functionally differentiated institutions, a debordering, opening-up and multiplication of hybridized practices. In new arrangements of open and collaborative experimentation (such as living labs, real world experiments, transformative research, sustainability experiments, experimental and polycentric governance etc.) such intertwining of epistemic and political practices is programmatic - but rarely it is reflected which specific practices of science and democracy are nurtured in the context of such processes. The panel "experimental democracy" thus explores ways to study (a) specific practical forms of articulating and validating representations of objective reality (facts, functions) and how they intertwine with (b) specific practical forms of articulating and validating representations of collective subjectivity (wills, interests) in such hybrid arrangements. It is concerned with democratizing experimental ways of shaping collective orders as well as with the ongoing experimental development of democracy itself.

with

1 'Experimental democracy: the emerging political constitution(s) of the knowledge society' by Jan-Peter Voß (RWTH Aachen University, Chair of Technology and Society)

Contribution abstract Strategies for engaging with collective orders are increasingly framed and performed as experimentation (as, for example, in experimental governance, sustainability transition experiments, living labs). This envisages a process of inquiry: a situated and participatory mode of developing, testing, and revising knowledge and action strategies. Reflexively interactive, among a diverse set of social actors and in direct contact with the world. In terms of knowledge production such experimental strategies acknowledge the limits of existing scientific laboratory-based modes of knowledge production for developing appropriate knowledge to deal with complex real-world problems. In terms of action strategies they acknowledge the limits of the existing political institutions of the liberal-democratic nation state to generate appropriate collective action

and governance to deal with complex real-world problems. By intertwining the production of collective knowledge and collective action such experiments undertake a "re-making of the modern constitution" (Voß 2019, Latour 1993, Callon et al 2009): They transgress the functional differentiation of established institutions of science and politics. In my talk I take issue with the kinds of politics taking shape here, beyond the established institutions. What are the practices by which "society" (or "the public" or "the people") is represented in such experimental arrangements? I discuss various such practices for the implicit political orders that they entail. My claim is that they require careful monitoring, analysis and reflexive engagement, because this is where the future constitution(s) of the knowledge society is being formed.

2 'Democracy as Self-Governing' by Brigitte Geissel (Goethe University Frankfurt, Research Unit 'Democratic Innovations')

Contribution abstract The presentation will be based on my recently published book "The future of self-governing thriving democracies - a visionary approach. Democratic Innovations By, With and For the People" (Routledge). I will discuss a new approach for the future of democracy by advocating to give citizens the power to deliberate and to decide how to govern themselves. Innovatively building on and integrating components of representative, deliberative and participatory theories of democracy with empirical findings, I will provide arguments for self-governing as well as practices that support communities of all sizes to develop their own visions of democracy

3 'Reversing the local „volonté génèrale" by comparing democratic experiments? Working with the OECD database of representative deliberative processes' by Detlev Sack (Bergische Universität Wuppertal, Institut für Politikwissenschaft)

Contribution abstract The goal of the paper is to analyze processes of knowledge making on democratic deliberation based on a transnational cross-cases comparison. The starting point of our observation is the collection of deliberative experiments in different national contexts, followed by the establishment of databases on aleatoric mini-publics. Our empirical material builds upon the OECD database on representative deliberative processes (`https://www.oecd.org/governance/innovative-citizen-participation/`). The added-value of collecting information on mini-publics is derived from two epistemological considerations. First, proponents and practitioners of deliberative formats (e.g. citizens' jury, consensus conference, planning cell) hope to gain insights in "lessons learned" from democratic practices abroad in order to support and improve their initiatives. Second, scholars are interested in potential diffusion mechanisms and whether they can observe a transnational transfer of democratic practices follow-

ing a pattern of "glocal practices". We assume that the multiplication of local practices goes hand in hand with both their proliferation and the erosion of local experience. Our particular focus is the generation of knowledge by transnational cross-cases comparison (as a method). Therefore, we carry out different kinds of comparative explorations and experiments. We start from the premise that the local democratic process of building a "volonté générale" turns into the establishment of a transnational standard of "good governance", whose goal is to legitimize existing political systems by providing support rather than articulating local demands.

4 'Participation as a paradoxical paradigm - How does the science system deal with the requirement to open itself up?' by Andreas Bischof (TU Chemnitz, Institut für Soziologie)

Contribution abstract It no longer seems justifiable to call for opening up the science system to more participation. At least, the ubiquitous demands for and funding of measures to strengthen participation in research, teaching and science communication suggest this conclusion. From both a systemic and a praxeological perspective, this presentation addresses the question of how the science system deals with the demand for participation. As has been noted earlier (e.g., Dickel & Franzen 2016, Collins & Evans 2002), the discursive framing of the demand for more participation in the science system is paradoxical in several respects. On the one hand, the often-invoked problem of legitimacy of scientific knowledge – most recently impressively visible in the Corona pandemic – cannot be solved per se and certainly not logically by extending scientific practices to non-scientists. Second, the requirement to shift one's own boundaries from within, so to speak, on a systemic level, in the sense of functionally differentiated sub-areas, is in itself paradoxical: system boundaries emerge along communicative requirements and not out of normative desires. Finally, thirdly, and this is the main focus of the presentation, the consequences observable in response to this demand are paradoxical in the practices of science. The talk presents and discusses empirical observations from the science system on how the demand for more participation is met. These include but are not limited to: Reinterpretation and separation from the scientific universalism principle, pretending, externalization to professional service providers, professionalization of own participation actors.

Educational Science meets Science & Technology Studies. Potentials – Circulations – Relations (Erziehungswissenschaft meets Science & Technology Studies. Potentiale – Zirkulationen – Relationen.)

Room S02

Panel organised by Susann Hofbauer (Helmut-Schmidt Universität, Fachbereich Erziehungswissenschaft)

Panel abstract Educational science and Science & Technology Studies (STS) tend to have an unobserved but very fruitful (inter)disciplinary relationship with each other. The theoretical as well as methodological perspectives of STS are used as a frame of reference for educational science with its own relationship definitions (e.g. Kluge 2017). This may be due not least to the fact that educational science traditionally has a certain theoretical proximity to sociology and at the same time has to distinguish itself from it in a disciplinary self-constituting way (Vogel 2010). The STS perspective is of essential importance for research on educational science, as it uses both techniques (e.g. bibliometric methods, reviews, systematics) and approaches (e.g. network-actor theory, scientific field, etc.) that attempt to catch up with, analytically observe and describe the discipline, its concepts, theories, discourses and their twists and turns. In the process, questions about the internal relationship of educational science come into view just as much as its external social-pedagogical relationship. The latter, in particular, is discussed in terms of the translation and circulation of social expectations, knowledge offers and reference settings (Meseth 2016; Bittner 2020). In this panel, "circulations" become evident in the context of self-observation through the theoretical lens of the Other, enabling connections, references, and processes of understanding that constantly transform (educational) knowledge production in relation to itself, but also to expert constellations. Research on Educational Science: The first presentation gives a brief insight into the genesis of the in Research on Educational Science in Germany. Because of its specific tradition, avoidance strategies between STS, SoS and Research on Educational Science become more evident. Internal relations: The second presentation reports on practices of translation and negotiation of terms in an international research project in educational research. How are translations of scientifically complex concepts possible under the condition of linguistic-cultural embedding and mediation? Which scientific and non-scientific but possibly value-laden references serve as orientation within the communicative negotiation? Exploration of potentials: The third contribution discusses the potential of the STS perspective on questions and discourses in media education. What ambivalences result from a merging of both (inter)disciplinarily shaped topics and their respective inherent logics? External relations: The fourth con-

tribution expands the perspective of research cultures to (politically informing) expert cultures and the underlying, but also delimiting, reference settings to supposedly realisable knowledge. How open to interpretation or closed do expert cultures act in their own safeguarding of a technological claim to solve complex social concerns?

with

5 'The mote in the other's eye: The Culturalization of "Science" and some Reflection Problems it Triggers' by Marcus Emmerich (University of Tubingen)

Contribution abstract Within the traditions of Sociology of Science, Social Studies of Science and Science and Technology Studies a broad variety of research subjects has let a differentiated set of methodological designs and research strategies emerge, but no reflexive, self-observing approach ('STS-on-STS'-research). In contrast, within the German Education Sciences a 'Research on Educational Science' (Erziehungswissenschaftliche Wissenschaftsforschung) was founded in the late 1980's, informed by Luhmann's systems theory and aiming to (self-)observe the discipline from within (Horn 2002). Basically using sociological and science theory as well as historical and bibliometric methods, 'Research on Educational Science' still misses an interpretive or reconstructive approach. It apparently has neglected (or ignored) Science Studies particularly regarding empirical perspectives, but also has avoided – so far – what I will problematise as the culturalization and ethnicization of science in STS. The further considerations assume two systematic reason for a still missing 'reflexive turn' in STS (although the problem has been highlighted): first, the distinction that founded its genuine mode of observation is the distinction disabling reflexion - the differentiation between 'soft' and 'hard' sciences; second, the 'culturalization' and 'ethnicization' of science seems to exclude non-cultural societal realities from the observation capabilities. Since STS appears to fabricate true scientific knowledge, it nolens volens participates in the 'culture' (conventionalized norms) of the scientific context it 'critically' (s. Felt et al 2016, p. 2) describes, but successfully avoided 'critical' reflexive 'self-implication' (s. Luhmann 1998, p. 71; 532), i.e. a self-observation guided by STS theories and methodologies in use. Its avoidance-strategy is based on making a constitutive boundary between 'hard' and 'soft' sciences and exclusively concentrating on 'the other side', the natural sciences. But focussing on the 'hard sciences' by definition (identifying the 'mote in the other's eye') does not suspend the paradoxes that become observable viewed from its scientific external environment. Following Luhmann's thoughts on a 'sociology of science' (1998), the contribution discusses the above addressed issues using examples from SoS and STS-Studies as well as from the 'Research on Educational Science'. Finally it will be argued that self-implication may not only be possible but also necessary for further developing STS (e.g. regarding problem designs, observation strategies,

research objects) and that a STS-inspired interpretive/reconstructive approach could empirically re-found 'Research on Educational Science' as well.

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#6 'Translation processes as hermeneutics beyond literally understanding' by Susanne Timm (Otto-Friedrich-University Bamberg, Foundation of Education)

Contribution abstract Science production can be seen as social process, which is embedded in social constellations and within communities, be they concrete or abstract (Fleck, 1935/1980; Haraway, 1988). Perspective scientific knowledge is social structured, and positional, as it creates social effects. The interweaving of science and social context comes even more into daylight in the case of circulation of knowledge across borders. One special case are inter-national research projects, which are proceeded by a multilingual and international research team: While translating data (group discussions) it becomes obviously that the use of terms, versions of understanding, and finally the approach to respective contexts is not only a question of understanding literally but even more on hermeneutics and context-translating. With the empirical example of an international research group working on international data in mind, different approaches to translations in regard to potentials and limits are discussed. While Bourdieu (2002) claims that linguistic products are circulating without their context, Höhne is problematizing the use of open terms (2001), which become even more challenging in the translation out of one discourse-context into another, and in opposite to this position Scheunpflug & Affolderbach (2019) give a plea for the enabling function of vagueness of terms and concepts. Translations then might be seen as a process of creating new ideas. And finally, it will be necessary to examine what can be learned from Walter Benjamin (19232/1972). He assumes that (poetic) texts only acquire new variants of meaning through translations. In this perspective translations can be seen as arena for re-organization of power

relations providing challenges for dominant discourses of the world agenda.

7 'STS and media education in the digital age' by Michael Schlauch (Free University of Bolzano, Italy)

Contribution abstract Where education takes place, a multitude of complex actors converge into small and large networks of power and knowledge production. STS provides an entry point for numerous challenges in educational science that address similar questions. This paper focuses on parallels and applications of STS that broaden our understanding of how educational institutions operate. In doing so, we shift our gaze from the classroom to current discourses around media education and postdigitality. Regarding the classroom, Röhl (2015) shows how artifacts embed teaching and learning practices in a wide-ranging nexus of practices that extend beyond the classroom. Ethnographic studies can thus reveal the epistemological role that material objects play, even when they appear "mundane" from the outside. According to Knox (2019), for example, the word pair "postdigital" offers insightful points of departure for moving from an immaterial to a material conception of digital educational technologies and for focusing on wide-ranging sociotechnical relationships that are played out in classrooms. This has proven useful with regard to the COVID-19 pandemic. Along with various forms of distance education, far-reaching instabilities and challenges have emerged, stimulating discourses around the new role of educational institutions such as universities (Rapanta et al., 2021). At the same time, some in the field of media education argue for a sociomatic interpretation of "literacy" (Burnett et al., 2020). These represent an alternative to dominant deficit-oriented perspectives of knowledge and literacy that need to be viewed critically in a postcolonial context. At the same time, in the context of the advancing relevance of the concept of networks, Jörissen (2016) argues that relational sociological perspectives can be productively used for media education. Just as STS has developed from a practice-oriented view in places of knowledge and technology production, according to which the participation of technical objects in interactions is to be investigated, a parallel can be drawn to new approaches to literacy or media literacy. Representatives of "New Literacies Studies" eschew a cognitivist view of literality as the property or skill of a single subject (Gee, 2014, p. 54). Rather, literacy is expressed in the form of "literacy events" and practices of literacy (Street, 2017). Now, "literacy events" can also be understood relationally as a continuous intersection of human and "non-human" actors (Burnett & Merchant, 2018). "Meaning-making" in communication processes becomes fluid in this way, beginning from relationships between people and things and pointing also to local and spatially distant elements. In other words, these relationships are understood as circular. According, there is extensive debate about the increasing importance of materiality of digital and non-digital practices (Mackey, 2016; Sørensen, 2009), allowing for different theoretical approaches to literality in the digital age (Mills, 2016). Similar ideas have also occurred in STS with regard to sociotechnical prac-

tices and "distributed cognition" (Latour, 1995). Because educational processes today occur just as much in sociotechnically complex settings, a dialogue between STS and media education can be used to draw out the implications of the circular, fluid nature of learning and communication for guiding educational processes.

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8 'Evidence informed practice in education: oversold and undeliverable'

by Peter Kelly (Reader in Comparative Education University of Plymouth, UK)

Contribution abstract In his analysis of expertise in the public sphere, Eyal (2019) shows as chimeric the circulation of research to inform policymaking

and practice. This is because of differences between the technical objectivity of academic researchers and intellectual commentators whose materials are used to inform policymaking and practice and the varieties of trained judgement that afford workplace success. This paper explores the technical objectivity characteristic of 'interactional experts' (Collins & Evans, 2007) in education, so called because of their ability to persuade others of the veracity of their claims. In their advocacy, such researchers largely assume cognitive models of expertise; tending to focus on individual actors as their units of analysis, and following reductionist logics to identify abstractions that, they assert, can be subsequently applied to specific contexts and circumstances. This contrasts with the trained judgement of educational policy makers and practitioners on the ground; 'contributory experts' (Collins & Evans, 2007) who readily overcome challenges within specific contingencies to get things done, and whose know-how draws heavily on tacit and local understandings, learnt through many years of experience and particular to the contexts and circumstances where it was acquired. Using examples from the English context, I show how the credibility of interactional experts hinges on how convincingly they express, defend and promote their claims, and differs from that of contributory experts who are judged on their practical success. Significantly, experts from both standpoints secure trust by asserting their disinterested promotion of the welfare of others, whilst the actors involved use their resources, status and alignment with socially valorised positions to increase their persuasiveness. References Collins, H. & Evans, R. (2007) Rethinking expertise, Chicago, University of Chicago Press. Eyal, G. (2019) The crisis of expertise, Cambridge, Polity.

The University as a neglected research object in Science and Technology Studies (Fishbowl)

Room S03

Panel organised by Frauke Domgörgen (Forum Internationale Wissenschaft (FIW), University of Bonn) and Prof. Dr. David Kaldewey (Forum Internationale Wissenschaft (FIW), University of Bonn) and Prof. Dr. Anna Kosmützky (Leibniz Center for Science and Society (LCSS), Leibniz Universität Hannover) and Prof. Dr. Patrício Langa (University of the Western Cape (UWC) and Eduardo Mondane University (UEM))

Panel abstract Since the 1970s, Science and Technology Studies (STS) considered the laboratory as the central site of knowledge production and technological development. This, one can surmise, has led to a neglect of the university as the very context in which laboratories themselves – as well as other spaces of

knowledge production, such as libraries – often still need to be embedded. Of course, universities have been extensively studied, especially by higher education researchers, but mostly as formal organizations rather than as concrete, materialized, and highly complex social places with a logic of their own. In some ways, they are too large, too diffuse, too fragmented, too heterogeneous to be considered as objects of ethnographic research. Yet, universities are indispensable for generating research atmospheres in which science and technology can then be developed, transformed, debated, taught, and critiqued. The panel is organized as a fishbowl format. We want to discuss possibilities for a future research program that connects science studies and STS with higher education research by exploring the lifeworlds as well as the concrete materiality of different universities in a qualitative-ethnographic and international comparative way.

Urban STS

Room S14

Panel organised by Inge Leurs (RWTH Aachen, Human Technology Center) and Gudrun Rohde (RWTH Aachen, Human Technology Center)

Panel abstract This panel focusses on cities and the urban as a subject of transformation and change under modern circumstances.

with

9 'Urban Vibrations. How Physical Waves come to matter in Contemporary Urbanism' by Ignacio Farías (Humboldt University Berlin, European Ethnology Institute)

Contribution abstract Cities have turned into critical zones of the contemporary: arenas where the interdependence of environmental processes, infrastructural arrangements and human lives is increasingly apparent and disputed. Research in anthropology, science and technology studies (STS) and other fields on health hazards and environmental disasters in urban areas has been crucial in unearthing invisible forms of environmental injustice and slow violence. In this presentation, I would like to focus on a mostly overlooked type of environmental issue, airborne waves, and explore how solar heat, environmental noise and electromagnetic fields 'come to matter' in contemporary urbanism. This involves understanding how physical waves become associated with specific materials, bodies and devices through which they are felt, known or manipulated, as well as how they become matters of public concern and urbanistic intervention. The theoretical and governmental challenge waves pose relates to their ontological indeterminacy, as waves are not entities, but intensities that propagate through

things. Addressing this challenge is crucial for reassessing the material politics of the Anthropocene as entailing contested practices of materializing abstract or imperceptible environmental disturbances.

10 'Thermodynamic circulations: Ideas and Reflections upon ethnographing and conceptualizing heat in urban spaces' by Elisabeth Luggauer (Humboldt University Berlin, European Ethnology Institute) and Indrawan Prabaharya (Humboldt University Berlin, European Ethnology Institute) and Margherita Tess (Humboldt University Berlin, European Ethnology Institute)

Contribution abstract This paper reflects upon approaches towards circulations of heat, as they are undertaken in three research projects investigating how heat comes to matter in contemporary urbanism: in (a) everyday lives of humans and nonhumans in Podgorica and Las Vegas, (b) applications of meteorology in urban planning in Stuttgart, and (c) in contexts of urban re-forestation projects in Fukuoka. it aims to take a 3-step: 1) Starting from the wave as the physical figure for the propagation of body radiation, we aim to outline ideas of conceptualizing heat in urban spaces as thermodynamic circulations in and through the air, and between and through human and nonhuman bodies ad nonliving materialities. 2) We discuss how heat as a thermodynamic circulation can be understood as an atmosphere or as something atmospheric (McCormack, 2018; Peterson, 2021), as affective and sensed, and how heat as a thermodynamic athmospheric flow yet appearsand becomes spatialized and localized. 3) we reflect owhich practices attuning to and conditioning the atmospheric thermodynamic flow are applied in the three exemplified research cases of multispecies everyday lives, planning practices of "Klimatisierung", and urban concepts of a forest. 4) We suggest this paper as a joint exercise of grasping culturally and scientifically different, but often interconnected, notions and concepts of heat.

11 'Rats as urban infrastructure. Encounters, crashes, and circulations in the anthropocentric city' by Santiago Orrego (Humboldt University Berlin, Georg Simmel Center for Metropolitan Studies)

Contribution abstract This contribution is about rats worlding two public areas in Medellin, Colombia, and their (every time more) sporadic encounters with humans. It will present the preliminary results of a series of first-hand observations mixing empirical philosophy (Mol 2022, 2021), affective methodologies (Knudsen & Carsten, 2015), and data visualization. The presentation will be divided into three parts. First, it will introduce and locate the research. [...] Second, it will present some of those encounters and their outcomes, and finally, it will focus on the idea of the urban as a possible pluriverse. The urban as a pluriverse, "a world where many worlds fit" (Stenger, 2018, p. 83), is questioned based

on the rat-human imbroglios already presented. The urban is then reimagined as a possible pluriverse, which means a conjunction of crashes and encounters, but not necessarily agreements, where different trajectories of all kinds of species circulate and overlap.

#12 'Real estate valuation in practice' by Uri Ansenberg (The Hebrew University of Jerusalem)

Contribution abstract STS disciplinary research involving the studies of economic values and valuations came into fashion in the last few years. These studies, stretching over a large scope of topics and agendas, have not sufficiently addressed what seems to be an important political and economic arena of valuation practices - the real-estate valuation field. This paper aims to help in filling this gap by ethnographically following real-estate values, and valuations in their circulation in and across cities. Drawing on findings from a 15 months ethnographic research conducted in the neo-liberal city of Tel-Aviv, and the contested city of East Jerusalem, as well as interviews with real-estate appraisers, in depth analysis of valuations reports and a review of the relevant literature, this paper provides an image of real-estate values, and valuations movement, thus showing how this movement, molded by various scientific instruments, models, and tools, is responsible for the enactment of the city's economic, social, and political reality as well as its urban planning, trade strategy, housing policies, and tax collection approach.

#13 'Circulation of neoliberal ideologies in smart city development processes' by Benedict Lang (European University Viadrina, European New School of Digital Studies)

Contribution abstract Smart cities projects are usually framed and pushed forward in terms of innovation and marketization. Even though mostly publicly funded, they are following neoliberal modes of governance and market-driven ideologies (Grossi and Pianezzi, 2017). While research has elaborated on discourses and ideologies of such smart city projects in general, only little research has empirically studied how they find their ways into the very design of smart-city strategies, technologies, and infrastructures. This talk is an empirical contribution to understanding institutionalization of mechanisms for circulation ideologies. Based on document analysis and ethnographic fieldwork in several current smart city projects in Germany, this talk will analyze and compare how ideologies and tropes of privatization, marketization, and neoliberalization are discussed and negotiated within and throughout smart city projects. First, the talk will outline and compare some key framings of smart city initiatives that are circulated within the community. Second, the talk will work out how the design of funding schemes, the development of guidelines and the set-up of "coordination and

transfer agencies" within the projects contribute to the circulation of neoliberal ideologies within cities. Third, with the notion of "Daseinsvorsorge", the talk will develop an alternative vocabulary of cities that care that help thinking smart city infrastructures and innovation otherwise. With this, the talk will opt for an approach that puts the ways how we organize the digital transformation of our cities in the center.

Circulations Ergonomics | STS

Room S13

Panel organised by Markus Feufel (Technische Universität Berlin, Fachgebiet Arbeitswissenschaft, Institut für Psychologie und Arbeitswissenschaft) and Maren Heibges (née Klotz) (Technische Universität Berlin, Fachgebiet Arbeitswissenschaft, Institut für Psychologie und Arbeitswissenschaft) and Frauke Mörike (Technische Universität Berlin, Fachgebiet Arbeitswissenschaft, Institut für Psychologie und Arbeitswissenschaft) and Christine Schmid (Technische Universität Berlin, Fachgebiet Arbeitswissenschaft, Institut für Psychologie und Arbeitswissenschaft)

Panel abstract This panel explores circulations – historically, conceptually, and methodologically – between the fields of Ergonomics/Human Factors and Science and Technology Studies (STS). The goal of the panel is to identify, investigate and strengthen the interfaces and linkages between the two academic fields. The discipline Ergonomics focuses on human-technology interfaces, with the often practical goal of ensuring productivity and safety, and with a theoretical interest in human-machine interactions within work systems. Especially in the USA, Ergonomics is mostly known as "Human Factors" or "Ergonomics / Human Factors", nodding to the fact that the discipline studies the human factors within complex sociotechnical systems. Aircraft interface design and workflows in high-risk technological environments, such as vehicles or powerplants are classical Human Factors/Ergonomics topics of research. Its students and scholars typically have a background in psychology or engineering, working mostly with quantitative and experimental study designs, and sometimes more qualitative observational approaches. Although there are strong overlaps in research topics and foci, there has been little circulation of concepts, methodologies or scholarly careers between Human Factors/Ergonomics and STS, with the two fields also seemingly paradigmatically conflictive (quantitative versus qualitative, experimental vs. interpretative, scholarly identities as natural scientists or technicians versus scholarly identities as social scientists etc. pp...). Nevertheless, there have been circulations: some scholars are important for both disciplines (most notably Lucy Suchman), some concepts are explored on both "sides" (for example Gibson' affordances)

and some methodologies shared (for instance ethnography). Our panel compiles contributions which explore these circulations and zones of frictions between the academic fields of Ergonomics/Human Factors and STS through historiographical accounts of the circulations between STS and Ergonomics/Human Factors, through methodological enquiries and through conceptual explorations.

with

14 'Truly Ergonomic Concepts' by Markus A. Feufel (Technische Universität Berlin, Fachgebiet Arbeitswissenschaft, Institut für Psychologie und Arbeitswissenschaft)

Contribution abstract Theoretical concepts in Ergonomics / Human Factors tend to adhere to the standards of contributing sciences, such as psychology, economics, or engineering. Thus, as is common in these sciences, also most Ergonomics / Human Factors concepts either describe the human operator OR the environment in which the human operates. Concepts that describe, analyse, and address the intersection of human-environment interactions, which is the main focus of most of Ergonomics / Human Factors research and applications, are surprisingly scarce. In this presentation I will explore what constitutes these "truly ergonomics concepts", possible reasons why they have not yet been successful, and why I believe connecting them to approaches in science and technology studies will benefit both disciplines to advance our understanding of human-environment interactions.

15 'Human Factors/Ergonomics and STS: shared ancestors and common futures' by Frauke Mörike (Technische Universität Berlin, Fachgebiet Arbeitswissenschaft, Institut für Psychologie und Arbeitswissenschaft)

Contribution abstract „Engineers are designing for people the way they would like them to be, not for the way they really are." (Don Norman) This was the primary insight of the psychologically trained engineer Don Norman, when he investigated the Nuclear Power Plant Incident at Three Mile Island/USA in 1979 and realized that the arrangement of buttons and switches in neat arrays of the control-room might have made sense to the engineers who designed it but were not intuitively usable for the workers to support them in their everyday work or even critical incident situations. But an understanding of the lat-ter, so Norman's reasoning, can only be achieved by observing the work environment of the user, with which he called for a stronger orientation towards the usage context for the human-machine interface of technical solutions in the early 1980s – the user centred design. This sharpened the profile of Ergonomics/Human Factors as an interdisciplinary field between engineering, psychology, design studies and social sciences which is characterized by a remarkable openness to interdisciplinary

impulses to this day. STS scholars like Lucy Suchman actively shaped its orientation with their methods and theoretical perspectives. The emergence of workplace studies in the 1990s established ethnographic research modes as a methodological basis for field-based in-situ data collection and the works of Susan Leigh Star and Anselm Strauss delineate part of the shared ancestorial heritage between STS and Ergonomics/Human Factors. Today Ergonom-ics/Human Factors practitioners in the industry like user researchers and app designers borrow from the STS methods toolbox to sharpen their view from the users' perspective in the light of increasingly complex digital technologies. Similar-ly, contemporary Ergonomics/Human Factors research draws on STS expertise and is increasingly concerned with ques-tions that may also be of interest to the STS discipline. This paper provides a historic perspective on the shared ancestors between STS and Ergonomics/Human Factors and highlights opportunities for common futures between the two fields at the intersection between humans and technology.

16 'Messy Methods: Circulating Methods and Methodologies between Ergonomics/Human Factors and STS' by Christine Schmid (Technische Universität Berlin, Fachgebiet Arbeitswissenschaft, Institut für Psychologie und Arbeitswissenschaft)

Contribution abstract How to conduct empirical research with an STS perspective is a question entailing long and vivid discussions in the field of STS. Some scholars even argue that the relationship between theory, methodology and methods in the field of STS runs itself in cycles between calls for minimalism and calls for pluralism. Hence, "making a mess with method" (John Law 2003/2017), experimenting with methods and co-laborating on methods is widely acknowledged for. In contrast to this methodological and methodical – sometimes unsettling - diversity, most of ergonomic research tends to restrict itself to few standardized methods (despite the multitude of options that would be accepted). This panel contribution explores the relationship between methods in Ergonomics/Human Factors and STS and tries to circulate few exemplary methods from the field of STS to ergonomics back and forth (such as from participant observation to shadowing and back).

17 'Into the Unknown: Risk and Uncertainty in Ergonomics/Human Factors and STS' by Maren Heibges (née Klotz) (Technische Universität Berlin, Fachgebiet Arbeitswissenschaft, Institut für Psychologie und Arbeitswissenschaft)

Contribution abstract Both Ergonomics / Human Factors and STS focus on "risky business" in their research - given that both disciplines concentrate on fast advancing science and technology. Medical risk statistics, probabilistic "sense making" or analyzing technological or scientific disasters to do better are

all examples of "risky" research topics, which might be explored in both disciplines. However, there is a paradigmatic divide in how risk and uncertainty are approached: Much (not all) of Ergonomics / Human Factors research operates within a rationalistic and quantitative risk-paradigm, based on probability theory. Much (not all) of STS operates within a deconstructive and qualitative risk-paradigm, based on social science (for instance Foucauldian approaches or anthropological theory). This panel contribution explores the frictions between these paradigmatic approaches to uncertain futures – and closes with a focus on potential common ground (for instance by interrogating John Kay and Mervyn King's book "Radical Uncertainty").

Critiques of Circulations – Circulations of Critiques?

Room S12

Panel organised by Robert K. Merton Center for Science Studies (Humboldt-Universität zu Berlin)

Panel abstract What is science's role in how critique circulates in society? Sparked by claims of post-truth politics and by a global pandemic, the voices of scientists have been very public and often in a critical register. Furthermore, debates around Open Science, research integrity, and similar concepts have prompted scientists to criticize their own fields, e.g. due to poor reproducibility of studies, or a research culture of 'publish or perish'. Do these moments capture a vital critical role for science in society, either momentarily or permanently, or have scientists just become one of many sources of critique in society? This call for an open panel wants to tackle the question of how forms of critique emerge in science, and how this 'science critique' circulates. We pose this question against the background of recent sociological debates distinguishing field-specific forms of critique, amongst others social critique and artist critique (Boltanski/Thévenot 2006, Bogusz 2010). We suggest, as a heuristic, to differentiate three forms of science critique: a) an epistemic critique, which is usually grounded in subject or discipline-specific content and is part of highly specialized academic discourse to establish truth-claims (e.g. scientific controversies, organized skepticism); b) a critique addressing the conditions of scientific knowledge production, which is not discipline-specific (e.g. Open Science, critical accounts of metrification); c) a critique of science toward society or societal problems, and, vice versa, the critique and questioning of science, its role, and its purpose in and for society. For these three levels, we can observe different values implied in the critiques, different aims and goals of critique, different constituencies and different dynamics concerning its circulation, amounting to very different understandings of what

it might mean to be 'critical' on each of these levels. Against this background, the call invites both empirical and conceptual contributions that discuss the twin issues of critiques circulating in academia and critiques of academic circulation. Contributions may address, but are not limited to, one or more of the following questions: – What forms of critique are specific to science or characterize science? – How does this critique circulate, e.g. between different disciplines, and what happens to critique in the process of circulation? – Which critiques can circulate between the three levels described above, e.g. when epistemically rooted critiques transform into critiques of the conditions of academia? – What is the role of critique in the evolution of disciplinary territories and cultures, e.g. by consolidating disciplinary distinctions? – How is the relationship between skepticism and reflexivity towards the canons of knowledge and critique organized within and between scientific communities? – How is the circulation of a 'science critique' facilitated or hindered by the existence of specific infrastructures or artifacts? – How is critique of science linked back to the production of scientific results and artifacts, e.g. mock-ups, prototypes, demonstrators etc.? – Which values or normative orientations can be used to legitimate and ground critique in science? – How is critique organized in situations of trans- and interdisciplinarity, e.g. when established notions of quality are challenged and disciplinary jurisdictions become unclear?

with

18 'The Limits to the Circulation of Epistemic Critique in the Recent Reanalyses of EHT Images of the M87 Black Hole' by Paula Muhr (Karlsruhe Institute of Technology (KIT))

Contribution abstract In April 2019, the Event Horizon Telescope (EHT) Collaboration that gathered over two hundred international scientists famously revealed the first-ever empirical image of a black hole—a mysterious cosmic object that had thus far been regarded as 'unseeable'. To create this revolutionary image that visualised the immediate surrounding of the black hole at the centre of the galaxy Messier 87, the EHT team deployed a constellation of multiple radio telescopes that spanned the entire earth and then spent two years algorithmically reconstructing an empirically reliable image from the thus collected non-visual data. To validate the resulting image, the EHT deployed multiple methodologies during the image reconstruction process, which all led to sufficiently consistent results. Yet, in addition to revealing their final image to the public in 2019, the team also made their initial data and their algorithms accessible to the community. In 2022, five studies authored by scientists who were not members of the EHT teams were published. Each of these studies focused on reanalysing the initial EHT data to test if they would also obtain sufficiently similar images of the black hole. The purpose of these epistemic critiques was to verify the epistemic truth claims of the EHT's final image of the black hole. The authors of

each study deployed a different approach. Some replicated the exact procedure developed by the EHT team to test its robustness. Others developed new, alternative algorithmic techniques for reconstructing an image from the EHT team's initial non-visual data. Four of these five critical reanalyses of the EHT data converged on their findings as they all obtained images that were sufficiently similar to the initial image published in 2019. One study diverged in their results and was subsequently criticised by the EHT team for the methodology used. As my paper will show, this circulation of the epistemic critique in the community of astrophysicists focused on imaging black holes is far more than a contrived academic exercise. Instead, the circulation of the epistemic critique throughout this community is of critical importance for the epistemological consolidation of the new, currently emerging research field of black hole imaging and has the potential to inform future EHT analyses and results. However, while the epistemic importance of the critical replication studies for the community of specialists is difficult to overestimate, this type of discipline-specific critique remains highly hermetic. Its results and its methodological adequacies can only be evaluated, interpreted and adopted by the specialists within the given domain. For all non-specialists, the implications and the import of such a critique remain opaque. Finally, even the circulation of such critique is constrained to the members of the scientific community with the specialist knowledge required not just to perform but also to understand and respond to this kind of critique.

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19 'Critique of neuroscience as an example for different forms of critique and their interconnectedness' by Eileen Wengemuth (Philipps-Universität Marburg)

Contribution abstract Neuroscience as a discipline has been faced with a lot of critique, both from within the field as well as from other fields, especially the social sciences and humanities. Points of critique range from pointing out methodological problems to questioning implicitly underlying philosophical or socio-theoretical assumptions. The aim of my doctoral research was to investigate the phenomenon of critique of neuroscience and to find out how neuroscientists

position themselves towards different points of critique. It turned out that the neuroscientists i interviewed named very different points of critique than the philosophical or socio-theoretical ones that can be found in the literature. For them, the most critical issues were their working and research conditions. Referring to the terms you suggested as a heuristic, my neuroscientific interview partners criticized „the conditions of scientific knowledge production“ (b) whereas the interdisciplinary critiques of neuroscience from scholars from the social sciences and humanities remained mostly epistemic (a). I would like to give examples for both in my presentation. My interview partners were often unaware of many of the epistemic critiques written by scholars from other disciplines. On the other hand, many of these latter critics completely disregard the working and research conditions of neuroscientists in their critiques and focus exclusively on neuroscientific - often popularized - knowledge. Thus, i would argue that there is a mediation gap in two directions. While i agree with your heuristic that the conditions for the production of scientific knowledge are not discipline-specific, i would (with reference to e.g. Heinemann, 2012) argue that neuroscience as a discipline takes a specific position within these conditions in that it is very well adapted to the demands of economized academia and consequently quite successful in the competition between disciplines. Thus, critique of neuroscience as a phenomenon can only be understood when taking these conditions into account. The above mentioned gap however makes it very difficult to analyse that many of the aspects criticized about neuroscientific knowledge are not independent of the working and research conditions in which this knowledge is produced. I would like to make the case that - at least for the case of critique of neuroscience - these two forms of critique should be understood as interconnected.

Reference:

Heinemann, T. (2012). Populäre Wissenschaft: Hirnforschung zwischen Labor und Talkshow. Wallstein Verlag.

20 ‘Searching for New Forms: A consideration on science critique as opportunity for alter- nating modes of knowledge production.’ by Marc Strotmann (TU München)

Contribution abstract In fields of emerging technosciences (Kastenhofer und Molyneux-Hodgson 2021; Molyneux-Hodgson/Meyer 2009), an atmosphere of hyped expectations and conflicting feelings of reservation and skepticism is characteristic. Referring to areas that have been highly visible in recent years, such as nanoscience and synthetic/systemic biology, as well as current dynamics in AI, novel technological methods and artifacts are presented as highly disruptive and as potential solutions to current societal problems in the near future. Circulating social problems – to mention are climate change, health care and urban life – function as empty signifier that could be temporally occupied by the next technoscientific innovation. Indeed, from an analytical point of view it is relevant to be aware that these flourishing aspirations are steadily accompanied by an

intense normative uncertainty. First, the polarity between highly promissory imaginaries of technological fix and the taming foresight of potential futures provide the framework for the current scene of technoscientific proliferations. It may be that policy programs such as Responsible Research & Innovation (RRI) most clearly illustrate the ongoing ambivalence: How can we anticipate the pitfalls of scientific knowledge and technological artifacts without hindering much-needed innovation? In such a script, the role of scientists includes a notion of ambiguity to emphasize the societal importance and the future-relatedness of their research without losing scientific integrity. Against this background, I focus in my contribution on the case of neurotechnologies in order to ask for forms and positions of science critique. Neurotechnologies refer to interfaces between the human brain and technical systems to screen and intervene into mental states. They also represent the growing influence of engineering knowhow and daten-centric research in the area of neurosciences. Besides the scientific and therapeutic hopes associated with them, neurotechnologies have also become of great interest for commercial markets as well as ethics and governance. My interest now concerns the critical stance of scientific actors within the transversal regime (Marcovich und Shinn 2020) of neurotechnologies. Drawing on expert interviews and ethnographic research, I highlight the critical positions scientists take toward the often opaque and less regulated sphere of commercialization, but also toward implicit assumptions in normative and ethical accounts. From here, I go one step further and ask for the sources and forms of critique scientists claim. I am especially looking for the meaning which scientific integrity figures and embodies within critical positions. Therefore, I differentiate between two types of science critique: first, a tendency to tie critique to the authority of science and the trustworthiness of its personal and expertise. I observe here a mode coming close to Steven Shapin's description that concerning the uncertainities of technoscientific futures "the personal, the familiar, and the charismatic flourish." (2008, 5). Second, I contrast this type with another one, estimating critique as an opportunity to search new forms of knowledge production and organizing research. Openness for participation, attention for other modes of thought and experiences with alternative genres of experiments are elements of a science critique still in motion.

Literature

Kastenhofer, Karen; Molyneux-Hodgson, Susan (2021): Making Sense of Community and Identity in Twenty-First Century Technoscience. In: Karen Kastenhofer und Susan Hodgson-Molyneux (Hg.): Community and Identity in Contemporary Technosciences. Cham: Springer, S. 1–37. Marcovich, Anne; Shinn, Terry (2020): Science research regimes as architectures of knowledge in context. A 'longue durée' comparative historical sociology of structures and dynamics in science. In: Social Science Information 59 (2), S. 310–328. DOI: https://dx.doi.org/10.1177/0539018420923471. Molyneux-Hodgson, Susan; Meyer, Morgan (2009): Tales of Emergence—Synthetic Biology as a Scientific

Community in the Making. In: BioSocieties 4 (2-3), S. 129–145. DOI: https://dx.doi.org/10.1017/S1745855209990019. Shapin, Steven (2008): The Scientific Life. A Moral History of a Late Modern Vocation. Chicago: The University of Chicago Press.

Waste in Circulation

Room S09

Panel organised by Stefan Laser (Ruhr Universität Bochum) and Sarah Schönbauer (TU Munich) and Waste in Motion Collective (DFG Netzwerk)

Panel abstract Waste and pollutants are considered one of our time's most significant ecological challenges. The symptoms are manifold: plastic waste in the world's oceans, particulate matter in the atmosphere, disused satellites in low-Earth orbit, excess nitrogen in soils, pollutant residues in human, animal and plant organisms, leaky landfills, international trade in waste or the loss of valuable resources through incomplete recycling, nuclear waste. Waste and pollutants are residues of technologies, those still in place and those already abandoned, and remnants of infrastructures and part of (leaky) global systems. Waste and pollutants thus allow scholars in Science and Technology Studies to study different societal arenas, those that reside in a specific place, such as landfills, and waste repositories, but also those that move, e.g. residues and invisible or ephemeral pollutants. Waste and pollutants are always in circulation – part of global and local infrastructures, part of landscapes and future imaginaries of storage, and part of the invisible unknown. In this panel, we invite waste and discard scholars from STS and related fields to explore the notion of circulation. What can we analyze when studying waste in circulation? What do we discover, and what stays hidden? The panel focuses on waste materials' enabling and disabling features, considering the systematic role waste may play. As stated in the Discard Studies literature (Liboiron/Lepawsky 2022), scholars can trace social and cultural relations through the analysis of waste: hierarchies, valued or ignored knowledge, central and peripheral actors, and mechanisms of exclusion. Here we seek strategies of defamiliarisation and denaturalisation that STS approaches provide and help us understand circulation. We set the stage with brief input talks, followed by a synthesizing comment provided by Ulrike Felt; thus creating a space for an open collective reflection on waste and its circulation as well as our position as STS scholars. The inputs originate from our research collective. The "waste in motion"-collective is an interdisciplinary group of 20 waste scholars

doing research in the German-speaking region and gathering in a DFG research group.

with

21 'Infracycles. Following Practices under the Blue Sky of Waste Fantasies' by Kathrin Eitel (Universität Zürich)

Contribution abstract Waste is constantly on the move. It is transported from one place to the next, blown and washed away. However, also recycling practices exhibit a repetitive self-reference reminiscent of cybernetic theories of circulation. In Phnom Penh, Cambodia's capital, cyclical practices done by waste pickers maintain in this way a recycling infrastructure that cleans the entire city and maintains their survival. At the same time, these practices resist technological fixes that define ontonormative and predominant ways of how to handle waste best in the "crisis" and that circulate in form of waste fantasies through the city, enacted along (post-)colonial entrenched ways of doing politics in the country.

22 'Circulating pollutants and the question of social-ecological justice ' by Johanna Kramm (ISOE, Frankfurt)

Contribution abstract This contribution inquires pollutants that have left their intentional area of usage and are circulating in bodies, waters and air. Pollutants like PFAS, microplastics and DDT are ubiquitous and can be found even in the most remote areas. However, the impacts of these pollutants are not democratically distributed, as sociologist Ulrich Beck (1986:48) once formulated. There are inequalities in terms of exposure. The contribution reflects on these inequalities from a perspective of social-ecological justice.

23 'A circulating (particulate) matter: studying the making of epigenetic knowledge on air pollution and toxicity ' by Sophia Rossmann (TU Munich)

Contribution abstract Current public discourse frames air pollution as the next big problem human and non- humans have to face, alongside climate change (cf. WHO 2021). Tackling this issue has become a central target for policy and public health, building on research examining the health impact of air pollution exposure. But what does it mean to study a circulating airborne matter and its potential toxicity? using sensors, tracking apps, exposure maps, and GIS data. And third, they measure air pollution as embodied exposure in placenta samples and connect them on the molecular level to aberrant epigenetic changes and their potential long-term health effects. Tracing these three modes offers a reading of air pollution that goes beyond its material understanding as composed of different pollutants but as relational matter in circulation, traveling across different socio-technical domains, landscapes and infrastructures. I conclude by

arguing that studying air pollution through the logic of cohort studies shows how stabilising certain (toxic) relations between exposures and bodies and not others is no innocent practice but has political consequences. It influences which policy and health interventions are imagined possible to tackle air pollution as a global health issue.

24 'The problem of traceability in plastic circulation: the entanglement of dana (regranulate) between informal plastic recycling and modern waste management.' by Nicolas Schlitz (Universität Graz)

Contribution abstract There are limits to the standardized and technology-based assessment of the material quality of used plastic materials designated for recycling. This is where the question of traceability comes up – the "ability" to "trace" the life and path of plastic materials from production and processing via their multiple use (including potential contact with hazardous materials) towards their "end-of-[designated-]life". Traceability concerns are voiced especially with respect to informal plastic recycling networks, for example in India, which function in stark contrast to the positivist, standardized, threshold-based assessment practices of modern waste management. Informal plastic recycling practices necessitate different ways of "tracing", enable diverging logics of quality assessment, and provoke contrasting concerns about the circulation of plastics.

25 'Synthesizing comment', by Ulrike Felt (Universität Wien)

What versions of STS are we circulating? A panel conversation

Room H10

Panel organised by Ingmar Lippert (Brandenburg University of Technology) and Martina Klausner (Goethe University Frankfurt am Main)

Panel abstract How is STS being circulated, in which forms and why? These are the overarching questions to build a critical and reflexive conversation with the editors of three German language volumes that introduce versions of Science and Technology Studies. With this conversation we hope to address the standardisation, canonisation and disciplining of STS that is intentionally or collaterally effected. Specifically, these three volumes provide the ground for discussion: (a) Lengersdorf, D. & Wieser, M. (Eds.) 2014: *Schlüsselwerke der Science & Technology Studies.* VS Verlag für Sozialwissenschaften; (b) Beck, S.; Niewöhner, J. and Sörensen, E. (Eds.) 2014: *Science and technology studies: Eine sozialanthropologische Einführung.* transcript Verlag; (c) Bauer, S.; Heinemann, T. and

Lemke, T. (Eds.) 2017: *Science and Technology Studies. Klassische Positionen und aktuelle Perspektiven.* Suhrkamp Verlag.

with

Diana Lengersdorf (Bielefeld University), Matthias Wieser (University of Klagenfurt), Torsten H Voigt (RWTH Aachen) as well as Estrid Sørensen (Ruhr-University Bochum)

Politics, Crisis, and the Contested Role of Science and Technology

Room S11

Panel organised by Philipp Neudert (RWTH Aachen)

Panel abstract In the pandemic and post-pandemic world alike, science and technology are at the center of epistemic and normative debates on how different actors should address what is framed as urgent societal challenge and play an instrumental role in framing 'societal challenges' as such in the first place. Concepts such as circular economy, bioeconomy or responsible innovation attempt to challenge dominant socio-economic and socio-epistemic practices and interpretative patterns. However, during the pandemic and in the course of the second Russian invasion to Ukraine, we have witnessed a comeback of established technologies (e.g. fossil energy), a continued reliance on established quantitative practices of evidence-construction (e.g., virological models), an ideological return to, or restabilization of, conceptions of economic strength as overarching political goal, and a reaffirmation of the view on innovation as universally beneficial. Drawing on a variety of concepts and empirical cases, this panel will explore how relationships between science and state, technology and politics and 'shared' political goals are being changed or (re)stabilized under critical conditions and high levels of political attention.

with

26 'Putting Pandemic Politics to the Test - On Modelling and Simulating Circulations' by Jens Hälterlein (Universität Paderborn)

Contribution abstract Mathematical models and computer simulations play a crucial role in dealing with the Covid-19 pandemic as they promise to enable knowledge of and control over circulations of the virus. In my contribution, I will argue that these technoscientific devices put politics to the test: In terms of their power to produce epidemiological knowledge, models and simulations function as virtual laboratories. In terms of their power to inform crisis management, they constitute algorithmic decision support systems. However, what is modelled

and simulated are not the dangerous circulations as such but the effects of interventions into these circulations. Epidemiological models and simulations enable public authorities to anticipate the consequences of their actions by testing possible interventions within a virtual space. Following up on this, I will present results from an ethnographic study of a government-funded R&D project dealing with the agent-based modelling and simulation of infection dynamics. In the project, a prototype of a system was developed that would help municipalities manage complex crisis situations by calculating and visualizing the impacts of decisions as well as potential crisis trajectories. The contribution will address several questions: How is the production of knowledge about circulations linked to the production of power over circulations? How does this knowledge-power-relation enact the future? How does design disable or enable forms of reflexive (anticipatory) governance? And finally: what relations between science, engineering and STS emerge when politics are put to the test (Marres/Stark 2020).

27 'Science and the State: Re-Shaping Regulatory Legacies' by Alexandra Hofmänner (Universität Basel)

Contribution abstract The Covid-19 pandemic has shone a spotlight on the role of science in the liberal-democratic nation state, exposing regulatory norms and standards on the place of science in society. Based on a recent study on the case of Switzerland, this paper argues that, by labelling and analysing these norms and regulations, the field of STS can play a vital role in adjusting current conditions to better reflect current societal requirements and expectations. The paper considers the legislative framework that shapes the role of science in the Swiss nation state. To date, the historical development and normative legacy of this framework has not been questioned substantially by practitioners or scholars. One of the reasons for this lack of attention are current evaluation metrics which attest to the Swiss research and innovation system an excellent international reputation and competitiveness. Another reason is the high complexity of the Swiss legal, administrative, and political traditions and systems which needs to be grasped for empirical analysis. As a result, the specific features of the current legislative legacy shaping the relationship of science and the state in Switzerland are not evident. During the Covid-19 pandemic, the contours of this legacy were temporarily exposed, revealing some of its consequences. The national case study identifies general challenges associated with reshaping the relationship of science and the state in the post-pandemic era.

28 'Hail Mary: Knowledge Circulation under Conditions of Urgency' by Filippo Reale (Goethe-Universität Frankfurt)

Contribution abstract The contribution sets out to discuss how knowledge circulates under the condition of urgency. This is particularly relevant if situations require responses that are both urgent and creative or 'novel' – two requirements that increasingly coincide in contemporary societal challenges. As urgency increases, it tends to hamper weak ties between heterogenous partners, it tends to inhibit effective 'boundary spanning' and the circulation of non-redundant knowledge – something which, however, has been shown to be a vital factor in creative problem-solving and innovation. Secondly, as urgency rises, probabilities rise that collective knowledge is diffused and collective learning ends before they are conclusive. As a result, the knowledge that circulates is more likely to be 'patchy,' leading to certain attempts at extrapolation. Similarly, as urgency tends to complicate social conflict, knowledge circulation is more likely to follow patterns of epistemic authortity as urgency increases. Depending, either are novel perspectives less likely to circulate as urgency increases or discourses are more likely to become polarized. Based on this, the contribution carves out the effects of urgency on collective learning and the circulation of knowledge. Consequently, it discusses possible structural compensations for these conservative and hampering biases, such as reliable knowledge-brokering positions; accessible, efficient knowledge platforms; and effective collective structures of activation, bricolage, and exaptation. The issue of knowledge circulation under urgency is of major interest for any kind of organization solving problems under urgent conditions, but certainly for the collective processes that attempt to understand, tackle, and solve many of the current ecological, economic, and social crises.

#29 'Circulating Expertise for Regional Innovation' by Cindy Rentrop (Technische Universität München) and Michael Nitschmann (Technische Universität München)

Contribution abstract Best practice examples and models such as Silicon Valley or the MIT model play a key role for actors in innovation policy to develop economic strength (cf. Pfotenhauer and Jasanoff 2017); therefore, certain institutions and actors who own traits and expertise attributed to these examples are imagined to support the development, transformation or reinvention of cities and regions. Thus, actors and institutions who hold certain innovation knowledge and skills imagined to be desirable, are circulated and circulate themselves to bring the imagined cure to the table. This case study looks at urban regions to critically reflect upon the visions and imaginaries that are attributed to these circulated and circulating actors and institutions as a response to regions' pressure to become visible in the global competition on innovation. Through the implementation of circulated expertise that is supposed to generate visibility to foster innovation, the local innovation culture is challenged, resulting in mismatches between the latter and the imagined remedy (cf. Pfotenhauer et al. 2019), lead-

ing to explicit and implicit power relations. Thus, two circulatory systems face each other that cannot be merged. The circulated expertise in both systems reproduces patterns of two differing innovation cultures that stand next to each other in the urban region (cf. Pfotenhauer et al.2023), influencing the local development with uncertain outcomes. Based on qualitative interviews, informal conversations, and observations, this case deconstructs the myth of circulating specific expertise that is not plainly translatable to different regions. Thus, tensions arise between the translation of the desired model through powerful actors and the given regional innovation culture (cf. ibid.). Circulating region-specific knowledge from a culture-sensitive innovation studies perspective may help for a more inclusive, democratic circulation of expertise in the studied region.

30 'Circulating imaginaries and the discursive politics of socio-technical change: rearticulation and reinterpretation in the Frisian embedding of the circular economy' by Gert Goeminne (Universität of Osnabrück) and Erik Paredis (Ghent University) and Abe Hendriks (Utrecht University)

Contribution abstract Circular economy, climate neutrality, responsible innovation,... these are all concepts that, thanks to their universal aspiration, circulate between different contexts in which they are picked up and engaged with. Conceived as socio-technical imaginaries, there is an increasing focus within STS on understanding the socio-material transformation that takes place when a community engages with such circulating concepts. In this paper, drawing on a case study on the engagement of the Dutch region of Fryslan with the concept of the circular economy, we zoom in on the discursive politics that take place in the local embedding of a socio-technical imaginary. Through document review and in-depth interviews, we look in detail at the 'discursive shifts', respectively reinterpretations and rearticulations, that take place when local actors engage with the concept of the circular economy. Reinterpretation, then, is understood as a process in which elements of the circular economy imaginary are reinterpreted in and by that context (e.g. from 'closing resource cycles' into 'local ownership' and 'autonomy'). Inextricably intertwined with this context-specific interpretation of what the circular economy is supposed to be, we found that local engagement also interferes with prevailing notions of what the context is and what it should look like in the future. For instance, in recasting a local resource such as flax as a circular insulating material, a process of rearticulation takes place in which the socio-material context is recast in view of the make-shift imaginary of the Frisian circular economy.

#31 'Mobile Telecommunications in Digital Capitalism – The Infrastructure Dilemma of classic Network Operators in amidst the Platformization of Infrastructures' by Walid Ibrahim (Universität Jena)

Contribution abstract STS have developed a conceptually and empirically broad repertoire to deal with the intricate complexity of infrastructures, while in Economic Sociology there are complementary approaches to analyse technological innovations in relation to the development of capitalist societies. Taken together, they provide a valuable basis for analysing the bottleneck technology of access networks to the internet - which is rarely found in current research to date. My contribution to the STS Hub conference aims to present a conceptual-theoretical proposal as part of the associated dissertation project. It will present an approach that aims to combine STS/Infrastructure Studies with economic sociological work on digital capitalism to investigate the question of how the platformisation of classic infrastructure sectors changes property regimes in the telecommunications industry, what this reveals about the state of development of digital capitalism, and how the value of the universal service as a socially necessary utility is transformed or further commodified. Based on this, the thesis will be developed that processes such as the disaggregation of radio access networks, cloudification and automation of networks, but also the emergence of exclusive standardization consortia leads to the fact that the classic technology path of telecommunication infrastructures is increasingly substituted by the field of information technologies, and thus the last remnants of democratically regulated infrastructures are eroding. The technological fixes made by the network operators are an expression of an infrastructure dilemma. They must provide a generally available productive force of circulation and yet having to function under conditions of capitalist competition.

Circulations of STS research(ers) and good academic research practice and working conditions

Room S05

Panel organised by Julie Sascia Mewes (Ruhr University Bochum) and Céline Gressel (University of Tubingen) and Paula Helm (University of Amsterdam) and Baldeep Grewal Kaur (University of Potsdam)

Panel abstract This closed panel interprets the concept of 'circulations' in terms of the non-tenured faculty who are forced to literally circulate between various employment locations. This pattern of precarious and disruptive employment conflicts with the 'good' academic practices that we aspire to. These practices pertain to both academic research as well as the work conditions in which this

research is carried out. We do not want to normalize these precarious conditions within the neoliberal academy in Germany. Rather, we argue that these conditions are manufactured by the lack of basic funding, the resulting dependence on third-party funds and the proliferation of short-term contracts for non-tenured academic staff. In this panel, we will focus on the question of how to facilitate conditions for 'good' work and research practice in STS in Germany. Regardless of employment status, we consider this to be a collective concern which should be addressed actively by tenured employers and employees alike. The invited speakers, Ruth Müller & Aysel Sultan (TU Munich), Azadeh Akbari (University of Twente), and Daniel Müller (Network against Abuse of Power in Science & University of Siegen), will tackle the issue from a research and activist perspective within short impulse speeches followed by an informed discussion. The panel discussion aims to collect, further develop and spread ideas on individual and collective responsibilities for future action and activism.

with

Ruth Müller (TU Munich), Aysel Sultan (TU Munich), Azadeh Akbari (University of Twente) and Daniel Müller (Network against Abuse of Power in Science & University of Siegen)

18:30–19:45: Keynote

Keynote by Ulrike Felt

Room H02

Panel organised by STS-Hub 2023 Steering and Managing Committee

with

32 'Infrastructuring circulations: On the tacit governance of contemporary academic knowing spaces' by Ulrike Felt (University of Vienna, Department of Science Technology Studies)

Contribution abstract In recent years, academic environments, the ways in which they (can) develop, and the (socio-epistemic) inclusions and exclusions they produce have increasingly been critically scrutinized. How can we capture the dynamic at work and think about forms of repair?

In my presentation, I will argue that closer investigation of these transformations allows to identify two coexisting logics at work: *a deeply rooted logic of circulation* which encounters an increasing presence of a *logic of infrastructuring*. Using vignettes from my fieldwork investigating lives in contemporary academic research, I will explore how infrastructuring and circulations in all their multiplicities find arrangements in complex choreographies bringing to life specific realities academia lives by.

Circulations are actually a long-standing characteristic for the way knowing spaces (Law 2017) come into being. Not only are researchers expected to circulate ("brain circulations"), so are scholarship, data (see open data), epistemic currents and how this is funded and governed, ideals of value, merit, and reward as well as promises of futures to be realized. Circulation, however, is not to be taken as synonymous with free movement. Rather, considerable efforts are made to channel these flows.

Thus we simultaneously see a growing presence of logic of infrastructur*ing* academic environments, our lives in them and the ways we can can know. Speaking of infrastructuring, points to their constant becoming, to the shifting underlying political rationalities as well as to the often fluid forms of desire and fantasy infrastructures emerge out of and store within them (Larkin 2013). Infrastructuring is imagined keeping circulations in line, defining the direction of flows, gradually standardizing and aligning them in specific ways and not others. Infrastructuring is thus not to be understood as one single move, but happens simultaneously on different levels (material, knowing related, institutional, narrative, ...), in different spatial settings and driven by different actor constellations.

At moments, these logics reinforce each other, at others they create frictions (Tsing 2005) supporting specific arrangements of research cultures and power. Looking at the complex choreographies of these two logics allows us to capture

the dynamic of epistemic living spaces (Felt 2009) and potentially identify where and how interventions can/need to happen.

20:00–20:45: Reception

The reception will take place after the first keynote on Wednesday evening, at the conference venue in the second floor of C.A.R.L.

You are invited for drinks (alcoholic and non-acoholic beverages) as well as fingerfood (vegan and vegetarian options).

Thursday, March 16, 2023

08:30–10:30: Session slot 2

Circulating practices

Room S01

Panel organised by Jan-Peter Voß (RWTH Aachen University, Chair of Technology and Society) and Lisa Wiedemann (Helmut Schmidt University of Hamburg)

Panel abstract Circulation is a commonly used but erratically and metaphorically employed word (Gänger, 2017). It refers to movement, travel, transfer, relation, connectivity, exchange, flow, repetition, going in circles. But which entities can circulate at all? And how? And what happens to them, if they do so? And what happens to the surroundings which they circulate through? The question of moving entities ("mobiles") transforming in relation with the contexts ("mutable") or staying the same ("immutable") is a key question for science and technology studies as it concerns the possibility of transferring and sharing knowledge, of establishing universally valid facts and context-free functioning technology. In the proposed panel, we want to ask how and to what extent practices may circulate: Can practices circulate? Can they be transferred from one situation/locality/-context to another one? If not, then why not? If yes, how can that happen - in which ways, under which circumstances, with which effects? This question is particularly relevant, if we understand practices as patterns of doing/ saying/ knowing/ thinking/ feeling which are relationally constituted by human bodies, discursively constituted meanings, and materials (Shove et al., 2012). Practices, then, are assemblages of heterogeneous entities. It is unlikely that all such heterogeneous elements that constitute a practice can circulate at once - and, while moving, stay within the same relational configuration. Isn't it always only isolated elements of practices that actually move and circulate? But, on the other hand, we can actually observe at least very similar ways of doing, for example, in several differently located science laboratories, operating theatres, airports, parliaments, smartphone use, computer games, football stadiums, techno clubs, fast food restaurants. Aren't these the same practices having been transferred from one place/time to another? How can that be? In this sense, we like to ask: What is it really that moves across situations? How can we empirically follow practices as they circulate across sites? What processes are involved in making the movement possible (e.g. translation, infrastructuration, standardization, abstraction, equalization, de- and recontextualization, reconfiguration, modification, adaptation, appropriation, shifting of meaning, skills, material designs)? In which contexts do practices circulate easily and in which do they not? To what

extent and why do frictions arise when elements of practices move from A to B?

with

33 'Circulating practices' by Elizabeth Shove (University of Lancaster, Department of Sociology)

Contribution abstract This talk explores some of the routes through which practices become widespread. Examples relating to the standardisation of colour, the hybridisation of literacy and wine making and the spreading of ideas about germs are discussed as a means of showing how connections are made and enacted, and how the geographies of practice evolve. This discussion brings other questions into view, including questions about the fabric of society and the character of 'connectivity' as such.

34 'Performing community through circulating practices' by Juliane Jarke (University of Graz, interdisciplinary center for a responsible and just digital transformation)

Contribution abstract The idea of "communities of practice" (Lave and Wenger, 1991) was one of the most successful to travel from academic research into the world of business and management. Originally an analytical concept to investigate learning as a social and situated practice, it became a prescriptive term and desirable objective: managers came to view communities of practice as something that needed to be build and nurtured within their organisations to allow for effective knowledge sharing and knowledge management. As work in organisations became increasingly distributed one of the main challenges for building communities of practice, was how the sharing of practices may be accomplished. In other words: How practices are made to circulate across space and time became a practical (and real-world) problem. In my talk, I report on a European Commission initiative to build a community of practice in the area of digital government (eGovernment). One of the key assumptions of this project was that in order to create and nurture a European community of eGovernment practitioners, their practices needed to circulate across institutions and countries. This required practitioners to disentangle their practices from their socio-material embeddings and to translate them into entities that can circulate. I reflect on the multiple ways in which diverse sets of actors were engaged in this translation process, their continuous struggles, and the ways in which this striving for circulating practices fostered a sense of belonging and identity.

35 'The negotiation of unruly bodies: circulation of the practice of pacing in the context of Long Covid' by Aurora A. Sauter (University of Mainz, Department of Sociology) and Lisa Wiedemann (Helmut Schmidt University of Hamburg)

Contribution abstract How do bodily breakdowns, analyses, practices aggregate into a disease anchored in scripts and treatment plans? Taking the case of "Long Covid", we show how practices of handling and interpreting the conditions circulate frictionally in the attempt to stabilize a contested illness. Long Covid, as well as the similar disease ME/CFS, are "diagnoses of absence" (Boulton 2016), i.e., diseases that are not entirely clear in their aetiology and, thus, irritate evidence-based medicine always seeking for definite biomarkers. Long Covid patients describe manifold symptoms; common is the experience of an unruly body, constantly crushing into states of exhaustion and thus becoming a disruptive factor for everyday life. However, not only somatic conditions create unruly bodies, so too do the multiple logics of absence (Law 2002; Lee 2022) accompanying Long Covid. The absence of standardized treatment pathways and visual illness validation lead to the disorder being enacted in social, medical, and everyday instability. More than in the case of recognized diseases, a certain degree of "tinkering" (Mol et al. 2010) is necessary, whereby the circulation of practices plays a crucial role. The negotiation of ways of dealing with and interpreting illness coincide in the case of Long Covid. In the years of the Corona pandemic, a rampant online discourse has emerged, circulating diverse and ambiguous negotiations among patients, advocates, scientists, medical personnel, and public onlookers. Using the practice of "pacing" (energy management), our talk traces the historicality, the limits, and the potentials of circulating practices in the contest of a contested illness. It becomes visible how practices that involve unruly bodies in their circulation reveal an ambivalent relation between shared and individualized practices and are connected to situated interplays of de- and recontextualization. The debate about the de/activation of exhausted bodies demonstrates how political post viral bodies are and that they need to be addressed politically.

36 'Colonization, commensuration, and appropriation – three modes of circulating and translating practices' by Jan-Peter Voß (RWTH Aachen University, Chair of Technology and Society)

Contribution abstract What happens when practices are transferred from one place to another? Building on mobile ethnographic studies into activities of spreading "deliberative mini-publics" as a democratic innovation (carried out with my colleague Jannik Schritt) I distinguish three modes by which practices are transferred from one place to another: Colonization is when the original practice is sought to be replicated at the site of destination, reflecting a modern ambition to territorially expand the order that guarantees the original function. Commensuration is when elements embedded in different sites are linked with each other through a broader abstract model within which they are positioned as functionally equivalent, reflecting a reflexive-modern ambition to build network infrastructures for integrating diversity. Appropriation is when mobilized

elements of practice are left to freely change their meanings and effects as they are absorbed into various local configurations, reflecting a post-modern ambition to dissolve boundaries and hybridize settled orders. I argue that these three modes co-exist, along with the different spatialities of region, network and fluid that they create (Mol & Law, 1994). Rather than taking one or the other as a theoretical presumption, or rather than understanding them as sequence of modern, reflexive modern and post-modern paradigms in social research, they should therefore be kept available as elements of an analytical repertoire to study empirically how transfer, globalization, and space are actually done in practice. This also opens a view on interferences and struggles between ways of doing innovation and transfer by one or the other mode.

Metadata work with a thousand faces: Data care and behind the scenes labour

Room S02

Panel organised by Quoc-Tan Tran (University of Hamburg, Germany) and Gertraud Koch (University of Hamburg, Germany)

Panel abstract The sites of behind-the-scenes labour are where human (and arguably non-human) errors frequently occur, conventions might be broken, and improvisation is rather common. A number of STS scholars (Borgman, 2015; Bowker & Star, 1999; Karasti et al., 2006; Suchman, 1996) have addressed the issue of data labour taking place in the background of knowledge work, with the increasing significance of the vital tasks of data input, organising, cleansing, and, more recently, data care. In the era of digitalised media ecologies, while the role of metadata workers has been sometimes underestimated, there are still unanswered questions, such as: Which infrastructure regimes influence the pervasiveness and informality of data labour? Which agents impose their rules on data circulation? Which are discursively non-present but still construct the space (or sphere) of circulation? This panel explores how various conceptions of metadata work and data labour have entered and been shaped by discursive formations in STS, library and information science, heritage studies, and anthropology of technology. It takes the infrastructural-ecological dimensions of data management, stewardship, and curation that have emerged over the last two decades in the humanities' engagement with a "infrastructural moment" (Fortun & Fortun, 2015) as a starting point to rethink the relationship between metadata work and the marginalisation of entities and actors who are frequently regarded as passive and not "even counted as part of the industry" (Suchman, 1996). The panel brings together library and museum professionals, heritage administrators, and researchers to discuss

critically how the concept of metadata work has been studied, covered, and contested in different fields. It discusses how notions of data labour and circulation are conditioned by and manifest in practices of knowledge production by a diverse array of social actors – data contributors, data consumers, and data curators – in cross-disciplinary contexts.

with

37 'NLP and metadata for large sociological interview collections' by Judit Gárdos (Research Documentation Centre, Centre for Social Sciences, Hungary) and Julia Egyed-Gergely (Research Documentation Centre, Centre for Social Sciences, Hungary) and Anna Horváth (Research Documentation Centre, Centre for Social Sciences, Hungary) and Róza Vajda (Research Documentation Centre, Centre for Social Sciences, Hungary)

Contribution abstract Our group of social scientist and data stewards of the Research Documentation Centre at the Centre for Social Sciences in Budapest has been long engaged in collecting qualitative sociological research data. Our repository has one of the largest and most diverse interview collections in the region. The interviews created for research purposes in the last 50 cover very different topics: lifestyle, workplace, trauma, minorities, etc. The main challenge for an interview archive is to provide documents for secondary research to scholars interested in a specific topic and to produce suitable and sufficient metadata in order to create transparency and accessibility. Reading dozens/hundreds of long interview to establish whether they are interesting for a certain research project is a time-consuming endeavor. Natural language processing and machine learning methods are increasingly used on texts to answer social scientific research questions. More recently, these innovative tools have entered the field of data repositories as well. Our team has been experimenting with ways to enhance the metadata structure of our collections. We have translated, used and improved the ELSST thesaurus of CESSDA, the European Research Infrastructure Consortium for Social Sciences, to elaborate a system of automatically assigning topics (relevant for social science) to parts of interview texts. In describing our enterprise, our presentation seeks to answer the following questions: 1. In what ways does an elaborate automated indexing system pose challenges in terms of the scientific analysis of a large amount of interrelated (contextual) data, compared with relatively simple NLP projects like those involving sentiment analysis? 2. How does automated assignment of topics alter the way qualitative research is done? Does this make science more rapid? 3. How can we translate and use a European thesaurus for metadata uplifting in a small country? What type of social world/science is constructed through ELSST, and how does it resonate with the topics of our interview collections?

#38 'Data of social media as part of collective memory and audiovisual heritage: the case of the Fête des Vignerons' by Tatiana Smirnova (University of Lausanne, Switzerland) and Dominique Vinck (University of Lausanne, Switzerland)

Contribution abstract Included in UNESCO's list of intangible cultural heritage, Fête des Vignerons takes place in Switzerland every 20-25 years. Drawing on an onsite and online observation, I study the role of social media in the shaping of collective memory and audiovisual heritage in this event at the occasion of the 2019 edition. In 2019, the festival is celebrated for the first time in two different but closely related spaces: the circumscribed territory of the town of Vevey and reticular territory of the Internet with dominated social media platforms. Before, during and after the Fête digital memories are stored on individual online spaces, both closed and open with different data and metadata. They have been posted on social media by various actors (e.g. organizers, actors, spectators, tourists and visitors) and cover sometimes completely different stories (e.g. construction of the arena, impressions about the spectacle, high ticket prices or the installation of ashtrays with eco-calls). Observing emergence, transmission, fading and disappearance of digital memories in different spaces, I enquiry how they participate in shaping the collective memory of intangible cultural heritage through rather concrete representations. In this paper, we would like to discuss the relation between data/metadata and the memory about sociocultural event. How does data in social media complete and extend the celebration, its documentation, and the preservation? It is also interesting to talk about the potential of data and metadata for archives.

#39 'Catalogers at Work' by Amanda Belantara (New York University, USA) and Emily Drabinski (City University of New York, USA)

Contribution abstract Library workers make myriad choices every day as they create the metadata necessary for information retrieval. Each record represents an interaction between the cataloger and the systems they work within and against. Their work is highly constrained by standardized machine-readable fields and codes, controlled subject terms, and classification schema. Knowledge organization systems like the Anglo-American Cataloging Rules, the Dewey Decimal Classification, and Resource Description and Access organize the complex work of library metadata specialists. In order for knowledge objects to be retrievable in online catalogs like WorldCat, catalogers must use these systems, even when they fail to fully or accurately capture the content in the book, article, film, or other resource under scrutiny. Once entered into catalogs, these normative systems determine how materials are sorted, grouped, and retrieved, shaping the circulation of ideas even as the process of describing them disappears into the background. In the exploratory research project Catalogers at Work, the authors use sound re-

cording to reveal the complex yet hidden negotiations embedded in library catalog records and the stories behind the creation of alternative controlled vocabularies. Addressing the problems surfaced by catalogers as they do their work means articulating the ways that metadata construction is shaped by broader social forces. In documenting the behind the scenes work of metadata creation, we center the the human actors whose decisions and practices are responsible for helping make library materials discoverable and shareable in discursive communities, making audible the power that metadata workers have to reproduce and resist ideological formations as they craft the stories that catalogs tell about the world.

40 'Sustainable referencing in digital cultural heritage: Creating a path that others can follow' by Quoc-Tan Tran (University of Hamburg, Germany)

Contribution abstract The rapid growth of digitised and born-digital items, in the context of digital cultural heritage, has emphasised the significance of the permanent digital identifiers in preserving, managing, accessing, and re-using data sets across time. This contribution looks closely at the digitised resources held in collections across Europe, particularly those assembled on the Europeana platform. Based on interviews with staff from Swedish cultural heritage institutions working on the 'packaging' of metadata required for an effective aggregation ecosystem, I attempt to answer the questions: Whose responsibility is it to govern the flow of information using universally accepted persistent identifiers? Whose perspectives are being overlooked in the pursuit of reliable and long-term resource discovery? In this contribution, I consider the preparation of metadata as a form of craftwork. I explore the 'tacit realm' (Polanyi, 1966/2009) of these institutionalised activities: the behind-the-scenes work of giving unique and perpetual identifiers for data to allow easier referencing and enhanced discoverability. I argue that the difficulties in cataloging and describing digital items cannot be efficiently mitigated by addressing only the technical aspects of referencing, i.e., using persistent identifiers. More importantly, it requires a social type of negotiation: a bottom-up strategy that considers the viewpoints of metadata workers in the background. Ensuring discoverability, in this case means building 'a path that others can follow' (Ingold, 2013, p. 110), is more than just the accomplishment of practical tasks; it is also about having a feel for things, in recognising forms of unspoken, untitled, and unrewarded skills.

Circulating values: from what is 'good' somewhere to what is 'best' elsewhere and back again (1/2)

Room S10

Panel organised by Mareike Smolka (RWTH Aachen University) and Maximilian Braun (Technical University of Munich) and Ruth Falkenberg (University of Vienna)

Panel abstract Mobility has recently been described as one of the central conditions of scientific work, in which logics of globalization and the rise of international markets in human capital shift how knowledge production is carried out (Davies 2021). Researchers do not only travel across national borders, but also need to be able to flexibly adapt to and integrate their research with other disciplines, communities of practice, and professional arenas, for instance in light of intensified relations between scientific work, technology development, business contexts and civil society organizations. The circulation of researchers across borders and contexts often builds on the possibility to standardize epistemic practices, technological skills, and scientific objects, to make them 'fit to travel.' STS research has shown that such travels depend on tinkering and translation to ensure that standards are localized (Lampland and Star 2009). Yet, practices of knowledge production often travel with socio-ethical questions and practices of valuation, which may at times be difficult to translate from one context to another, whereas in other instances, values seem to dominate across contexts (Felt 2017; Felt and Fochler 2010). To inquire into the circulation of values in science from a practice-oriented perspective, we ask: How do values travel with researchers? How are values enacted and adapted locally and how do they transform local practices, subjectivities, and institutions? How and why do some values gain dominance across multiple laboratories, organizations or countries, while others are difficult to sustain once they move out of their local contexts? How can studies on circulating values help us interrogate situated conceptions, narratives, and practices of 'good' research? We invite panel contributors to approach circulating values both with rather observational and more engaged forms of STS research. On the one hand, we are interested in empirical analyses of how researchers' practices of valuation, conceptions of ethics, and narrative accounts of values change over time through circulation, and how such changes are related to transformations of wider normative regimes, epistemic living spaces, and political cultures (Falkenberg 2021; Fochler 2016; Fochler et al. 2016; Sigl 2019). On the other hand, we would like to further investigate how analyses of circulating values could feed into forms of reflexive science governance that integrate societal concerns into technoscientific work (Boenink and Kudina 2020; Poznic and Fisher 2021; Voß et al. 2006). We welcome contributions that aim at "closing the loop"

(Sharon et al. 2022) between empirical analyses of what 'good' research is somewhere to ethical reflexivity on what is 'best' elsewhere and back again (Hedgecoe 2004; Pols 2015; Rehmann-Sutter et al. 2012).

with

41 'How do valuations travel?' by Thorsten Peetz (University of Bremen)

Contribution abstract Although valuations are inherently situational (Dewey 1939), they are not confined to the situations in which they are formulated and communicated. They are objects of observation, interpretation and translation; disembedded from their contexts and reembedded in others; scrutinized, criticized, transformed and re-formulated. Using empirical examples from religious and intimate valuation, the paper argues that understanding valuation in terms of „valuation constellations" (Waibel, Peetz & Meier 2021) allows for systematically reconstructing how valuations (including researchers' valuations) travel among contexts: From medical examinations of a stigmatized body to the church bureaucracy and the general public, and from academic observations of contemporary dating to popular discourses and tabloid media. Literature: Dewey, J. (1939). Theory of valuation. In O. Neurath (Ed.), International Encyclopedia of Unified Science (Vol. II(4), pp. 1-67). Chicago: University of Chicago Press. Waibel, D., Peetz, T., & Meier, F. (2021). Valuation constellations. Valuation Studies, 8(1), 33-66.

42 'Making & doing goods in practice: a proposition for empirical ethics' by Carla Greubel (Utrecht University)

Contribution abstract This paper considers the STS approach of making & doing as one possible resource for empirical ethicists who want to go beyond descriptions of the good in practice and engage in the field with an explicit commitment to improving the practices they study. Based on a close reading of a collection of making & doing accounts (Downey and Zuiderent-Jerak, 2021) I argue that this approach is useful for 'closing the loop' (Sharon et al. 2022) of empirical ethics as it makes it possible to let evaluations from beyond the context of study inform and co-create 'goods' in the field without losing empirical ethics' commitment to situated accounts (and consequently also situated creations) of everyday morality. This is because in STS making & doing, what is 'good' in specific contexts is neither externally prescribed, nor are making and doing scholars solely facilitating improvement from within. Problems and solutions, bads and goods, are defined in an iterative process characterized by negotiations, persistence, and adjustments to respond both to the local realities and the directions for improvement the scholars bring to the field. To reflect upon this proposition, I discuss experiences from my own making & doing research in the context of

the H2020 funded large scale pilot project GATEKEEPER, an international and transdisciplinary research initiative on smart living environments for the aging populations. Drawing on ethnographic fieldwork with research and technology project partners (specifically Samsung) as well as the users (adults 55+) participating in the GATEKEEPER pilot in Puglia, Italy, I first examine the diverse and often conflicting enactments of 'good aging', and then discuss how our making & doing interactions make different 'goods' travel, and how they reshape how 'good ageing' is understood and done by the different actors involved, including myself.

43 'Circulating "recognition": the meaning and use of a concept in large-scale collaborative research' by Helene Sorgner (Alpen-Adria-University Klagenfurt)

Contribution abstract Many STS researchers have criticised the increasing use of publication-based indicators for the assessment of individual researchers and emphasised the situatedness and diversity of evaluative practices in academia. In experimental high-energy physics, individual merit is particularly difficult to assess on the grounds of public performance indicators, as research is carried out in large collaborations and most publications are authored collectively. This is often considered to be a disadvantage for early-career scientists. The "recognition" of individuals has thus emerged as a prominent issue during the past decade: Within and across high-energy physics collaborations, working groups have been set up, surveys conducted, recommendations developed, and "best practices" shared on how to improve the recognition of individuals. In this paper, I analyse how the concept of "recognition" has been mobilised, circulated and enacted within the European high-energy physics community. Taking the discourse and practices concerning "recognition" in one specific collaboration as an example, I show that "recognition" is used to address anxieties surrounding academic career prospects. At the same time, "recognition" helps stabilize established socio-epistemic practices, by explicating communal values and promoting those scientists who best adhere to collaborative norms. Based on interviews with senior and junior collaboration members, I argue that the measures taken enact a notion of "recognition" as mainly relevant to researchers on the academic job market, which is too narrow to address the wider set of concerns articulated as a "lack of recognition". For example, a proliferation of "recognitions" to make individuals more visible and comparable for evaluation eclipses the affective dimension of recognition in everyday collaboration. It remains to be seen whether efforts to improve "recognition" will lead to wider debates about the value of different kinds of contributions, and instigate the institutional transformations necessary to sustain large-scale

collaborative research in the long run.

44 'The feeling rules of peer review: defining, displaying, and managing emotions in evaluation for research funding' by Ruth Müller (Technical University of Munich) and Lucas Brunet (Technical University of Munich)

Contribution abstract Punctuated by joys, disappointments, and conflicts, research evaluation constitutes an intense, emotional moment of scientific life. Yet, reviewers and research institutions often expect evaluations to be conducted objectively and dispassionately. Inspired by the scholarship describing the role of emotions in scientific practices, we argue, instead, that reviewers actively define, display and manage their emotions in response to the structural organization of research evaluation. Our article examines reviewing practices used in the European Research Council's Starting and Consolidator grants (ERC) and in the Marie Skłodowska-Curie Action's Individual Fellowships. These two European funding mechanisms offer different perspectives on the organization of grant evaluation. We conducted interviews with review panel members, collected reviews written on ERC proposals, and analyzed various institutional documents. By drawing on the sociological concepts of feeling rules and emotional work, we demonstrate that reviewers define rules concerning how emotions should be experienced and expressed to ensure the proper functioning of evaluation, and that reviewers actively regulate their emotions to comply with these rules. We present four feeling rules concerning the experience and expression of excitement for novelty during individual evaluation; respect for others' opinions and the absence of anger in review panels; attentiveness and interest, which are seen as missing in online evaluations. Reviewers also expect ERC candidates to prohibit pride and demonstrate modesty during interviews. These rules show that proposal peer review is governed by emotional norms, and reflects the influence of pragmatic, historical and moral conditions on research evaluation.

Open Panel Ethics, Engaged STS & Co-Creation

Room S05

Panel organised by Olivier Rossel (Brandenburg University of Technology, Chair of Technoscience Studies)

Panel abstract The panel connects, explores and questions a variety of (un-)conventional ways of doing STS, related to values that ethics has to offer. Contributions and subsequent open discussions will critically address inherited *-disciplinary guiding principles, tunnel visions in the co-creation of scientific ex-

pertises, and a potentially urgent or yet highly problematic self-restraint in STS.

with

45 'Making a Case for Strong Normativity. Towards an Ethics of Engagement for STS' by Joakim Juhl (Technische Universität München, Department of Science, Technology and Society) and Paula Helm (Critical Data Science & Ethics, Media Studies Department, School for Cultural Analysis, University of Amsterdam)

Contribution abstract This discussion paper investigates the normative turn in contemporary STS research and presents possible pathways for STS research to partner with applied ethics through what we call 'ethics of engagement'. By tracing some of the dominant STS genealogies and their intellectual and methodological tenets, we argue that STS's disciplinary heritage and its self-reflexive approaches fall short when it comes to deal with the increasingly prominent strand of engaged STS and the ethics it entails. We argue that engaged STS comes with new moral obligations that necessitates engagement with ethics. By drawing on approaches, tools, and insights from applied ethics we outline how these can be made fruitful for engaged STS. We highlight approaches that depart from a priori schools of inquiry such as principled ethics and are thus more easily reconciled with the epistemological tenets of STS – most prominently, situated knowledge. Specifically, we discuss streams and methods of empirical ethics, integrated ethics, and values in design by ideal-typically dividing the process of ethical engagement in technoscientific knowledge production processes into three steps: 1. making implicit normative assumptions explicit, 2. collaborative deliberation, 3. conscious inscription of values into technology. Finally, drawing on technofeminist insights, especially with reference to Sandra Harding's theory of "strong objectivity," we develop the notion: strong normativity. With the concept of strong normativity we propose a moral-epistemological methodological bridge between the empirical strengths and analytical reflexivity of STS research and the expertise in dealing with engaged values and normativities that ethics has to offer.

46 'An ecological approach for urban mental health research: Studying non-linear neighborhood effects based on ethnographic problematizations' by Patrick Bieler (Institute of European Ethnology, Humboldt-Universität zu Berlin)

Contribution abstract Social scientists argue that an ecological analytical perspective is adequate for studying the relations of urban life and mental health (Bister et al. 2016; Kirmayer 2019; Manning et al. 2022). [...] Aiming to establish causal links, psychiatric research isolates specific variables and tests their causality with regards to mental health – on the population level as well as

individual wellbeing and brain functioning (Bergou et al. 2022; Khan et al 2019; Tost et al. 2019). Introducing an ecological perspective draws on an experience-based critique of these isolating strategies (Fitzgerald et al. 2016; Söderström n.d.) and serves as "a new kind of research pragmatics, systematically designed for interdisciplinary cooperation" (Beck 2008, 198) by generating novel research questions and research objects as well as challenging conventional conceptual and methodological approaches within both, psychiatry and the social sciences (Bieler 2021). Drawing on two consecutive ethnographic case studies in Berlin, I will elaborate how an ecological conceptualization of urban encounters draws attention to infrastructural uses and the emergence of atmospheres, rather than studying social interactions and networks or environmental exposure. Moreover, I will give insights into how I translated my observations and analysis into the design of a quantitative survey, and reflect on the possibility to "make better numbers" (Roberts 2021) based on ethnographic problematizations.

47 'Perseverance in skilled technical practice: the role of motivational, material and institutional settings' by Fernando Pasquini (Fellow at Kate Hamburger Kolleg: Cultures of Science - RWTH Aachen University, Professor of Biomedical Engineering at Federal University of Uberlândia / Brazil)

Contribution abstract What makes scientists and engineers dedicate so much time and effort in establishing facts and machines? How do they negotiate this technical practice with other everyday activities and roles - for example, missing food and sleep when solving a mathematical equation or debugging code? And how can this practice, at some times, become self-contained in a way that excludes its wider ethical and social implications? We review some previous literature on these themes and argue that an examination of the virtue of perseverance can be an useful starting point, although it needs also to be connected to a philosophy of skilled practice (Hubert Dreyfus, Mark Coeckelbergh) and an analysis of contextual factors that could foster this virtue or degenerate it into vices of capitulation or recalcitrance. We argue that social, linguistic and material infrastructures work together with communities of experts to configure their perceptual fields and an emplotment of actions and events so that these may be viewed as circulating among different places. And we illustrate this point by directing attention to the phenomenon of the digital object as a particular way of organizing this circulation and the risks that it presents in diminishing it, thus giving way to the widely discussed tunnel vision of experts.

48 'Circulating glossy images, scientific facts, and sociotechnical fear: A controversy around the public understanding of 5G' by Nona Schulte-Römer (Institute of European Ethnology, Humboldt-Universität zu Berlin

) and Brett Mommersteeg (Institute of European Ethnology, Humboldt-Universität zu Berlin)

Contribution abstract Browsing the internet for 5G, the new mobile communication standard, we find a variety of glossy, but quite abstract computer graphics, most of them depicting bluish cityscapes with translucent canopies of interconnected objects, symbols, and people. The circulation of these images and underlying sociotechnical imaginaries stands in stark contrast to the circulation of risk messages in social and mass media. These controversies reveal that circulating images and statements about 5G, scientific facts and sociotechnical fears do not add up to one big conversation but circulate in rather exclusive communities or circles. In one 'world', 5G is considered as the harbinger of the smart city; and in another 'world', 5G opponents and electrohypersensible people exchange about and fight against 5G, the electromagnetic fields they generate, and the political and economic system that promotes its deployment. In this presentation, we will approach these different worlds and the ways in which knowledge circulates within them symmetrically; at the same time, we will reflect on the challenges of bridging the epistemological gulf that separates these seemingly incommensurable worlds.

Oceanic Forms/Events: Exploring Maritime Flows and Productions of Knowledge (1/2)

Room S03

Panel organised by Indrawan Prabaharyaka (Institute of European Ethnology, Humboldt University of Berlin and Society & Research Center of Area Studies, the National Research & Innovation Agency) and Merdeka Saputra (Marine Political Ecology Group Affiliate at Helmholtz Institute for Functional Marine Biodiversity, DE) and Irina Rafliana (Researcher at German Institute for Development and Sustainability (IDOS)) and Rapti Siriwardane (Leibniz Zentrum für Marine Tropenforschung) and Fadjar Thufail (Research Center of Area Studies, the National Research & Innovation Agency) and Katherine Sammler (Technology, and Sustainability Research at University of Twente, NL and Marine Political Ecology Group Affiliate at Helmholtz Institute for Functional Marine Biodiversity, DE) and Ramona Hägele (Researcher at German Institute for Development and Sustainability (IDOS)) and Intan Nurhati (Deep Sea Research Center, the National Research & Innovation Agency) and Sentiela Ocktaviana (Deep Sea Research Center, the National Research & Innovation Agency and Society & Culture Research Center, the National Research & Innovation Agency) and Annisa Ratri (Deep Sea Research Center, the National Research &

Innovation Agency and Society & Culture Research Center, the National Research & Innovation Agency) and Dewi Zilda (Deep Sea Research Center, the National Research & Innovation Agency) and Muhammad Gemilang (Resilience Development Initiative)

Panel abstract This panel aims to explore the various ways in which contemporary oceanic forms/events shape, facilitate, accelerate, impede, and cancel maritime flows and productions of knowledge–and the extent to which they might be connected to colonial, military, and industrial projects and other teloi. The shapeshifting forms of the ocean are a shared concern in the circulation of matters and information. Seasonal changes, the interaction between various currents, atmospheric exchanges and tectonic irruptions are some oceanic forms shaping terrestrial and maritime knowledge. By paying attention to oceanic forms, one can make visible the non-terrestrial infrastructures and the way they sustain lives and knowledge-making. But unlike a number of forms that emerge from experiments within conventional laboratories and trigger events outside of them, oceanic forms/events generate surprises from without. Understanding oceanic forms/events does not necessarily mean explaining, for instance, how the 25th June 2022 heat wave came across Japan as a singularity. Or how the 2004 Indian Ocean tsunamis were triggered by a singular earth rupture from more than 1000 kilometers away. Instead, it sets to understand how forms of ocean brings together different actors, institutions, and matters into new assemblages and instigate unpredictable changes through such events.

with

49 'Seabed mining and the plume: circulations, turbulence, and material excess' by Sammler Katherine (Technology, and Sustainability Research at University of Twente, NL and Marine Political Ecology Group Affiliate at Helmholtz Institute for Functional Marine Biodiversity, DE)

Contribution abstract Emerging studies on seabed mining have brought attention to global ocean grabs, shifting geopolitics of mineral extraction, and dire environmental states of the sea. One of the many impacts of concern surrounding mining the deep is fallout from sediment plumes that get churned up from machinery on the seafloor or from the dumping of non-target materials back into the sea. Such a plume is the culmination of fine sediment particles suspended in the water column, creating two fluids of different momentums, densities, and viscosities—a challenge for modelling scales of impact. These manifestations can smother and choke ocean flora and fauna. More broadly, some of the most destructive environmental disasters have involved plumes, one material inadvertently unleashed beyond control into another. The mediums of soil, water, and air – solid, liquid, and gaseous states of matter – are often imagined as discrete entities or framed politically and legally as distinct regimes. Yet the oil plume

of Deepwater Horizon, Chernobyl's radioactive plume, or natural gas plume from Nord Stream pipelines all demonstrate how various extractive industries and infrastructures loose dangerous circulations that defy cleanup and span multiple scales. Using seabed mining as a case for developing a spatial, socio-political, and more-than-human theorization of the plume, this paper examines the messy granular, molecular, and porous issues of environmental excess, with a focus on the scales and depths of flows.

50 'Benthic geopolitics: sensing multiple forms of geopolitics in the benthic realm' by Saputra Merdeka (Marine Political Ecology Group Affiliate at Helmholtz Institute for Functional Marine Biodiversity)

Contribution abstract The seabed in Indonesia is busy. The Indonesian government has imposed marine regulations to govern seabed space. Scuba divers placed the substrate from the coral reefs to restore destroyed marine habitats. Tin divers dove into the seabed tin mining pits to collect valuable seabed tin ores. Some could survive the collapsing seabed mining pits, whereas others could not. Offshore tin mining operations deployed an eco-sounder to measure the sea depth, sense, and recover seabed tin ores. Not seldom, each seabed use disputed and conflicted the access to the seabed space. Even though the seabed uses appear messy spatially and temporally, they are mutually concerned with benthic. Benthic originates from the Greek word $\beta\epsilon\nu\theta o\varsigma$ (the depth of the ocean). Nowadays, it refers to anything occurring or associated with the bottom of seas and oceans. Even though thinking with benthic can make visible and sensible the geopolitical significance of the benthic realm, benthic geopolitics is not well-articulated, expressed, and studied. To address this lacuna, this paper unfolds forms of geopolitics existing on the seabed by thinking with benthic (the benthic turn). This analysis not only depicts the sensing seabed activity with human bodies and sensing devices but also accentuates forms of geopolitics often obscured by the depth and materiality of the sea.

51 'Srikandi Bahari: An Exploration of Gender Relations in Marine Knowledge Production' by Nurhati Intan (Deep Sea Research Center, the National Research & Innovation Agency) and Ocktaviana Sentiela (Society & Culture Research Center, the National Research & Innovation Agency) and Prabaharyaka Indrawan (Research Center of Area Studies, the National Research & Innovation Agency; Humboldt University of Berlin) and Ratri Annisa (Society & Culture Research Center, the National Research & Innovation Agency) and Thufail Fadjar (Research Center of Area Studies, the National Research & Innovation Agency) and Zilda Dewi (Deep Sea Research Center, the National Research & Innovation Agency)

Contribution abstract Srikandi Bahari is an interdisciplinary research aim-

ing to study more-than-human gender relations in marine knowledge production. 'Srikandi' is a Hindu-Javanese heroic figure who has a non-binary gender identity, whereas 'bahari' can mean marine-related, beauty, and powerful. By relations, we refer to: (i) human relations, between ilmuwati (Wissenschaftlerin) and ilmuwan (Wissenschaftler); and (ii) between humans and nonhumans, both in specific spatial settings (coast, deep sea, ship, riser, laboratory, modeling workstation, office, and home). This research is important and urgent since it is strongly connected with the endeavor to democratise knowledge and to break the glass ceiling that constrains the participation of ilmuwati in marine sciences. At the same time, we attempt to decenter the all-too-human perspective by accounting the nonhumans that surround the scientists. We propose three analytics for the conceptual frameworks: rhetorics, intersectionality, and relationalities. To operationalise these analytics, we deploy the methodological tactic of collaborative curation which position the scientists as epistemic partners, using three field devices: remediation, responsive scholarship, and collaborative hermeneutics. We expect to conclude the first stage of this research by December 2022.

Contested Conduct shaping Sciences and Societies: Epistemic and Moral Accountability in the Worlds of S&T Research (1/2)

Room S06

Panel organised by Melpomeni Antonakaki (STS Department, TUM)

Moderated by Claudia Mendes (Hamburg University)

Panel abstract In recent years, longstanding questions about proper scientific conduct have gained a new currency, as scientists, policymakers, affected publics and even new categories of aspiring gatekeepers, i.e., 'epistemic activists' of the metascience movement, professionals in misconduct detection or 'science watchdogs', debate the nature of appropriate scientific practice in a wide variety of fields and forums. Controversy often surrounds the so-called "reproducibility crisis" as well as highly visible cases of data fabrication, plagiarism or the overall careless mishandling of research. Debate on public research governance pertaining to its (data and beyond) accessibility, as well as the re-allocation of ownership and control in knowledge production and circulation, have also been sharply criticized, often arising in concert with questions about financial conflicts of interest or cases of 'whitewashing' criminal money and reputations through extremely opaque practices for cultivating research donorship. Debates about gender disparity in citation practices, gender and racial bias in hiring and promoting decisions, and sexual harassment are raising issues that include questions in regards

to epistemic consequences as well as matters of fairness and justice. Although scholarship, policy analysis, and public discussions tend to treat these disparate issues as belonging to different domains, the concept of the panel is premised on the idea that in the present moment, they all share sufficient similarities to justify treating them as members of a common category: debate about the epistemic and moral accountability of specific academic and public research practices. Whether the practice being criticized pertains to data access, financial arrangements, reproducibility problems, or gender justice, prominent voices are challenging academic and research institutions, raising epistemic concerns, demanding accountability, and, in some cases, promoting imaginaries of far-reaching reform. Beginning from the premise that the boundaries of acceptable scientific practice are historically situated and continually revised, this panel invites contributions that engage (but need not be limited to) the following questions: • How do challenges to established research (or its management) practices take shape? How do critics and new technopolitical movements emerge? • How do the boundaries shift and change in regards to what is held as acceptable practice in specific frontier fields of research? To what extent are new knowledge-making techniques implicated in stimulating contemporary debate about appropriate practice? • How do changes in contemporary societies relate to new challenges to extant definitions of acceptable scientific practices? What roles do participatory (media and beyond) cultures occupy in de- and restabilizing of gatekeeping systems and how do they modulate perceptions and orientations about the trustworthiness of contemporary S&T expertise(s)? • To what extent does the intensification of demands for accountability portend the emergence of new "social contracts" for science? This final question, necessarily a speculative one, raises both empirical and normative issues: What kinds of visions of the future of technoscience, its institutions and its sponsors currently circulate amongst us?

with

52 'Updating Scientific Conduct: Economic Epistemologies of Digital Science' by Sebastian Koth (Weizenbaum Institut for the Networked Society (Berlin))

Contribution abstract "Scientific practice is facing unprecedented allegations of fraud and misconduct, prompting movements like Metascience to develop new digital methods and tools designed to come to the rescue. Addressing these problems through digital means seems to make sense, if we understand science as a way of processing information; all the more, when the digital traces generated by working scientists are available at remarkable levels of detail and scale. Following this understanding, the critical scrutiny of who knows what when, how and in which context leads to so-called metaknowledge, which opens up new horizons for bureaucrats, policy makers, and science managers to improve the social, behavi-

oral, and cognitive processes in science. The informatic turn in organizing science sounds promising; but it entails new dimensions of accountability towards science that are problematic in their own rights. In my talk I focus on the economic accounts that science is confronted with in the digital condition.

For this purpose, I draw on my investigation of the "Decentralized Science" innovation community. These innovators are dissatisfied with the current management, organization, and governance of science, and propose alternatives based on blockchain technology. They do not wish to renovate existing institutions and practices. Instead, they envisage a comprehensive digital infrastructure in which embedded scientists pursue their tasks in an open, accountable, and self-determined manner. Today, these infrastructures are at different stages of readiness: some are in the concept phase, some are running as prototypes, and some are implemented and deployed. In my talk I will not go into blockchain technology and its features, but rather the contexts in which it is supposedly applied. By considering the "Decentralized Science" community as yet another instance of science turning digital, I will argue that in taking the ideas put forward by these enthusiasts seriously, we are provided with a foresight into the future developments of platforming science.

Firstly, I consider the design of peer-to-peer markets where scientists are incentivized to exchange scientific services. As an example, I refer to proposals to coordinate the peer review process by auction markets, challenging the current role of academic journals. Secondly, I consider the design of governance instruments that enable the inclusion of new stakeholders. I present the example of a platform on which research funding proposals are co-produced by scientists, investors and entrepreneurs and decided by vote. Thirdly, I consider the design of participatory infrastructures that offer citizens the opportunity to provide personal data for research in a systematic way. Here I will refer to projects that envision the incentivization for patients to collaborate with laboratories and scientists in biomedical research in exchange for financial compensation and decision power.

I conclude that the increasing demands for accountability give leeway for economic epistemologies to update scientific practices."

53 'The si(gh)ting of the Verification Laboratory during the STAP cell replication experiments' by Melpomeni Antonakaki (STS Department, TUM)

Contribution abstract This is an STS study of the replication experiments of the STAP cell phenomenon. I focus on the dynamic siting of the replication laboratories, which declared during December 2014 and September 2015 respectively the STAP cell phenomenon as irreproducible. Particular attention is drawn to how long-standing preoccupations in relation to the democratic governance of either stem cell research, or the reception and handling of misconduct allegations in local institutional contexts, were not only cast as relevant to the regimes

governing the STAP replication laboratories, but radically shaped the where, the who and the what of replication protocols and adjudication forums. Case in point, a special laboratory was designed to house the person deemed originator of the study; someone who had already been found, by an investigative panel, to exhibit sloppy lab management and to have committed publication misconduct. For this reason, she was placed to work at a minimally furnished and equipped, yet 24/7 surveilled laboratory—they called this the Verification Lab. Eventually the irreproducibility of the STAP cell phenomenon was determined not by theory or experiment alone, but critically so through the contestation and reconfiguration, in the public eye, of the regimes that governed the laboratories, the personnel, chosen assays and other material things involved in replication. I show how, under conditions of extreme public scrutiny, the STAP cell phenomenon had to be rendered moot for the sake of the epistemic authority of stem cell researchers. By moot I mean that the STAP cell was declared irrelevant for all practical or theoretical aspects concerning research with human pluripotent stem cells; once that was established, the STAP cell could be cast as a significant 'civic lesson' for the future governance of human pluripotency research.

#54 'Many, instead of Big: Collaboration and the Organization of Trust and Distrust in Big Science' by Bart Penders (Maastricht University)

Contribution abstract In the context of scientific reform (spanning Open Science and Scholarship, reproducibility movements and metascience in general), various proposed improvements to the research process have been put into place. These proposals, or innovations, include preregistration, registered reports, post-re<gistration, (data) sharing infrastructures and -platforms and more. For the most part they are additions to the research process and need not change the epistemic strategies scientist follow (Penders, 2022). However, beyond the 'process-innovations', scientific reform also generated new forms of collaboration towards knowledge making in which novel approaches to harnessing trust and distrust are built into the collaboration. One of these is the Many Labs approach. "Many Labs" is a way of organizing research in many parallel strands: simultaneous replications at scale. The approach embodied a new, not yet fully understood, epistemic and moral ideal for scientific organization and practice. There have been a number of Many Labs studies in the recent past and their number rises as new studies continue to start. Some are actually called "May Labs" (Ebersole et al., 2016, 2020; Klein et al., 2018, 2022) or use similar labels (e.g. ManyBabies (Byers-Heinlein et al., 2020)), while others uphold their epistemic and moral ambition, but use different labels (Open Science Collaboration, 2015). They all involve dozens of research groups and even larger numbers of researchers acting in parallel in pursuit of a single (or small set) of research questions. I will ask How do Many Labs' epistemology and accountability differ from Big Science and

what consequences does this have for the organization, execution and recognition of science and expertise? This modus operandi changes the circulation of (dis)trust, responsibility and expertise in research collaborations. In other words, I hypothesize that this approach to science, de facto encoding distrust into the organization of single studies, acts as a new form of Big Science, in which managerial and bureaucratic expertises complements scientific expertises and different models for collaboration emerge. While research design is in the hands of a methodological elite, other researchers may be cast into the role of research assistants (or such attempts may be made). However, we also expect research practice to be continuously characterized by localized expert judgement despite efforts to create uniform parallel strands.

Environmental STS

Room S11

Panel organised by Stefan John (RWTH Aachen University) and Julia Backhaus (RWTH Aachen University)

Panel abstract The Panel 'Environmental STS' covers a wide range of questions concerning the (co-)production and circulation of knowledge regarding environmental topics. With empirical cases covering forests, food, impact assessments and knowledge infrastructures, the panel brings together a variety of different STS branches and provides relevant perspectives on and contributions to current STS research and discourse.

with

55 'From co-productive difference to co-creative alterity: circulation and reception of an Environmental Impact Assessment report during a socio-environmental conflict in Costa Rica' by Francesc Rodríguez (Brandenburg University of Technology)

Contribution abstract Drawing from postphenomenological philosophical insights, my paper presents an interpretative analysis of a socio-environmental conflict in a manner that aims to reformulate the idiom of co-production, as used in STS, by limiting its scope, while at the same time, widening its interpretative possibilities when used together with the idiom of co-creation. In doing so, my paper both identifies some issues related to the application of the idiom of co-production and explores several scenarios in which the use of the idiom of co-creation may be more appropriate. Offering a mixed-methods approach to integrate discourse analysis with ethnographic methods, the utility of my interpretative schema is exemplified first with the analysis of the circulation and

co-production of knowledge embedded in an Environmental Impact Assessment report, and then the co-creation of acts-of-knowing at the local community level during the reception of such report in the course of a conflict over dam development in Costa Rica. Combining both idioms allows one to see a series of onto-epistemic disjunctures, which, I argue, should have implications for the present and future of environmental decision-making in Costa Rica and other countries where the sustainable development approach has been implemented.

56 'Forest dieback and the circulations of loss' by Ann-Kristin Kühnen (TU Dresden)

Contribution abstract The notion of 'Loss and damage' has long become a central buzzword of climate activist organisation and climate policy. Rebecca Elliott (2018) suggests that social science research on climate change should pay greater attention to the social issues of loss. In doing so, she focuses on loss as an ambivalent phenomenon. Following Elliott, the concept of loss is not only able to illuminate what is being lost and what will be lost, but also what must be lost in the context of the climate crisis. (Elliott 2018: 303f.) However, how are losses socially organised? What counts as collective loss? Moreover, what takes the place of what is lost? Based on initial ethnographic findings from my dissertation project, I would like to trace the circulations of loss associated with the current phenomenon of forest dieback. Recurrent cycles of drought and weather extremes favour the mass reproduction of bark beetles, which lead to the dying of large forest stands in Germany. Monocrop, even-aged spruce stands are particular affected. Their death leaves behind 'haunted landscapes of the anthropocene', whose 'ghosts' (Tsing et al. 2017: 1) point to the capitalist valorisations of nature and power relations that have inscribed themselves deeply into the 'critical zone' (Latour and Weibel 2020) of the planet (Folkers 2020: 559).The losses are manifold. Losses of economic security, losses of biodiversity, losses of tourists, losses of certain forest images. At the same time, the damage to spruce stands is driving new forms of ecological governmentality (Lemke 2021) that focus on mobilising non-human capacities within ecosystems (Lorimer 2018). The paper aims to explore the many facets, translations and (re-)production of loss. It concludes with reflections on the questions and forms of Care that the focus of loss evokes.

57 "'Don't we already know enough to act?": Knowledge infrastructures for actionable knowledge in the context of meadow bird conservation in Friesland.' by Selen Eren (University of Groningen and Technische Universität München) and Anne Beaulieu (University of Groningen)

Contribution abstract [...] Being able to translate the growing stock of knowledge into enough real-world action is often understood as a technical mat-

ter of good science communication or technoscientific leadership (e.g., Bouma 2009, 2015). However, this linear model of science-policy relations has long been criticized, because it assumes a clear-cut separation between science/knowledge and society/policy, the former informing the latter (Lahsen and Turnhout 2021). According to this model, it is a question of communicating a body of knowledge already produced through dominant universalist problem framings and scalable models. An important alternative is to jointly develop actionable place-based knowledge that starts from local relations, concerns and objectives (Krzywoszynska et al. 2020). Taking such calls seriously, we will explore how circulations between different human and more-than-human actors within the knowledge infrastructure (KI) we study are enabled for, and hindered from, producing actionable knowledge. Specifically, we will examine the complex relations between farmers, birds, predators, conservation practitioners, bird ecologists, national and regional policy makers, scientific norms, as well as science and agriculture policies. Interviews with the key human actors of the KI as well as ethnographic data collected during our 3-year collaboration with bird ecologists will inform our analysis.

58 'Knowledge in the making: embodying transdisciplinary moments on organic agriculture in Yogyakarta, Indonesia' by Dimas Laksmana (University of Passau)

Contribution abstract Transdisciplinarity in sustainability research is motivated by the vision of producing societal relevance knowledge that bridges the gap between science and society. The recent practice approach frames transdisciplinarity as a reflexive process highlighting how it is interpreted and implemented in research. This literature demonstrates power relations and agency, in short, politics of knowledge production. Nevertheless, a fundamental conceptual problem is still present in that they reflect on the transdisciplinary experience of the "others", while lacking analysis of one's positionalities. On the contrary, this paper reflects on my experience as a PhD student within a transdisciplinary research project that aims to produce transformative knowledge to assist the transition towards organic agriculture in Indonesia. Through the notion of transdisciplinary moments, I show how the power of institutional discourses, as shaped by transdisciplinary discourse and PhD procedure, conflict with my understanding of research as influenced by anthropology and science and technology studies scholarship. Research, thus, involves "co-presence" that is inter-subjective relations between social subjects and is shaped by "epistemic living space" where the personal is intertwined with the political and epistemic. Based on my fieldwork in Java, I focus on "marketing problem" that exemplifies different scientific valuation of societal issues related to organic agriculture. I argue that transdisciplinary moments highlight politics and ethics of knowledge production and offer a possibility of circumventing, or even transforming, value order that underpins in-

stitutional discourses that govern PhD procedure and transdisciplinary research. However, given the differentiated risk and different evaluation of scientific disciplines, such approach that enables critical reflection may not always be possible, or even desirable.

59 'Circulations of food-related knowledge in the digital realm' by Joachim Allgaier (Fulda University of Applied Sciences)

Contribution abstract Food is a topic that has a very existential dimension but also multiple connections to various academic fields and research disciplines. In STS food is still a rather marginal issue. I am particularly interested in circulations of food-related knowledge in the digital realm. Three foci are of particular interest here. First of all, the question who has relevant expertise in food-related topics. From an analytical point of view, it is not the case that it is nutritional aspects that matter most, but also economical, sociological, psychological, legal and regulatory and many more perspectives do matter and their foci can be on health, sustainability, animal protection etc. and there is very little consensus. There are various relevant forms of expertise about food within academia, also but also far more forms of expertise about food outside academia (e.g. from chefs, organic farmers, restaurant critics, food bloggers, urban gardeners, food industries, NGOs and food activists etc.) that compete with one another to be heard in the economy of attention of the digital realm. Here power is a relevant category for understanding which voices will be heard and which will be marginalized. The second focus is on the concept of translation. Where does the specialised knowledge about food originate and how will it be translated and by whom for instance in various formats in digital media? To answer this question, the concept of infrastructures will be employed for the examination of the resources and available networks that various actors can draw upon in order to circulate their specific food-related knowledge.

60 'BioCDR in local publics. "Natural solutions" and key actors in German carbon removal discourses' by Nils Matzner (Technische Universität München (TUM) and Universität Hamburg (UHH))

Contribution abstract Carbon Dioxide Removal (CDR) – also known as Negative Emissions – received significant attention through several IPCC Reports, the latest certification by the European Commission, and it being part of national net zero strategies. Biobased CDR (BioCDR) methods utilize carbon removal with biomass in schemes such as bioenergy with carbon capture and storage, paludiculture, or afforestation. Experts assess the many trade-offs and risks, however, other publics are less involved in these important debates. This paper aims at analyzing the issues raised in German publics on BioCDR. Three German core regions of BioCDR will be compared by using databases of local news me-

dia (newspapers) and social media (predominantly Twitter). Topics, issues, and key actors are being mapped with network analysis, descriptive statistics, and qualitative coding. An important outcome are how problematic terminologies of "natural solutions" are used for BioCDR and how key actors dominate certain regions.

Circulating Referees – Looking for Irritations with Spaces and Places of Science (Walkshop 1/2)

Room See below 'About the Walkshop Format' for the meeting point; (room S14 has also been reserved)

Panel organised by Sebastian Gallitschke[1] (Institut für Hochschulforschung (HoF) an der Martin-Luther-Universität Halle-Wittenberg), Claudia Göbel (Institut für Hochschulforschung (HoF) an der Martin-Luther-Universität Halle-Wittenberg) and Florian Hoffmann[2] (Deutsche Universität für Verwaltungswissenschaften Speyer)

Panel abstract The panel sheds light on socio-spatial locations and situations of science. In this way, we will also explore different ways in which science studies and higher education research situate themselves. For this purpose, the university rooms will be tentatively extended by a "walkshop", which moves presentations into the public space and enables irritations outside of the conference setting. The tension between autonomy and social relevance is a basic aspect of the social situatedness of the scientific system. For researchers, this manifests in the challenge of reconciling external expectations (as well as potentially personal motivations), for instance regarding participation, knowledge transfer or transformative impact, with the internal experience of the functioning of science. Science studies and higher education research deal with this tension in a variety of ways, e.g. by observing other research communities, being affected as a research area itself, and delivering knowledge to shape such developments. We want to investigate such entanglements between opening and autonomisation especially with a view to the spaces of science. The ideal-typical "place of science" seems to have shifted from the university to the laboratory, and today there are indications of a further spatial differentiation of knowledge production. One can observe a restructuring in the form of new kinds of hybrid spaces, as demonstrated, for example, by the shift from the "laboratory" to the "living lab" (German "Reallabor"). Contributions investigate how tensions between opening science for societal demands and scientific autonomy are addressed, made productive or ignored in different places and spaces of science, both established and newly emerging ones.

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About the Walkshop Format We will realize two walkshops with different topics. **Walkshop 1, 8:30 – 10:30 a.m.**, focusses on the contribution by Alexander Chmelka. We will leave the C.A.R.L. together for a research activity in the public space and explain the goals and procedures of the research format on the way. Before the end of Walkshop 1, we will return to the C.A.R.L. to discuss the results.

Walkshop 2, 11:00 a.m. – 1:00 p.m., is dedicated to the contributions by (1) Gereon Rahnfeld and (2) Benjamin Doubali, Guido Schmidt and Michael Kitzing. We will start from C.A.R.L., briefly introduce the format and goals of the walkshop again and have interventions by the speakers at two locations in the city. After walkshop 2, there is the possibility to have lunch together in the city on our way back. *Participation in just one of the walkshops is possible and welcome.* The walkshops will be designed to be as barrier-free as possible. We are planning to walk for about 20 minutes (one direction). We'll adapt to the weather conditions as much as possible. If you have any inquiries or concerns about participating in the walkshop, please contact the panel organisers. *Meeting point* for both workshops is the main entrace of the C.A.R.L. conference venue indoors.

with

61 'On making vandalism useful for science communication in real laboratories' by Alexander Chmelka (Otto-von-Guericke-University Magdeburg, Germany)

Contribution abstract The identification and investigation of norm deviating actions is indispensable for the social science project of understanding living together in societies. In the mode of their research, social scientists must establish relationships with the researched that enable data collection and intersubjective understanding of the world. In the case of the investigation of allegedly delinquent groups and their deviant actions, this closeness to the researched can be misunderstood as tolerance or even justification of deviations from the norm, which experience has shown to cause irritation. In processes and formats that seek to reconcile scientific and social demands, this sometimes causes tensions and conflicts. Their escalation can lead to the failure of mutual understanding between science and society and reinforce systemic, organisational or institutional boundaries that are believed to be outdated, making current and future collaborations more difficult. In the attempt to harmonise science and society, the voices of norm-compliant actors could be favoured. Science communication would thus contribute to the reproduction of normative attributions and solidify social conditions instead of contributing to the understanding of their construction and making transformations more knowledgeable. The aim of this presentation is to discuss the potential of a specific form of deviance - vandalism - for science

communication and to explore its implementation in real laboratories. The article focuses on illegally placed stickers on objects in public space e.g., on lamps, street signs, posters, billboards, letter and electricity boxes as well as trash bins. The phenomenon occasionally referred to as »sticker vandalism« is initially value neutralised as an object of social science research. The stickers associated with other objects are seen here as mediators of social controversies and attention competitions »on the street«. Both the content of the stickers and their concrete location can provide information about which group addresses which messages to whom. The stickers with the message: "Football club X rules here!" or "Antifa zone", for example, which can be seen en masse in a railway station district, indicate territorial claims of certain groups and are a warning to members of the enemy group. A sticker in the form of a medical mouth-nose protection on the election poster portrait of a healthcare politician, on the other hand, can be interpreted as a rejection or advocacy of political decisions and agendas on mandatory masks. The first potentials, but also the limitations and hurdles of such object-sticker formations as a data basis for sociographic and discourse-analytical studies are to be experienced by the participants themselves. For this purpose, (illegally) stickered objects in the Aachen city area will be visited in the walkshop and subjected to an initial inspection. Descriptions and ad hoc interpretations will be made and discussed freely and on the basis of a survey form prepared by the lecturer. The speaker will present an overview of survey, presentation and evaluation methods as well as results derived from his own experiments in the urban area of Magdeburg. Together, the potentials and limitations suggested by the participants' initial experiences can be discussed in more depth. At the end of the presentation, the speaker will present a virtual prototype that attempts to make the phenomenon of sticker vandalism usable for science communication processes. The insights gained from the feedback of the participants are expected to flow into the development of a real laboratory in the context of an urban medical technology high-tech centre.

Die Fabrikation und Zirkulation von ‚Bildung'. Zur Reflexion bildungsbezogener Kernthemen aus Perspektive der Science and Technology Studies. (1/2)

Room S09

Panel organised by Julia Elven (Friedrich-Alexander-Universität Erlangen-Nürnberg) and Susann Hofbauer (Helmut-Schmidt Universität, Fachbereich Erziehungswissenschaft)

Panel abstract Das Panel lädt zu einer Reflexion der akademischen Bearbeitung zentraler bildungsbezogener Themenfelder, Gegenstände und Begriffe aus einer durch die Science and Technology Studies informierten Perspektive ein. Vom Standpunkt der STS aus betrachtet, geraten dabei nicht so sehr Ideengeschichte und epistemologischer Aufschluss als vielmehr die wissenschaftspraktische Herstellung interdisziplinärer und disziplinspezifischer Kernkonzepte und (Denk)Schulen, aber auch von Problemstellungen, Forschungsgebieten etc. in den Blick. Liegt der Interessensfokus auf dem konkreten, kontextbedingten Modus der Produktion und Zirkulation, ist nach den Technologien der Herstellung und Weitergabe, nach produktiven und distribuierenden Praxisensembles, Netzwerken und Aktanten, nach Machtdynamiken in definitorischen Konkurrenzen bzw. Interferenzen, nach diskursiven Hegemonien und blinden Flecken, nach Polysemien, aber auch nach Begriffsgenealogien zu fragen. Die STS betont beim Vergleich differenter Begrifflichkeiten wie auch bei der Betrachtung von deren Zirkulation und historischen Entwicklung, die praktische Fabrikation, Vieldeutigkeit und Kontingenz von ‚Bildung', ‚Erziehung', ‚Lernen' etc. Das Panel soll der Auslotung bzw. Entfaltung STS-spezifischer Zugänge in Themenbereichen der Bildung und Erziehung dienen.

Teil 1: Hegemonien, Konkurrenzen und soziale Ungleichheiten
Teil 1 des Panels beschäftigt sich dabei insbesondere mit den Hegemonien, Konkurrenzen und Interferenzen in der (diskursiven) Herstellung und Zirkulation bildungsbezogener Interessensgegenstände. Die STS erhellt nicht zuletzt auch machtanalytische Aspekte: Die Herausbildung und Zirkulation hegemonialen Wissens, die Durchsetzung bestimmter Theorietraditionen oder die Ausdehnung einzelner Forschungsmethoden müssen in ihrer Kontingenz reflektiert werden. Dies gilt insbesondere auch auf konzeptioneller und begrifflicher Ebene: Gegenstände und (Kern-)Konzepte zeichnen sich trotz ihrer z.T. erheblichen definitorischen Strenge immer auch durch eine Unschärfe der Bedeutung bzw. Polysemie aus, die gerade durch den Anspruch wissenschaftlicher Exaktheit verdeckt wird; sie wirken dabei aber durchaus zentrifugal, helfen, eine richtungslose Zirkulation zu korrigieren (Keiner 2019) und eröffnen nicht zuletzt den Spielraum für Umdeutungsprozesse. Die Beiträge gehen den globalen Durchsetzungskämpfen um die machtvolle Etablierung und Perpetuierung von bildungsbezogenem Wissen sowie Technologi-

en der Wissensproduktion nach. Dabei verweisen sie nicht nur auf die Situiertheit (Haraway 1995) erziehungswissenschaftlichen und edukativen (Bildungs-)Wissens, sondern auch auf die hierin eingelassenen Macht- bzw. Herrschaftsstrukturen, die sich in der selektiven Wahrnehmung (und Nicht-Wahrnehmung) von zirkulierenden Wissensangeboten ebenso ausdrücken, wie in der Definition von Bildung und Kompetenzen.

Literatur:

Haraway, D. (1995). Die Neuerfindung der Natur. Primaten, Cyborgs und Frauen. New York: Campus. Keiner, E. (2019). 'Rigour', 'discipline' and the 'systematic': The cultural construction of educational research identities? European Educational Research Journal, 18(5), 527-545.

Teil 2: Technologien, Praxisensembles und Materialitäten Teil 2 des Panels beschäftigt sich dabei insbesondere mit den Technologien, Praxisensembles und Materialitäten der Produktion wissenschaftlichen Wissens zu Bildung und Erziehung: Dass entsprechende Interessensgegenstände und Konzepte aufgrund ihrer vorwiegend geistes- und sozialwissenschaftlichen Bearbeitung gemeinhin nicht zu den technologieintensiven Disziplinen zählen, verkennt, dass auch bildungswissenschaftliche Praktiken maßgeblich auf Technologien, d.h. auf Verfahrensstandards und einer instrumentellen Rationalität basieren (Häußling 1998). Zudem bringt die interdisziplinäre Auseinandersetzung mit ‚Bildung' etc. beständig Aktanten wie z.B. Publikationsorgane, oder Analysesoftware hervor, die maßgeblich an der Hervorbringung der Interessensgegenstände und Wissensbestände mitwirken, bislang allerdings wenig Beachtung finden. Die Beiträge setzen sich ethnographisch und historisch mit der Bedeutung auseinander, die Forschungsmethoden, Techniken der Wissensaufbereitung und -weitergabe, Modi wissenschaftlicher Praxisreflexion, Praktiken der Evaluation, Selektion, Kanonisierung etc. in ihrer spezifischen Materialität und Technisiertheit für die Herstellung, Reproduktion und Transformation bildungsbezogenen und bildungswissenschaftlichen Wissens entfalten.

Literatur:

Häußling, R. (1998). Die Technologisierung der Gesellschaft. Eine sozialtheoretische Studie zum Paradigmenwechsel von Technik und Lebenswirklichkeit. Würzburg: Königshausen & Neumann.

with

62 'Global zirkulierende Bildungskonstruktionen und differente emergierende Bildungskonstellationen in der minority und majority world. Das Beispiel Benin.' by Iris Clemens (Universität Bayreuth)

Contribution abstract Bildungsinstitutionen wie -konzepte und -praktiken zirkulieren vermutlich schon immer global, mindestens innerhalb von Kontexten, die miteinander (ob nun direkt oder indirekt) in Berührung kamen. Entgegen Narrativen einer zunehmenden Homogenisierung führt auch die heutige globale Zirkulation von spezifischen Bildungskonstruktionen zu stark differierenden Bildungskonstellationen in unterschiedlichen Kontexten. Ich möchte in meinem Beitrag die unterschiedlichen Konstellationen, die die spezifische Bildungsinstitution Schule (und nachgeordnet Hochschule) und das damit korrespondierende Bildungskonstrukt in der minority und der majority world (Dasen & Akkari) herstellen, hinsichtlich einiger Aspekte gegenüberstellen und wesentliche Differenzen in der Zusammensetzung herausarbeiten, um unterschiedliche emergierende Netzwerke zu beschreiben. In der minority world besteht die Konstellation u.a. aus a) den absichernden Imaginationen (stories mit White) wie Employability, also in diesem Kontext emergierenden Zukunftsimaginationen der Anstellung auf dem Arbeitsmarkt. Die Imaginationen orientieren sich an einem konkreten Arbeitsmarkt der Firmen und Anstellungsverhältnisse. Dieser Arbeitsmarkt stellt unter der Voraussetzung bestimmter Bildungsabschlüsse mit akzeptabler Wahrscheinlichkeit eine Anstellung zur Verfügung. b) Bildungsinstitutionen und Bildungszertifikate, die den Zugang zu einer Anstellung mit ausreichender Wahrscheinlichkeit herstellen. In den vorhandenen Bildungsinstitutionen werden – ob nun im offiziellen oder heimlichen Lehrplan – Praktiken angeeignet, die sich auf dem Arbeitsmarkt in Lebensunterhalt umsetzen lassen. c) einer Wirtschaft, in der es konkrete Unternehmen in ausreichender Anzahl gibt, die potentielle Arbeitgeber für die mit den Bildungszertifikaten ausgestatteten Bildungsabsolventen sein können. Die konkret erworbenen bzw. erwerbbaren Bildungszertifikate können von einer Mehrheit zu einem Übertritt in die Erwerbstätigkeit genutzt werden. Die instrumentelle Rationalität dieses spezifischen Bildungskonzeptes mit seinen korrespondierenden Bildungsinstitutionen und -praktiken funktioniert hier ausreichend genug und häufig genug, um bis auf weiteres zu zirkulieren und kontinuierlich hervorgebracht zu werden. Ganz anders jedoch in der Konstellation II: majority world. Insbesondere in ehemals kolonialisierten Kontexten erfolgte die Zirkulation des Konzeptes von Bildung und ihren Konzepten und Praktiken über Unterdrückung, Repression und Aufoktroyieren. Entsprechend wurde z.B. in Indien ein Bildungssystem implementiert, dass den wirtschaftlichen Interessen der auf totale Ausbeutung bedachten East India Company Rechnung trug. Es wurden beabsichtigt minderwertigere Bildungsinstitutionen, orientiert an einer Minimalform des Bildungskonzeptes der unterdrückenden Koloniealmacht, installiert. Diese Bildungskonzepte, -institutionen und -praktiken emergierten entsprechend

nicht aus den lokalen Konstellationen, sondern von Beginn an unter den Bedingungen extremer globaler Zirkulationsprozesse (wobei ausdrücklich eingeschlossen wird, dass auch Bildung in der minority world ein Produkt kontinuierlicher globaler Zirkulationsprozesse ist). Anhand des Beispiels Benins (Westafrika) und einer ausgewählten Bildungskonstellation möchte ich anhand der eingeführten Aspekte die sehr unterschiedlichen Akteure dieser Bildungskonstellation beschreiben und Unterschiede zwischen instrumentellen Rationalitäten und Netzwerkfigurationen deutlich machen.

63 'Struggling for control oder dance of negotiation? – Neue Impulse für die Analyse von Machtverhältnissen bei der Transmission von global zirkulierenden Bildungskonzepten' by Theresa Vollmer (Universität Bayreuth)

Contribution abstract Die Transmission und Durchsetzung von global zirkulierenden Bildungskonzepten geschieht in hierarchischen sozio-kulturellen und materiellen Machtverhältnissen. Ströme von Wissen und anderen Ressourcen – wie beispielsweise Geld – fließen ungleich: Sie werden aktiv (oder passiv) gestoppt, bewusst (oder unbewusst) umgeleitet, selten aber fließen sie nur in eine Richtung, sondern in viele unterschiedliche (zuweilen konkurrierende) Richtungen (Raina 2009, 2011, 2016). Machtverhältnisse im Zwischenmenschlichen sind von jeher Forschungsgegenstand verschiedener Disziplinen und Wissenschaftstraditionen (wie bspw. Foucault [1977]/2014, Foucault 1994a+b; Arendt [1970]/2015; Callon 1986; Latour 1986) und rückten jüngst wieder vermehrt in den erziehungswissenschaftlichen Fokus. Die Erforschung von sozio-kulturellen und materiellen Machtverhältnissen ist gerade auch aus interdisziplinärer Perspektive hoch interessant (z.B. Gamper 2017). Dieser Vortrag möchte einen Beitrag zur Theorieentwicklung leisten, und dabei einerseits eruieren wie Machtverhältnisse interdisziplinär neu konzeptualisiert werden können, andererseits aber auch Berührungspunkte von Erziehungswissenschaft mit Theorien der Science and Technology Studies (STS) offerieren. Dabei wird versucht möglichst postkolonial-sensitiv (Bhambra 2014; Woldegiorgis 2020) vorzugehen und posthumanistische Perspektiven (Pickering, 1993; Barad 2007; Häußling 2020) miteinzubeziehen. Mein Vorschlag ist es, Netzwerktheorie nach White (White 2008) mit Theorieperspektiven der STS zu verknüpfen und Netzwerke als sozio-materiell und kulturell zu denken, vom Begriff des/der Akteur:in abzurücken und eher von Relata oder Knoten zu sprechen. Hierfür bieten die Konzepte der situated knowledges von Haraway (1988), der epistemic cultures von Knorr Cetina (1999, 2007) sowie das Konzept der trading zones von Galison (1997) den Vorteil, dass ein breiteres Spektrum an Knoten in der Analyse berücksichtigt werden kann. Netzwerktheorie nach White (2008) rückt den Fokus auf sozio-kulturelle Einflüsse, die zur Vergrößerung oder Reduktion von Ungleichheit und Handlungsspielräumen in zwischenmenschlichen Beziehungen beitragen. Theorieperspektiven der STS bieten schließlich den weiteren Vorteil auch materielle Einflüsse berücksichtigen zu können. Dies wird anhand

von empirischem Forschungsmaterial zur bisher einmaligen Teilnahme Indiens an der OECD PISA Studie 2009 aufgezeigt und diskutiert.

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64 'I got 99 books (but I'm rich for some) – Die Operationalisierung von ‚sozialer Ungleichheit' als Kontext für die Erhebung von computer- und informationsbezogenen Kompetenzen im Rahmen der international vergleichenden Schulleistungsstudie ICILS 2018'

by Felix Büchner (Leibniz-Institut für Bildungsmedien | Georg-Eckert-Institut) and Stefanie Jäger (Universität Innsbruck) and Till Neuhaus (Universität Bielefeld) and Samuel Kähler (Universität Gießen) and Natascha Shalutkevich (Universität Frankfurt)

Contribution abstract Internationale vergleichende Schulleistungsstudien haben sich in den letzten 20-30 Jahren als zentraler Einflussfaktor für die Ausgestaltung von schulischen Bildungsprozessen etabliert (vgl. Martens, Niemann & Teltemann 2016). Sie haben zu einer immensen Prominenz und Relevanz von Bildungsstandards geführt und dadurch ein Umdenken auf nahezu allen Ebenen schulischer Bildungsprozesse geführt (Neuhaus/Vogt 2021). So zeichnet sich bspw. die – insbesondere durch die von der OECD durchgeführten PISA-Studie hervorgebrachte (vgl. Tröhler 2016) – Orientierung an ‚Kompetenzen', unter anderem in der Gestaltung von Unterricht, in der Ausbildung von Lehrkräften, in den curricularen Vorgaben einzelner Fachdisziplinen sowie auch in den Forschungsprogrammen der Erziehungswissenschaft ab (vgl. Hartong 2012). Die Logiken internationaler Bildungsstandards sind in diesem Sinne tief in das Selbstverständnis von Bildungsforschung und Bildungspraxis eingeschrieben und aus diesem kaum mehr weg zu denken. Was heute als ‚Bildung' gilt, ist entsprechend maßgeblich durch die internationale Zirkulation von Bildungsstandards durch und über internationale Vergleichsstudien konfiguriert. Standards sowie die damit assoziierten Vergleichsstudien und Rankings können damit als wirkmächtige Technologien (Brankovic, Ringel & Werron 2018) zur Durchsetzung von (Partikular-)Interessen konzeptualisiert werden (vgl. Kahmens/Benavot 1991). Bezüglich der eingeschriebenen Ideologien sind insbesondere Bildungsstandards, -rankings und Vergleichsstudien bislang noch unterbefragt (vgl. Neuhaus, Jacobsen & Vogt 2021). Nach dem (fragwürdigen) Erfolg der PISA Studie wundert es daher nicht, dass auch der Umgang von Schüler:innen mit digitalen Medientechnologien entsprechend dieser Logiken auf den Prüfstand gestellt und mithilfe von Standardisierung und internationalem Vergleich erfasst wird. Die international vergleichende Schulleistungsstudie ICILS (International Computer and Information Literacy Study) nimmt dabei eine zentrale Rolle ein, indem sie nach 2013 auch 2018 die so-

genannten computer- und informationsbezogenen Kompetenzen von Achtkläss-ler:innen zu erheben versucht hat. Von der IEA (International Association for the Evaluation of Educational Achievement) durchgeführt und dem BMBF gefördert, genießt diese Studie eine enorme öffentlich Autorität und institutionelle Legitimation. Dieser Beitrag befragt die ICILS 2018-Studie mit einem kritischen Blick auf besagte Standardisierungsdynamiken. Dabei gilt ein besonderer Fokus den ‚Kontexten', die für die Formulierung 2 von vergleichbaren Schulleistungen (Kompetenzen) einbezogen bzw. nicht einbezogen werden. Exemplarisch wird im Rahmen des Vortrags der Kontext ‚Soziale Ungleichheit' kritisch betrachtet. Obwohl ein in der Erziehungswissenschaft zentraler, viel diskutierter und keineswegs einheitlich definierter Referenzpunkt (vgl. Krüger et al. 2010), ist seine Konstruktion in internationalen Vergleichsstudien wie PISA oder eben ICILS keinesfalls selbsterklärend. ‚Soziale Ungleichheit' muss in entsprechenden Studiendesigns zunächst operationalisiert – also auf eine bestimmte Art und Weise konstruiert – werden, um erhoben werden zu können. Diese Operationalisierung ist kontingent und u.a. von disziplinären Logiken, forschungspragmatischen Rahmenbedingungen und institutionellen Machtdynamiken abhängig (vgl. u.a. Eckhardt/Mattmüller 2018). Die zentrale Forschungsfrage dieses Beitrags lautet demzufolge: Wie wird ‚Soziale Ungleichheit' in der internationalen Vergleichsstudie ICILS 2018 als ‚Kontext' für computer- und informationsbezogene Kompetenzen konzeptualisiert? Hiermit wird der Anspruch verfolgt, die im Rahmen der Vergleichsstudie geleistete (Re-)Interpretation von ‚Sozialer Ungleichheit' zu befragen, in seiner Genese nachzuzeichnen und Leerstellen aufzuzeigen. Der Beitrag wird von dem DGfE-geförderten Doktorand:innennetzwerk ‚Kontextanalyse' vorgeschlagen, dessen übergeordnetes Ziel die Konzeptualisierung von ‚Kontext' als erziehungswissenschaftliche Analysekategorie ist. Neben der ausgeführten Reflexion über den Kontext ‚Soziale Ungleichheit' in der ICILS 2018-Studie zielt der Beitrag entsprechend ebenso auf eine grundsätzliche Diskussion von ‚Kontext' ab.

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Found problems and found practices in science (1/2)

Room S12

Panel organised by Sophia Efstathiou (Department of Philosophy and Religious Studies, Norwegian University of Science and Technology, Norway) and Robert Meunier (IMGWF, Universität zu Lübeck, Germany)

Panel abstract STS scholars have developed conceptual tools to address situations where scientific research interfaces with other areas of practice, i.e. other scientific fields or other areas of human activity like medicine, agriculture, industries, trades, public services, arts, etc. Among them are nomadic concepts, theory-methods packages, boundary concepts, and boundary objects, as well as trading zones, social arenas, or ecologies of practice. All these frameworks address the circulation of elements of discourse and the spaces in which this circulation unfolds. This open panel features contributions reflecting on the framework of found science. Found science serves similar purposes as the mentioned frameworks but emphasizes a particular trajectory where elements are found by scientists outside of their own context, are noted as as interesting, and subsequently become founded as constituents of the science in question. The concept was inspired by an analogy to found art (Efstathiou 2012). The object trouvée of found art typically moves into an artistic context from a realm of everyday usage. Yet found objects acquire (and lose) meaning by becoming founded in new milieus and practices. Thus, the famous art piece Fountain is no longer properly speaking a urinal: It is a found art piece, or equivalently, a urinal founded (appropriately positioned, named, exhibited, etc.) in a context of artistic practice/use. Through this process of finding and founding, objects acquire new significances and yet still signify based on associations with milieus they originate in. Found science uses this as a model to think about the interfaces of scientific practice with other practices and specifically about introducing ideas or elements from other contexts into science. For example, everyday ideas like race, wellbeing, or knowledge, can be picked up as interesting for scientists and founded (articulated in appropriate scientific terms, operationalised, measured, published, etc.), and thereby transfigured into

scientific concepts. When human population geneticists document individuals' 'race' (Efstathiou 2012, Lee et al. 2021), when development economists estimate nations' 'wellbeing' (Efstathiou 2016), or when data scientists talk of extracting 'knowledge' from articles (Efstathiou et al. 2019), they are working with non-scientific ideas founded into scientific fields: these founded concepts are not the ideas of the original context anymore, but they can purport to speak back to problems in these contexts through science.

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#65 'Founding the human microbiome ' by Robert Meunier (IMGWF, Universität zu Lübeck, Germany)

Contribution abstract The paper uses the Global Microbiome Conservancy as an example of a research programme that incorporates a number of objects, concepts, practices, and problems that belong to different social, historical, and disciplinary contexts. These elements can thus be said to be found by the researchers. Their colligation in scientific narratives and their material assemblage in scientific practice constitute a process of founding, in which these elements, through their mutual relations and relations to established scientific objects, concepts, practices, and problems, become meaningful in the emerging research programme. In the case at hand, researchers collect fecal samples from global populations (finding) and turn them into research materials representing the diversity of the human gut microbiome (founding). By doing so, they also adopt practices from natural history and physical anthropology (finding) and with them a number of moral pitfalls, which they aim to consciously address to develop a method that meets best practice standards for an inclusive science (founding). Finally, researchers address concrete problems from the medical realm, such as increased incidence of inflammatory bowel disease associated with industrialized life-styles (finding) in order to produce 'actionable' results for biomedicine (founding).

66 'Attention quantified: the neuroscientific discovery of attention' by Zsófia Samodai (Independent scholar)

Contribution abstract In late modernity, the concept of attention has proliferated through a number of scientific disciplines, assuming multiple definitions in the process. As the investigation of attention came to occupy an important role in cognitive science, neuroscience and psychiatry, a multitude of behavioral, neuroimaging and clinical tools were developed for the purposes of assessment and legibility. Attention (and its deficiency) had come to be quantified through neuropsychological tests, conceptualized as a brain activity pattern, and evaluated through clinical guidelines, to mention a few. These developments have created a ground for new fields of scientific expertise, offering various technological fixes and business solutions. For example, upon the neuroscientific quantification of attention, the field of neuromarketing emerged out of the application of neuroscientific knowledge into marketing processes. Similarly, the concept of attention economics views attention as a scarce resource, informing design-related disciplines of information technology, such as user interface design. On the other hand, technology and engineering fields have designed technological artifacts, such as neurofeedback, VR and eye-tracking tools with the goal of enhancing attention. This research intends to outline how the concept of attention was founded into cognitive science and neuroscience, and how its quantification gave rise to new problems and solutions in technology and business-oriented disciplines. Moreover, I will trace how knowledge and artifacts created in these disciplines feed back into neuroscience, exerting an influence over its research directions.

67 'The concept of found science and its implications for science education' by Sein Shin (Department of Biology Education, Chungbuk National University, Republic of Korea) and Jun-Ki Lee (Division of Science Education, Biology Major, Jeonbuk National University, Republic of Korea)

Contribution abstract The concept of "found science" has the potential of providing insights for science education. When the concept was originally suggested by Efstathiou (2012), it was mainly referring to the finding and founding of scientific meaning of particular concepts by scientists in the scientific context. We suggested that the concept could also be applied in science education, by focusing on finding and founding by various subjects, such as science teachers or students. The significance of the concept of found science lies in its potential for shifting the usual perspective of science education, which has focused on specific scientific knowledge or practices, toward broader perspectives on historical/contextual trajectories of knowledge or practices which came to be 'scientific'. Here, one question is highlighted: how did the abundance of knowledge and practices that are currently explicitly or implicitly addressed in science education, come to be called "scientific?" Whereas most of the knowledge and practices were ori-

ginally constructed in scientific contexts, others were discovered in non-scientific contexts and further "scientificized" in scientific contexts. This process of finding and founding could be unintentionally occurring in the science educational context, with a typical example of students' "biological conceptualization of race" – particularly, students actively endeavoring to find the scientific meaning of the concept of race, and elaborating their own scientific explanations about it at a cognitive level. In addition, various concepts and practices appearing in science textbooks could also be the consequence of founding. For instance, the concepts of "native/invasive species", have already been found and founded in biology, and those could be continuously transformed by teachers and students. Many concepts, values, and practices in science education could receive new interpretations through the framework of found science. This could lead to the discovery of new educational meanings that are hidden in those concepts, values, and practices.

11:00–13:00: Session slot 3

Experimental democracy (2/3)

Room S01

Panel organised by Jan-Peter Voß (RWTH Aachen University, Chair of Technology and Society) and Stefan Böschen (RWTH Aachen University, Chair of Technology and Society)

Panel abstract From an STS point of view, both science and democracy are "in the making". Major transformations over the last 50 years are discussed under alleged shifts "from mode1 to mode2 knowledge production" and "from government to governance". On both sides this reflects a reflexivization of modern functionally differentiated institutions, a debordering, opening-up and multiplication of hybridized practices. In new arrangements of open and collaborative experimentation (such as living labs, real world experiments, transformative research, sustainability experiments, experimental and polycentric governance etc.) such intertwining of epistemic and political practices is programmatic - but rarely it is reflected which specific practices of science and democracy are nurtured in the context of such processes. The panel "experimental democracy" thus explores ways to study (a) specific practical forms of articulating and validating representations of objective reality (facts, functions) and how they intertwine with (b) specific practical forms of articulating and validating representations of collective subjectivity (wills, interests) in such hybrid arrangements. It is concerned with democratizing experimental ways of shaping collective orders as well as with the ongoing experimental development of democracy itself.

68 'Experimentalising democracy: formats of experimentation in between political discourses' by Stefan Böschen (RWTH Aachen University, Chair of Technology and Society & Human Technology Center)

Contribution abstract Transdisciplinary research has a long tradition of re-exploring the relationship between science and other social fields. It moves in the field of tension of the different academic and non-academic expertise and is constitutively dependent on them. At the same time, this type of research has always been at risk. The reasons are complex and can be bundled (according to Parodi/Beecroft 2021, p. 375) in four deficits that provided the impetus for pushing forward the institutionalisation of transdisciplinary research in real laboratories. These deficits are, briefly formulated, the project-related short-term nature, project planning as a cooperation limitation, fixed research designs that allow too little leeway for adjustments during the process, and finally the circumstance that not only knowledge about, but shaping of transformation processes should take place at the same time. These deficits should be remedied with the

establishment of stable formats for experimentation. However, according as starting point of this presentation, this solution also has its challenges and pitfalls. For such formats of experimentation usually represent complicated, if not complex socio-epistemic structures with their own forms and logics of ordering. For this reason, this presentation aims to elaborate the logics of socio-epistemic ordering by such formats of experimentation and to outline the aligning challenges of democratic theory and democratic politics in more detail.

#69 'Democracy in the making? Living Labs as epistemic and political infrastructures' by Stefan John (RWTH Aachen University, Human Technology Center) and Julia Backhaus (RWTH Aachen University, Human Technology Center) and Gabriele Gramelsberger (RWTH Aachen University, Chair for Theory of Science and Technology & Human Technology Center)

Contribution abstract Living Labs (LLs) are sites of spatially and temporary confined interventions in socio-technical arrangements (Engels et al. 2019). In complex interactions, forms of representing objective reality through scientific facts and technology are co-producing expressions of political will by a selected audience and vice versa. In short: LLs are simultaneously home to political and epistemic representation. Building on the notion of (knowledge) infrastructures (Bowker 2017) and some preliminary theorisations on the structural aspects of LLs (Rose et al. 2019; Schneidewind et al. 2018), this contribution empirically investigates the structuration of political and epistemic representation in and through LLs. Focusing on processes of structuration helps to understand how practices of political and epistemic representation are stabilised through becoming part of a knowledge infrastructure. Since all knowledge is political, LLs require and deserve explicit recognition as epistemic and political infrastructures. Hence we want to ask the question: How are democracy or other ways of doing politics co-produced in Living Labs? To answer this, we analyse the governance and power structures in LLs. Mindful that in each LL the demos and the kratos differ due to their unique setup (Wagner and Grunwald 2019), we seek to identify distinctive commonalities that are characteristic for specific types of LLs. To fruitfully answer our research question, we will make three analytical steps. First we will theorise LLs as epistemic and political infrastructures with a specific focus on concepts and aspects to better understand and trace practices of politics (Brown 2015) such as representation, decision-making, epistemic representation and validation. Based on the emerging analytical framework, we will empirically investigate governance arrangements in six selected Living Labs, either led by a university, the private sector or a public authority. In this second analytical step, we pay specific attention to the institutional set up in terms of transdisciplinarity, approach (problem or solution driven), mode of knowledge production and power structures

(Fritz and Meinherz 2020), particularly in moments of conflict. In a third step we want to compare and contrast our findings to discuss the (co-)production of democracy in Living Labs.

70 'Experiments in scale' by Sebastian Pfotenhauer (Technical University of Munich, STS-Department) and Brice Laurent (Mines Paris Tech, Centre de Sociologie de l'Innovation)

Contribution abstract A fixation on 'scaling up' has captured current innovation discourses and, with it, political and economic life at large. Perhaps most visible in the rise of platform technologies, big data and concerns about a new era of monopolies, scalability thinking has also permeated public policy in the search for solutions to 'grand societal challenges', 'mission-oriented innovation' or transformations through experimental 'living labs.' A key ingredient of this scalability paradigm is its reliance on scientistic logics of experimentation (Pfotenhauer, Laurent, Papageorgiou, Stilgoe 2022), which assumes that solutions to big problems can be established locally and, once proven effective, rolled out society-wide. Building on extant STS literature on scientific experiments, testing and laboratory practices, we interrogate three different sites where scalability logics have firmly taken hold – platform technologies, living labs, and experimental development economics – to explore how experimentalism in tandem with scalability thinking is reconfiguring the modalities of social change in innovation and public policy. We argue that experimentalism and scaling give primacy to privileged visions of social change that favor entrepreneurial solutions and forms of value creation, invading both problem framings and logics of justification. We show how each site reveals distinct challenges to democracy in terms of the legitimacy of interventions and the politics of particular sociomaterial configurations, which furthermore change when shifting different scales. We conclude by arguing that current democracies are relatively ill-equipped to deal with the scalability dynamics envisioned by innovation and evidence-based policy approaches, and suggest that a new set of engagement practices is needed.

71 'Regioning Innovation Policy: The Travels of the German High-Tech Strategy' by Max Priebe (Fraunhofer Institute for Systems and Innovation Research & Radboud University, Institute for Science in Society) and Jeremias Herberg (Radboud University, Institute for Science in Society)

Contribution abstract Mission-oriented innovation policy (MOIP) aims to align sociotechnical innovations with preconceived future goals. While the directionality suggests a politicization of innovation policy, it remains unclear in which arena, how, and with whom missions are debated. In this paper, we report on a consultation process that included seven regional dialogues aimed at exchange and learning for the further development of the High-Tech Strategy (HTS). Our

empirical contribution examines how the HTS moves through spatially dispersed dialogue venues and eventually returns to the sphere of continued policy making. Drawing on an interpretive analysis of field notes, interviews, policy documents, and secondary literature, we examine an institutional and interactive practice that we call the "regioning" of innovation policy. We show how different publics are created but no constitutive field emerges to discuss, let alone politicize HTS missions.

Epistemic dizziness: Coping with the side effects of the fast-paced circulation of metaphors and figures in STS (1/2)

Room S02

Panel organised by Britta Acksel (Institut für Medienwissenschaft, Ruhr-Universität Bochum) and Jonna Josties (Institut für Europäische Ethnologie, Humboldt-Universität zu Berlin) andMaxime Le Calvé (Cluster of Excellence »Matters of Activities«, Humboldt-Universität zu Berlin)

Panel abstract This panel addresses the vertigo triggered by the intense circulation of ideas and pictures in our research fields. We are inviting proposals that toy with the discomfort triggered by proliferating metaphors and figures. We believe that this ambiguous kind of serious fun is a promising path for an engaged while playful anthropology of science and technology. We take up anthropologist Anna Tsing's article "Getting by in terrifying times" (2018), where she writes that "it is important not to let the metaphors and figures make you dizzy." Dizziness may be especially induced by their incessant circulation. Vertigo describes different sensations generally associated with discomfort and unpleasantness, but that are rarely life-threatening: false senses of motion and spinning, a loss of balance, and light-headedness. Yet vertigo is also one of the four fundamental types of play according to Roger Caillois (1961). What can a practice of epistemological vertigo teach us about the current challenge of overflowing ideas, tools, and pictures floating and circling in STS? Are there techniques to grow ourselves out and through this state of off-balance, which we could share and benefit from? How might it be possible to embrace it rather than study against it? Based on our collaborative engagement in the Laboratory: Anthropology of Environment I Human Relations (HU Berlin), we want to overclock the conversations between research on policy and sustainability, on high-tech economy, and on human and planetary health. We invite proposals that address these fields from any disciplin-

ary background and are interested in joining blissful encounters with circulatory epistemic dizziness.

with

72 'Dazed and confused in the ecosystem – Ecological metaphors & the politics of knowledge production' by Jorrit P. Smit (Centre for Science and Technology Studies (CWTS), Universiteit Leiden)

Contribution abstract As heatwaves, bushfires, droughts and soaring energy prices ravaged Europe this summer, it is unmistakable that the climate crisis and related geopolitical unrest will affect societies in deep and unpredictable ways. Business leaders, think tanks, policymakers and academics suggest that these global 'challenges' or 'concerns' require more intense collaboration and exchange between existing actors and institutions, firms, governments and public research institutes. At the World Economic Forum, for example, Wyman consultants argued in the context of the Davos Agenda of 2021 for 'a new paradigm of collaboration: mission-based ecosystems' that would help 'governments and companies transition to a more resilient future' and 'create positive impact on a global scale'. In the face of ecological disaster, also scholars in science, technology and innovation (STI) studies grope for ecological metaphors. It is an open question though, whether this orients or disorients knowledge production, government action and business involvement towards ecological healing. Talk of ecosystems and ecologies might actually risk (further) dazing and confusing our understanding of, and interest for, the politics of knowledge production. Following the asynchronous pace of two metaphorical niches in social studies of STI – ecologies and ecosystems – I will allow moments of daze and disorientation as cues for the problems and potential of these tools for thinking and action. One quickly expanding niche consists of the literature on knowledge, research, innovation and entrepreneurial ecosystems (Valkokari 2015; Scaringella and Radziwon 2018; Järvi, Almpanopoulou, and Ritala 2018). Notwithstanding the enthusiasm with which many in policy, business and scholarly circles embraced the ecosystem metaphor, confusion abounds in this ecosystem-ecosystem due to vague definitions, ill-elaborated biological analogies, superficial additions of 'eco' to everything and abstract ahistorical assumptions built into the underlying evolutionary economics (Papaioannou, Wield, and Chataway 2009; Oh and Phillips 2014). The other niche that I will examine, in a quite different corner of the STS universe, consists of work on ecologies of practice (Stengers 2005; Barnett and Jackson 2019) and associated ideas like the ecological university (Barnett 2017). Bringing these very different species of STI into a potentially awkward conversation with each other can help recognize each its problems and pitfalls, and especially make visible the different ways in which societal value and value creation is operationalized. This, in turn,

will allow reflection on the transformative potential of ecological metaphors for science and technology in a world at crisis.

73 '„Where does an innovation ecosystem end?“: Allowing movement in thinking to open up new vastness.' by Jonna Josties (Institut für Europäische Ethnologie, Humboldt-Universität zu Berlin)

Contribution abstract „The development of the ecosystem concept illustrates the search for order in science,“ writes Frank B. Golley in 1991. Originally applied and used in ecological research, it is now widely taken up in business and innovation studies to frame and capture economic activities in a highly technologized world and an attempt to control dynamics. Based on the supposition that there is such an ecosystem in which to innovate and strive in a particular way, this paper explores what kind of dynamics it allows for and where its potential boundaries are. During my ethnographic research in the Bay Area, I co-llaborated with people who were playfully applying and using the ecosystem to work and live together differently with digital technologies. One of the principles here is that it is always possible to drop in and out of activities, a loose reference to practices by the Bay Area counterculture movement of the 1960s and 1970s that are relevant to the development of tech culture in the region and extended far beyond (Maniaque-Benton 2016). I will speculate on the possibility of tracing these transitions between outside and inside of self-proclaimed innovation ecosystems. Dizziness can be a tool for thinking about this because it is a notion of movement and opens a generative space (Bachelard 2021). The ecosystem is a search for order applied by various actors today, so scholarship may need to do the reverse: reduce predictability or the ability to control by allowing - to use the German word - Taumel (Anderwald, Feyertag, Grond 2017). That means adding movement to thinking by staggering the ordering concepts and regaining control by asking for their endpoints to open up new vastness: „Where does the innovation ecosystem end?“. I will conclude this short presentation by proposing to the audience to engage into an “epistemic dizziness practice” focusing on thinking.

74 'Cloaking ignorance – reflections on researching immaterial absents' by Maja Urbanczyk (Department of Interdisciplinary Studies of Culture, Norwegian University of Science and Technology (NTNU))

Contribution abstract With my presentation I would like to bring nonknowledge and ignorance – and even a more general notion of the non-existent – into thoughts and debates of epistemic dizziness. Relating to my own research, I would like to present and discuss ways of dealing with seemingly overwhelming complexity of studied situations, focussing on how to study nonknowledge and ignorance. In my PhD-project I research nonknowledge and ignorance in decision-making processes regarding the introduction of software to citizens/the

public. This has led me into a journey of reflecting and questioning ways we [social science researchers of all kinds] are trying to get a grip of what is going on in situations of our respective interests. Diving into different kinds of data gathering as well as analysis methods, dealing with very different types of data – regarding their media formats but also their contexts – that need and can be 'puzzled together' has shown me that we need to pay more attention to the links between the present and the absent. In my research, those are the connections between information asked for during the decision-making process and re/presentation/s of not-knowing something. Hence, a central question in my research - which left me dizzy multiple times – is, how to study what one cannot directly observe but suspects of 'being there' and having practical consequences. Taking a lot of inspiration from ideas about how to study materiality without matter, digital 'things' and immaterialism, I explore the combination of my diverse material in analysis through 'cross-referencing' different (types of) data and tying it to the concept of invisibility-cloaking. The diverse chunks of data show me different parts of the studied situation on one hand, and on the other, different (epistemic) perspectives. Needing to consider the implications of those different data-types and the situatedness of the diverse agents in the respective studied situation, I carved out the concept of invisibility-cloaking during my research. It helped me to understand the complex links between present and absent actions, processes and enablings. In this presentation, I want to share and discuss strategies to investigate what might or might not be there.

Circulating values: from what is 'good' somewhere to what is 'best' elsewhere and back again (2/2)

Room S10

Panel organised by Mareike Smolka (RWTH Aachen University) and Maximilian Braun (Technical University of Munich) and Ruth Falkenberg (University of Vienna)

Panel abstract Mobility has recently been described as one of the central conditions of scientific work, in which logics of globalization and the rise of international markets in human capital shift how knowledge production is carried out (Davies 2021). Researchers do not only travel across national borders, but also need to be able to flexibly adapt to and integrate their research with other disciplines, communities of practice, and professional arenas, for instance in light of intensified relations between scientific work, technology development, business contexts and civil society organizations. The circulation of researchers across borders and contexts often builds on the possibility to standardize epistemic prac-

tices, technological skills, and scientific objects, to make them 'fit to travel.' STS research has shown that such travels depend on tinkering and translation to ensure that standards are localized (Lampland and Star 2009). Yet, practices of knowledge production often travel with socio-ethical questions and practices of valuation, which may at times be difficult to translate from one context to another, whereas in other instances, values seem to dominate across contexts (Felt 2017; Felt and Fochler 2010). To inquire into the circulation of values in science from a practice-oriented perspective, we ask: How do values travel with researchers? How are values enacted and adapted locally and how do they transform local practices, subjectivities, and institutions? How and why do some values gain dominance across multiple laboratories, organizations or countries, while others are difficult to sustain once they move out of their local contexts? How can studies on circulating values help us interrogate situated conceptions, narratives, and practices of 'good' research? We invite panel contributors to approach circulating values both with rather observational and more engaged forms of STS research. On the one hand, we are interested in empirical analyses of how researchers' practices of valuation, conceptions of ethics, and narrative accounts of values change over time through circulation, and how such changes are related to transformations of wider normative regimes, epistemic living spaces, and political cultures (Falkenberg 2021; Fochler 2016; Fochler et al. 2016; Sigl 2019). On the other hand, we would like to further investigate how analyses of circulating values could feed into forms of reflexive science governance that integrate societal concerns into technoscientific work (Boenink and Kudina 2020; Poznic and Fisher 2021; Voß et al. 2006). We welcome contributions that aim at "closing the loop" (Sharon et al. 2022) between empirical analyses of what 'good' research is somewhere to ethical reflexivity on what is 'best' elsewhere and back again (Hedgecoe 2004; Pols 2015; Rehmann-Sutter et al. 2012).

with

75 'How what is "good" matters when: Time and temporalities in biobanking practices' by Lisa Ferent (University of Vienna)

Contribution abstract Biobanks are socio-technical infrastructures which collect, store and provide biomedical samples and related data for research purposes. To fulfil this potential, these samples and data are meant to be able to travel over time and space; thus, being stored for a long duration, used somewhere else than they were collected, or by someone who had no part in their collection. This distance – both temporal and physical – between the collection and the usage of samples and data, makes visible one of the main difficulties of biobanking practices: how to cope with the uncertainty of which samples and related data might lead to research and thus be valuable at a later point in time. In hospital-based biobanks situated at medical universities, such samples and data

circulate between many different actors, sites, and institutional contexts. At various moments it has to be decided which samples to collect, which to keep, which to use, and which to give away. Drawing on qualitative interviews (done in the framework of the project BBMRI.at#2) with biomedical professionals at different hospital-based biobanks in Austria, this paper looks at how valuations of samples and data at different moments in time – such as the moment of collecting samples from patients, storing them in a freezer, or providing them to researchers – relate to one another and to understandings of "good" research.

76 'Suspended Responsibility. How machine learning forms and expands a responsibility vacuum in healthcare.' by Theresa Willem (Technical University of Munich)

Contribution abstract Patient outcome is what is considered the success or failure of an applied therapy. It combines patients' lived experiences that are – among others, like e.g., a doctor's skills – affected by the tools doctors use to diagnose or treat a patient. It is therefore argued that the patient outcome should be central to research focusing on new tools for doctors, like machine learning healthcare applications, also referred to as algorithmic decision-support tools for doctors. In this paper we trace the patient outcome's role in machine learning healthcare applications research by investigating an interdisciplinary consortium of computer scientists and clinicians who research and develop machine learning applications for the medical imaging disciplines radiology and dermatology. Applying a grounded theory approach, we (A) trace the genesis context of the project examined in this case study through the ideas associated with the project as expressed by the principal investigators, and captured in the consortium agreement. Its analysis shows how the actions and evaluative practices of the principal investigators, especially in hype-driven domains as AI research, frame the actions of younger researchers and influence their understanding of their roles. We will then (B) turn to the very understandings of the junior researchers own roles and unpack them, in order to trace how the scientists attribute responsibility to themselves within their understanding of their own role. Resting our analysis on these two parts, we will then (C) show an explicit example of the cleft between responsibility for research and application, which we term 'responsibility vacuum'. By analyzing how this vacuum expands with the increasing opacity of technologies under development we will show how it consumes the responsibility for the patient outcome. Finally we will dismantle how calling treating physicians into taking over moral responsibility for individual patient outcomes alone proofs fragile in the case of complex technologies such as diagnostic decision support tools.

77 "'Good' practices in 'good' healthcare robotics research?" by Maximilian Braun (Technical University of Munich)

Contribution abstract A substantial increase in attention and funding opportunities over the last decade heralded healthcare-oriented robotics research a potential solution for contemporary challenges of industrialized societies' healthcare systems (Bundesregierung, 2020; Maibaum, Bischof, Hergesell, & Lipp, 2021). By supporting the emerging domain of "healthcare robot[ic]s" (Riek, 2017; Robinson, MacDonald, & Broadbent, 2014), science policies around the globe seemingly lived up to their responsibilities towards wider society, rendering the work of robotics researchers a kind of labor that can do 'good' to strained nurses, underserved patients and society wit large. While researchers working in the domains of robotics and healthcare seem to willingly assume and perpetuate this role, we still lack concrete investigations into how the 'goodness' ascribed to their research in the funding landscape is translated and demonstrated in research practice. In this work, I will show how researchers in a German healthcare robotics initiative try to hold up and continuously instantiate the moral potential ascribed to their work. I will elaborate on the practices and values they harness to this end and how these practices and values shape discursive, material and temporal dependencies for the researchers involved in the initiative. I will also show how some of these values and practices are sometimes in tension with each other. Finally, I will discuss whether and how continuous expectations to instantiate the 'goodness' associated with healthcare robotics might have the potential to trouble „the freedom younger scientists need to develop as independent investigators" (Hackett, 2005) and as reflexive, moral agents.

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78 'Discussant', by Sarah Davies (University of Vienna)

Circulating futures: On how to analyze, evaluate and shape the circulations of sociotechnical futures and their impacts for the demands of technology assessment (1/4)

Room H10

Panel organised by Jascha Bareis (Institute for Technology Assessment and Systems Analysis (ITAS)) and Christopher Coenen (Institute for Technology Assessment and Systems Analysis (ITAS)) and Torsten Fleischer (Institute for Technology Assessment and Systems Analysis (ITAS)) and Alexandros Gazos (Institute for Technology Assessment and Systems Analysis (ITAS)) and Janine Gondolf (Institute for Technology Assessment and Systems Analysis (ITAS)) and Alexandra Hausstein (Institute for Technology Assessment and Systems Analysis (ITAS)) and Peter Hocke (Institute for Technology Assessment and Systems Analysis (ITAS)) and Andreas Lösch (Institute for Technology Assessment and Systems Analysis (ITAS)) and Dirk Scheer (Institute for Technology Assessment and Systems Analysis (ITAS)) and Jens Schippl (Institute for Technology Assessment and Systems Analysis (ITAS)) and Ulrich Ufer (Institute for Technology Assessment and Systems Analysis (ITAS))

Panel abstract Technology Assessment (TA) is a research and advisory practice, that works with sociotechnical futures like visions, expectations, utopias, dystopias, and scenarios. These futures influence future-oriented decisions and actions by (co-)structuring and (pre-)determining socio-epistemic practices in the present. Because they circulate between different arenas of society involved in processes of innovation and transformation, they become effective means of transformation. Therefore, TA develops and applies a set of methods to (co-)analyze, to (co-)evaluate and to (co-)shape not only these futures, but also their circulations. In doing so, TA aims to contribute to a responsible generation, shaping and use of these futures by minimizing undesired and fostering desirable impact on decisions and actions. The circulating futures serve as essential mediators between different socio-epistemic practices. They are generated for different needs and applied for different reasons. While circulating they are interpreted, translated, and (co-)shaped by their use-cases. TA seeks to assess said transformations in order to study their effects in and on the processes of innovation and the patterns of societal change accompanying them. When futures and their circulation are analyzed in practice, implications and presumptions come to the fore, that can transform traditional research practice. In that, TA is a driver of integrative, interventive or co-constructive research practices when and for interacting with society. The Institute of Technology Assessment and Systems Analysis (ITAS) is organizing this panel for the STS-Hub. The panel is divided in four slots,

which will consist of presentations of ITAS researchers as well as from other contributors from the broad field of STS. The aim is to establish a mutual learning environment, so to engage in the circulation of approaches between the different research practices and research cultures in the communities of the STS-Hub. 1) Theories and methods applied in research and interactive practices on circulating futures (Slot organizers: Andreas Lösch & Jascha Barais (ITAS/KIT) 2) Heuristics (co)shaping the circulation of futures in knowledge productions processes (Slot organizers: Janine Gondolf & Christopher Coenen (ITAS/KIT). 3) Circulating futures in the co-evolution and co-shaping of sociotechnical systems (Slot organizers: Torsten Fleischer, Jens Schippel, Dirk Scheer & Peter Hocke) 4) Circulating Futures by Anticipation: Resilience, Innovation, Complexity and Crisis (Slot organizers: Ulrich Ufer, Alexandros Gazos (ITAS/KIT) & Alexandra Hausstein (ITZ/KIT)

with

#79 'Do Politics with fiction: Circulating imaginaries of military AI' by Jascha Bareis (Institute for Technology Assessment and Systems Analysis (ITAS) Karlsruhe Institute of Technology (KIT) Postfach 3640 76021 Karlsruhe) and

Contribution abstract Images of military AI, also often portrayed as "slaughter bots" or "killer robots" are circulating widely through our society. General public perception is highly influenced by Hollywood blockbusters, fictional works and current fears of the use of autonomous weapon systems in warfare, framing military AI as an alarming threat. Simultaneously, during past years national AI strategies have been popping up all around the globe and position papers concerning military AI have been submitted by states to the UN Convention on Certain Conventional Weapons. These documents are employing a hybrid prose of sober tech-policy, fierce national strategic positioning, and sketch bold imaginaries of national power and social order enabled through AI. Currently, nation states perceive themselves in a constellation of a global AI race competing about economic market shares and military geopolitical advantages. This constellation converts AI definitions in national position papers into strategic political assets. Politicians intentionally craft AI anthropomorphizations through the introduction of loaded concepts such as autonomy, consciousness or intelligence in order to convert AI into a mythical endeavor between fact and fiction. Public and fictional imagery of military AI circulates into political regulatory discourses, creating confusion that leads to a lack of shared understanding of meaning among policy makers concerning AI functioning and impact, blocking the establishment of common ethical standards and legal regulation.

80 'A note on circulations, translations, and entanglements of socio-technical futures' by Poonam Pandey (Post-Growth Innovation Lab, University of Vigo, Spain)

Contribution abstract In this paper I will engage with the material, social, and political entanglements that play a role in circulations and translations of socio-technical futures. Here, the object of such engagements are the visions of 'pro-poor technology' that, in different formats, made media and policy headlines all over the world particularly in the context of nanotechnology a decade back. This paper focusses on the entangled circulation and translation of these visions in national policy, a public scientific laboratory, and eventually a technological start-up in India. The paper looks at the trajectory of the past 15 years of the translation and transformation of the vision of 'pro-poor technology' in the context of Institutionalization of nanotechnology in India, global power dynamics of capitalist techno-science, and the local efforts to produce low-cost nano-enabled diagnostic devices.

81 'Transformative Vision Assessment: Co-Creation of reflexive spaces through circulations and modifications of technoscientific futures' by Andreas Lösch (Institute for Technology Assessment and Systems Analysis (ITAS) Karlsruhe Institute of Technology (KIT) Postfach 3640 76021 Karlsruhe)

Contribution abstract The emergence of new technologies is influenced in research, technology development and societal sectors by future visions, about what a technology could or should contribute to solutions of current societal challenges. They shape communication and decisions in the present and are constitutive in the future-making practices of innovation processes. The most dominant visions are technology-driven and promise to transform society through disruptive technological innovations. In this sense they provide a limited space for future-oriented decision making and reduce the complexity of today's grand challenges. However, there is an urgent need to make responsible and sustainable futures, which enable the anticipation of complex sociotechnical transformations. Furthermore, these visions circulate in communication processes between different stakeholders in science and society. In these processes the stakeholders interpret the visions differently and thus modify them (e.g.; Lösch 2010; Dobroc 2022). This communicative modification of visions is an opportunity to modulate these visions towards more complex socio-ecological future. Based on this insight, ITAS has developed the approach of the "Transformative Vision Assessment". This builds on work that analyses visions in socio-epistemic practices, where the communication of the visions contributes to the re-ordering of knowledge and societal arrangements. This approach seeks to intervene in the visionary discourses of researchers, practitioners and the public to shift the focus from technological visions towards

sociotechnical scenarios. This is archived through participatory scenario building that engages researchers and societal stakeholders to reflect on the multidimensional demands for the development of a technology in society that could meet urgent societal and ecological challenges. The talk discusses this approach as a methodological innovation in responsible future-making practices, based on a vision assessment study that accompanied a big German research cluster on scalable 3D printing (e.g. Schneider et al 2021). Overall, the talk will provide evidence on how we can use communicative circulations and modifications of visions to enable more reflexive anticipatory spaces that give orientation for decisions and actions.

82 'Enacting anticipatory heuristics: A methodological proposal for steering responsible innovation' by Sergio Urueña (University of the Basque Country UPV/EHU Carlos Santamaría D08 Plaza Elhuyar 2. 20018, Donostia-San Sebastian Gipuzkoa (Spain))

Contribution abstract Over the past decade, various normative frameworks that aim to promote more responsible governance of research and innovation in terms of better aligning with society's demands and expectations have emerged. Examples of these frameworks include "Anticipatory Governance" (AG), "Responsible Research and Innovation" (RRI), "Responsible Innovation" (RI), and "Technology Assessment" (TA). Among the common aspects of these normative frameworks is the reliance on foresight or anticipation as a key interventive dimension or instrument. Even though anticipation is recognised as a central tool for promoting more socio-politically responsible innovation, it has not yet been thoroughly investigated. At present, various "anticipatory" methods and practices co-exist, activating different types of engagements with "the future". The presentation aims to review the main challenges that anticipation explicitly or implicitly addresses in AG, RRI, RI and TA frameworks, as well as the respective methodological approaches associated with them. In doing so, I will diagnose a fragmentation in the methodological treatment of the different challenges. Against this fragmentation, a multi-foresight methodology will be proposed. The proposed methodology not only addresses the fragmentation problem by embracing the different challenges posed to foresight/anticipation for promoting more socio-politically responsible technoscientific and innovation practices, but also helps to minimise the uncritical reification of futures.

Oceanic Forms/Events: Exploring Maritime Flows and Productions of Knowledge (2/2)

Room S03

Panel organised by Indrawan Prabaharyaka (Institute of European Ethnology, Humboldt University of Berlin and Society & Research Center of Area Studies, the National Research & Innovation Agency) and Merdeka Saputra (Marine Political Ecology Group Affiliate at Helmholtz Institute for Functional Marine Biodiversity, DE) and Irina Rafliana (Researcher at German Institute for Development and Sustainability (IDOS)) and Rapti Siriwardane (Leibniz Zentrum für Marine Tropenforschung) and Fadjar Thufail (Research Center of Area Studies, the National Research & Innovation Agency) and Katherine Sammler (Technology, and Sustainability Research at University of Twente, NL and Marine Political Ecology Group Affiliate at Helmholtz Institute for Functional Marine Biodiversity, DE) and Ramona Hägele (Researcher at German Institute for Development and Sustainability (IDOS)) and Intan Nurhati (Deep Sea Research Center, the National Research & Innovation Agency) and Sentiela Ocktaviana (Deep Sea Research Center, the National Research & Innovation Agency and Society & Culture Research Center, the National Research & Innovation Agency) and Annisa Ratri (Deep Sea Research Center, the National Research & Innovation Agency and Society & Culture Research Center, the National Research & Innovation Agency) and Dewi Zilda (Deep Sea Research Center, the National Research & Innovation Agency) and Muhammad Gemilang (Resilience Development Initiative)

Panel abstract This panel aims to explore the various ways in which contemporary oceanic forms/events shape, facilitate, accelerate, impede, and cancel maritime flows and productions of knowledge–and the extent to which they might be connected to colonial, military, and industrial projects and other teloi. The shapeshifting forms of the ocean are a shared concern in the circulation of matters and information. Seasonal changes, the interaction between various currents, atmospheric exchanges and tectonic irruptions are some oceanic forms shaping terrestrial and maritime knowledge. By paying attention to oceanic forms, one can make visible the non-terrestrial infrastructures and the way they sustain lives and knowledge-making. But unlike a number of forms that emerge from experiments within conventional laboratories and trigger events outside of them, oceanic forms/events generate surprises from without. Understanding oceanic forms/events does not necessarily mean explaining, for instance, how the 25th June 2022 heat wave came across Japan as a singularity. Or how the 2004 Indian Ocean tsunamis were triggered by a singular earth rupture from more than 1000 kilometers away. Instead, it sets to understand how forms of ocean brings together different act-

ors, institutions, and matters into new assemblages and instigate unpredictable changes through such events.

with

83 'Sakaya Banuaku, Tasi Katuvuaku: The Sailing Boat Race and the Shifting Meaning of the Sea in Post-Tsunami Tawaeli, Palu.' by Gemilang Muhammad (Resilience Development Initiative)

Contribution abstract The effects of the tsunami that struck most of the coasts of Palu Bay in 2018 are still felt to the present day in Bamba Village, Tawaeli District. Not only did the tsunami take the lives of many community members, but it was also changing the environment that they lived in. The appearance of crocodiles on the shores, the destruction of homes and coral reefs, and the declining fish catch caused by the destruction of coral reefs turned the once familiar sea into something unrecognizable and traumatic. As a trauma-healing attempt, several community members and humanitarian activists initiated a weekly sailing boat race that was once held twice every year by fishermen as a trauma-healing effort. This study examines the dynamics of meaning-making by the community in the coastal Bamba Village to their coastal environment. Apart from literature reviews, ethnographic methods which consist of participant observation and in-depth interviews were used to understand the oral history and shifting perceptions of the sea from the community members. This study found that the sailing boat race had influenced the knowledge production and reproduction process of the community members after the 2018 tsunami. The coastal area of Tawaeli which still recovers from the damage inflicted by the tsunami is now being viewed not only as a place for fishermen to look for fish but also as a space to socialize and a site for social reproduction through sailing boat races.

84 'Kampung Laut in Transformation: Gender, Multispecies, and Abiotic Environment' by Hardiah Sofiatul (Department of Anthropology, Universitas Indonesia) and Lisan Iqbal (Climate and Society, Columbia University)

Contribution abstract This paper aims to show an interplay between gender relation and the process of knowledge production of the seascape transformation in Kampung Laut, Cilacap Regency, Indonesia. In Kampung Laut, oceanic transformation caused by land sedimentation has resulted in profound social shifts. The Kampung Laut community, which has traditionally made its life as fisherman, must now transition to farming. Growing rice in alluvial agriculture is difficult because of the risks of crop failure caused by uncertain tidal floods, increased pest and disease levels, freshwater exposure to saltwater, and the threat of climate change that makes it harder to predict the seasons. The Kampung

Laut community has made a number of initiatives, such as attending government "field school", getting transferred technology, and learning about Pranata Mangsa, Javanese traditional knowledge for agricultural farming. However, there was no discernible result from these efforts. In the middle of the challenges they are encountering, they also search for a connection to their former lives with the sea, which were left behind. In order to adapt to uncertain environments, male and female farmers also complement each other's understanding of nature. This study discovers that the Kampung Laut community started to adapt and enhance their agriculture by paying attention to their new terrain and other ecological assemblages. The approach used to collect the data for this paper, which draws inspiration from multispecies ethnography, combines participant observation with the art of noticing through sensory awareness. To bolster the conceptual argument, a literature review was also done. It is interesting to note that gender relationships with related entities – including soil, rice, mangroves, and albasia trees – also influence in reshaping their terrestrial and maritime knowledge.

85 'Wet dreams: Tracing speculative currents of floating aqua-urbanity'
by Siriwardane Rapti (Leibniz Zentrum für Marine Tropenforschung)

Contribution abstract Against the backdrop of relative sea-level change and planetary urbanization, few would question contemporary imaginaries of/around ´floating cities´ - whether as a transformative planning paradigm (in building-with-water), as panacea (to the climate emergency), or as metaphor (to mobile, neoliberal capital). Efforts at building at sea, whether in the context of coastal or deep-sea mining, fuel extraction, or real estate development (e.g. artificial islands) have steadfastly remained features of postwar development and territorialisation. Drawing on architectural anthropology, urban political ecology, and post-normal science (PNS), our presentation seeks to problematize the discursive shift around floating urbanity as a monolithic narrative, whether it concerns the littoral-terra, the surface-amphibious, or underwater. We begin by tracing these often grandiose futuristic dream-visions that seek to reconfigure the very meaning(s) of urbanity, by exploring some of the earliest renditions of the aqua-urban to their present-day articulations, as they unfold across diverse innovation labs, design studios, boardrooms, state planning offices and construction sites, while drawing on a range of cognate concepts – from ´aquatecture´ to ´buoyant´ design – in their wake. Against these ´globalist´ blueprints and assemblages, we scale down to the micro-politics of building on/with water in northern Java, starting with the seemingly modest experiment of a floating library. While the Indonesian archipelago itself encompasses rich vernacular architectures and cultural histories of ´amphibious´ settlement, we explore some of the seemingly more polarizing translocal currents that selectively embrace Euro-American visions (and futurities) of floating built environments, while impacting coastal tenure and livelihood

security. Yet in the same vein, we challenge dualist readings of ´Java-centric´ and their more ´island(ed)´ practices of watery co-existence, the latter which at times remains irreconcilably romanticized.

#86 'Follow the float in murky waters: Joint techno-human forces' by Hägele Ramona (Researcher at German Institute for Development and Sustainability (IDOS))

Contribution abstract When an autonomous submersible buoy for marine carbon observations is deployed into the ocean, there arises a moment of silence, of sadness, of togetherness when everyone who participated in the deployment, both scientists and crewmembers, observe the float disappearing in the vast ocean. These moments allow us to uncover how humans relate to technology and how they encounter the ocean and its capability to store carbon. The multi-sited ethnography follows an autonomous submersible buoy on its journey from idea to manufacturer to deployment to the ocean's surface and seabed to data transfer to data analysis. Conceptually, the study contributes to the "following the thing" research and marine Science and Technology Studies (STS). The research is based on qualitative data collected on a seven-week geomorphological research cruise in the Labrador Sea, as well as at marine sciences institutes in Germany. Methodologically, the study uses ethnographic methods including participant observation, respective field notes, visual anthropology such as photo and film documentation of techno-human interactions, and semi-structured interviews with scientists and technicians. The study finds that neither human-centric, nor non-human centric research foci can demonstrate the complexity of techno-human interdependencies and illustrates the need to follow both, the human and non-human actors as active participants in the co-production of knowledges on marine carbon observations.

#87 'Tsunami Knowledge and the Indonesian Early Warning System' by Rafliana Irina (Researcher at German Institute for Development and Sustainability (IDOS))

Contribution abstract Tsunamis had long co-shape human and non-human coexistence through the submarine ground shakes and troubled sea waves, by which on one hand reconnects the oceans and the terrestrials; and on the other hand, often times deadly. The research observes two folds. First, how tsunami waves are manifested in different knowledge and in different locals, grew to be a globally accepted term endorsed by UN bodies, and co-shape the imagined risk reduction technologies aimed to save human lives. The research revisit modernist and alternative approaches in constructing tsunami knowledge and science in Indonesia, and the power asymmetries it entails, analyzed through multi-sited ethnography. Second, through multi-sited ethnography approaches in Germany and Indonesia, the research delves into the entangled array of discourses and ritual

practices, altogether assembling the tsunami warning system. The second part is taken from fieldnotes and observation at the National Tsunami Warning Center operation room, in Jakarta, Indonesia. Shaped by 19 following earthquake and tsunami events in the past 2 decades after the Indian Ocean tsunami, the operation center evidently demonstrates how not only modern science, but also rituals, hope and anxieties are inseparable from the day-to-day warning operations. Juxtaposing how the technologies were imagined to manage tsunami risks, the research substantiates the capabilities of tsunamis in regulating the human and the non-human. The research places the methodologies as assemblages of moments and memories, conversations, tools, and readings that interact with the researcher and the research object; the tsunami warning system.

Contested Conduct shaping Sciences and Societies: Epistemic and Moral Accountability in the Worlds of S&T Research (2/2)

Room S06

Panel organised by Melpomeni Antonakaki (STS Department, TUM)

Moderated by Claudia Mendes (Hamburg University)

Panel abstract In recent years, longstanding questions about proper scientific conduct have gained a new currency, as scientists, policymakers, affected publics and even new categories of aspiring gatekeepers, i.e., 'epistemic activists' of the metascience movement, professionals in misconduct detection or 'science watchdogs', debate the nature of appropriate scientific practice in a wide variety of fields and forums. Controversy often surrounds the so-called "reproducibility crisis" as well as highly visible cases of data fabrication, plagiarism or the overall careless mishandling of research. Debate on public research governance pertaining to its (data and beyond) accessibility, as well as the re-allocation of ownership and control in knowledge production and circulation, have also been sharply criticized, often arising in concert with questions about financial conflicts of interest or cases of 'whitewashing' criminal money and reputations through extremely opaque practices for cultivating research donorship. Debates about gender disparity in citation practices, gender and racial bias in hiring and promoting decisions, and sexual harassment are raising issues that include questions in regards to epistemic consequences as well as matters of fairness and justice. Although scholarship, policy analysis, and public discussions tend to treat these disparate issues as belonging to different domains, the concept of the panel is premised on the idea that in the present moment, they all share sufficient similarities to justify treating them as members of a common category: debate about the epistemic and

moral accountability of specific academic and public research practices. Whether the practice being criticized pertains to data access, financial arrangements, reproducibility problems, or gender justice, prominent voices are challenging academic and research institutions, raising epistemic concerns, demanding accountability, and, in some cases, promoting imaginaries of far-reaching reform. Beginning from the premise that the boundaries of acceptable scientific practice are historically situated and continually revised, this panel invites contributions that engage (but need not be limited to) the following questions: • How do challenges to established research (or its management) practices take shape? How do critics and new technopolitical movements emerge? • How do the boundaries shift and change in regards to what is held as acceptable practice in specific frontier fields of research? To what extent are new knowledge-making techniques implicated in stimulating contemporary debate about appropriate practice? • How do changes in contemporary societies relate to new challenges to extant definitions of acceptable scientific practices? What roles do participatory (media and beyond) cultures occupy in de- and restabilizing of gatekeeping systems and how do they modulate perceptions and orientations about the trustworthiness of contemporary S&T expertise(s)? • To what extent does the intensification of demands for accountability portend the emergence of new "social contracts" for science? This final question, necessarily a speculative one, raises both empirical and normative issues: What kinds of visions of the future of technoscience, its institutions and its sponsors currently circulate amongst us?

with

88 'Experiences of authors with standards for biomedical publications' by Alexander Schniedermann (Centre for Science and Technology Studies, DZHW)

Contribution abstract Since metascientists and prolific biomedical experts proclaimed the transparency crisis of the clinical sciences in the 1990s, several solutions and attempts to improve scientific reporting have been developed. A notable stream of intervention is the extensive and ever-growing ecosystem of so-called "reporting guidelines". These guidelines provide checklists that define what information about the underlying studies should be given in scientific publications. As means to standardize the genres of the biomedical research literature, such reporting guidelines highlight very specific aspects of clinical research projects and suggest that medical knowledge should be understood and circulated in specific yet similar ways. On their mission to define what transparency is and how to achieve it, reporting guidelines have already left the realm of knowledge production. Implemented into several editorial offices, funding schemes or peer review procedures, they have become an evaluative tool that not only defines how to communicate knowledge but also what type of scientific output can be

transformed into publications, hence academic success. From a traditional STS perspective, such roles and functions are highly susceptible of limiting scientific creativity and the diversity of knowledge, as it has been discussed in related phenomena. However, reporting guidelines seem to paint a more ambivalent picture in this regard. On the one hand, their claim for broad applicability and already observable influence on the gatekeepers of science reduces the autonomy of biomedical sub-disciplines in defining their own methods and standards. In this way, reporting guidelines establish a new power hierarchy between guideline developers and disciplinary researchers and authorities. On the other hand, the checklist-like reporting guidelines promise to make transparency as a quality goal achievable for authors and evaluable for reviewers, thereby creating doable problems. In doing so, they bring a quality criterion into the light that often lies within the realm of individual interpretation. Seen in this light, they can be interpreted as a promising attempt democratize evaluation procedures in science. In order to shed light on this ambivalence and answer the question of how reporting guidelines actually interact with the day-to-day practices of researchers, results from a mixed method study about the PRISMA guideline for systematic reviews and meta-analyses will be presented. Based on a bibliometric analysis that visualizes the who, the when and the where, qualitative interviews with authors reveal the how of guideline usage. Especially the questions at which stage PRISMA entered the process of creating a systematic review and how its rules shaped the process or interfered with the original execution plan shall be addressed. From the background of previous analyses of the guideline's development process, the relation between the problems and tensions envisioned by the guideline's developers and those experienced by its users will be discussed.

89 'Publication Bias in Academic Publishing: Researchers' Accounts of Publication Decisions' by Jacqueline Sachse (Robert K. Merton Center for Science Studies, Humboldt-Universität zu Berlin) and Kristina Eichel (Freie Universität Berlin) and Louis Schiekiera (Freie Universität Berlin & University of Potsdam) and Sophie Müller (Robert K. Merton Center for Science Studies, Humboldt-Universität zu Berlin) and Helen Niemeyer (Freie Universität Berlin) and Felicitas Heßelmann (Robert K. Merton Center for Science Studies, Humboldt-Universität zu Berlin & German Centre for Higher Education Research and Science Studies)

Contribution abstract Publication bias, i.e. selectively publishing only results that favor one's hypothesis, can be seen as a form of questionable conduct in academia. Having an unbiased and complete scientific record is a precondition for the circulation of existing knowledge and the ensuing production of new knowledge. It is therefore crucial that results which meet the field-specific standards of research quality are published in their entirety. The causes of publication bias,

however, are complex, combining individual factors on the level of researchers with more structural causes in the academic publishing system which currently produce incentives that favor some results, i.e. positive and significant results, over others. In order to better understand publication bias, our project aims at identifying field-specific causes and conditions of non-publication. We address the problem by comparing decision making in publication processes in the two fields of clinical psychology and contemporary history. While the former predominantly uses quantitative methods for hypothesis-testing and primarily produces journal articles with multiple authors, the latter predominantly works qualitatively and hermeneutically and values single-author book publications. Using qualitative interviews (n=21), we traced the accounts of individual researchers from different career stages around publication and reception. We focus on the question of where in their complex research and publication processes researchers assign responsibility for publication outcomes, and in how far they assume a moral accountability for their publications. Complementary to the interviews, our methods involve observing team meetings and colloquia, analyzing publication lists and running online experiments with researchers as subjects. Preliminary results suggest that despite great differences in how publishing markets in the two fields are organized, researchers apply similar strategies of placing unpopular results in less prestigious venues. On the one hand, this is reflected in psychologists' journal selection decisions which are mainly guided by the aspiration to publish in high-impact journals, but carefully balanced against the chance of acceptance. In cases of negative results, researchers have lower expectations of acceptance and tend to submit to journals with lower impact factors. On the other hand, historians reported that publishers prefer publications that support existing expectations while being reluctant to accept analytical perspectives unpopular within the scholarly community or to publish politically sensitive research topics due to fears of reputational damage. Historians react by outsourcing those topics and approaches to journals which are generally considered less important venues than book publishers. Additionally, invited publications are very common in the field of history, i.e. books and book chapters often result from networking and personal contacts. This makes it especially hard for early career researchers to gain access to publishers, intensifies the dependence of doctoral students from their supervisors and encourages the displacement of unpopular research approaches. In conclusion, this presentation sheds light on challenges, barriers and biases resulting from established power saturated research practices. It illustrates that publication is a highly complex process with distributed agency, rather than the clear responsibility of specific individual researchers. We invite participants to reflect on what this distributed agency might mean for moral accountability for contested research

practices in different research fields.

Science Studies

Room S09

Panel organised by Anne Koppenburger (RWTH Aachen)

Panel abstract This panel is composed of five empirically driven contributions which are altogether marked by an interest in the circulation of concepts. Starting with a more abstract classification of nevertheless concrete examples of inter- and transdisciplinary research practices under the rubric of circulation the following presentations in this panel will successively narrow down the focus on knowledge transfer via boundary objects like classification systems, concepts or heuristics and its implications for theory development and research practices.

with

90 'Interdisciplinary circulations across the sciences' by Jan Cornelius Schmidt (Senior Research Fellow, Käthe-Hamburger-Kolleg - Cultures of Research, RWTH Aachen University)

Contribution abstract [...] The aim of this paper is to provide a clarification and classification of inter- and transdisciplinarity by referring to concrete examples of inter- and transdisciplinary research practices. It approaches inter- and transdisciplinary practice not through the lenses of "integration" or "synthesis" but through "circulation" and "translation" (as pursued by the open topic panel of the STS-hub). The talk starts by presenting a plurality of motives behind these notions, followed by criteria characterizing the semantic core of the notions, namely (i) the existence of (disci- plinary or academic) boundaries and (ii) the transgression or overcoming of those boundaries. Based on the dialectic consideration of boundaries and with reference to well-established distinctions in the philosophy of science, a plurality of four types of inter- and transdisciplinary circulations is shown: interdisciplinary circulations circulations with regard to (a) objects (ontology), (b) knowledge/concepts (epistemology), (c) methods/heuristic (methodology), and further, (d) problem perception/problem solving. Different philosophical thought traditions can be related to the four types. All four types will be illustrated by examples of research practices that are la- belled "interdisciplinary" [...]

91 'Liquid Expertise' by Silvio Suckow (Wissenschaftszentrum Berlin für Sozialforschung (WZB))

Contribution abstract [...] Based on more than 60 expert interviews with interdisciplinary researchers during my dissertation project, I have developed the concept of 'Liquid Expertise'. On the one hand it describes particularly well how interdisciplinary researchers produce and transfer knowledge e.g. trust building through tolerance of ambiguity and clear communication of differences between acquired knowledge and expert judgements. On the other hand, it shows how the scientific landscape needs to be re-organised in funding and culture in order to promote the formation of 'Liquid Expertise' e.g. implementation of interdisciplinary real-world-laboratories and sustainable career paths that balance epistemic risks.

#92 'Boundary objects as infrastructures of testing' by Vesna Schierbaum (Ruhr Universität Bochum)

Contribution abstract [...] The proposed contribution conceives boundary objects processually as generally open for supplementation and testing. Such supplementations challenge existing methods, standards and models (Schüttpelz 2017, 236-367). The present example shows how boundary objects as „centre[s] of authority" (Star and Griesemer 1989, 398) tie different entanglements of institutional actors together, making it difficult for an active involvement of the public in the knowledge processes these infrastructures enable. However, these approaches hold the potential to question the legitimacy of information systems by raising new categories that are potentially fatal for the existing boundary object (Star 2010, 613-614).

#93 'Circulating between standard and taboo: How race classifications are employed by medical scientists in Germany' by Nils Ellebrecht (Department of Sociology, Centre for Security and Society, Albert-Ludwigs-University Freiburg)

Contribution abstract [...] Against the backdrop of the world-wide circulation of these classification systems, our study investigates how medical scientists in Germany are doing research with the delicate category "race". In doing so, we are particularly interested how these scientists came into contact with these classifications systems and how they handle their foreign origin and adapt their meaning. Our presentation outlines results from a qualitative research study using a grounded theory methodology and a social worlds perspective. The study's starting point was a previous meta-study assessing concepts of human differentiation applied in the German life sciences. From the final corpus of 546 research articles 56 medical papers making use of the term "race" were selected. We examined how the "race" of the study sample had been recorded, conceived, and

employed by the research team. Thereafter, we conducted 15 interviews with authors of these articles.

#94 'The asymmetrical circulation of concepts in STS' by Markus Hoffmann (TU Berlin)

Contribution abstract In STS and other social science fields discussions have been taking place that criticize the asymmetrical relation of theory developed in the West/North and case studies done in the East/South (Law & Lin, 2017; Thompson, 2015). Concepts are circulated one-way out from a center of academic power and applied in contexts outside of their development. This paper addresses this theory-case asymmetry and proposes its empirical operationalization to Japanese STS as a concrete example. I ask three empirical questions to address this issue: First, which concepts are used in Japanese STS publications, where do those come from and on what material are they used? Second, are new conceptual contributions proposed in these publications? And third, how are those contributions used in the English-speaking STS journal discourse? [...] My results show that 1) the majority of the investigated Japanese STS cases studies works with cases from Japan and that they frequently employ Western concepts. 2) These publications often either implicitly or explicitly offer new conceptual tools. 3) Less than a sixth of these offers are put to use by the international STS community. Finally, I will propose explanations for this asymmetry and discuss possible ways to address it.

Circulating Referees – Looking for Irritations with Spaces and Places of Science (Walkshop 2/2)

Room See below 'About the Walkshop Format' for the meeting point; (room S14 has also been reserved)

Panel organised by Sebastian Gallitschke[3] (Institut für Hochschulforschung (HoF) an der Martin-Luther-Universität Halle-Wittenberg), Claudia Göbel (Institut für Hochschulforschung (HoF) an der Martin-Luther-Universität Halle-Wittenberg) and Florian Hoffmann[4] (Deutsche Universität für Verwaltungswissenschaften Speyer)

Panel abstract The panel sheds light on socio-spatial locations and situations of science. In this way, we will also explore different ways in which science studies and higher education research situate themselves. For this purpose, the university rooms will be tentatively extended by a "walkshop", which moves presentations

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into the public space and enables irritations outside of the conference setting. The tension between autonomy and social relevance is a basic aspect of the social situatedness of the scientific system. For researchers, this manifests in the challenge of reconciling external expectations (as well as potentially personal motivations), for instance regarding participation, knowledge transfer or transformative impact, with the internal experience of the functioning of science. Science studies and higher education research deal with this tension in a variety of ways, e.g. by observing other research communities, being affected as a research area itself, and delivering knowledge to shape such developments. We want to investigate such entanglements between opening and autonomisation especially with a view to the spaces of science. The ideal-typical "place of science" seems to have shifted from the university to the laboratory, and today there are indications of a further spatial differentiation of knowledge production. One can observe a restructuring in the form of new kinds of hybrid spaces, as demonstrated, for example, by the shift from the "laboratory" to the "living lab" (German "Reallabor"). Contributions investigate how tensions between opening science for societal demands and scientific autonomy are addressed, made productive or ignored in different places and spaces of science, both established and newly emerging ones.

About the Walkshop Format We will realize two walkshops with different topics. Walkshop 1, 8:30 - 10:30 a.m., focusses on the contribution by Alexander Chmelka. We will leave the C.A.R.L. together for a research activity in the public space and explain the goals and procedures of the research format on the way. Before the end of Walkshop 1, we will return to the C.A.R.L. to discuss the results.

Walkshop 2, 11:00 a.m. - 1:00 p.m., is dedicated to the contributions by (1) Gereon Rahnfeld and (2) Benjamin Doubali, Guido Schmidt and Michael Kitzing. We will start from C.A.R.L., briefly introduce the format and goals of the walkshop again and have interventions by the speakers at two locations in the city. After walkshop 2, there is the possibility to have lunch together in the city on our way back. *Participation in just one of the walkshops is possible and welcome.* The walkshops will be designed to be as barrier-free as possible. We are planning to walk for about 20 minutes (one direction). We'll adapt to the weather conditions as much as possible. If you have any inquiries or concerns about participating in the walkshop, please contact the panel organisers. *Meeting point* for both workshops is the main entrace of the C.A.R.L. conference venue indoors.

with

#95 'From the Laboratory to the Atelier? Circulations, digital media art and the boundaries of participatory science.' by Benjamin Doubali (Institute of Sociology, Johannes Gutenberg-University Mainz) and Guido Schmidt (FMP.studio) and Michael Kitzing (Institute of Sociology, Jo-

hannes Gutenberg-University Mainz)

Contribution abstract Amid a gradually digitalising society, the relationship between science and its social environment is reconfigured. Digital media technologies create a push towards social openness and emerging possibilities for science-specific participation that science policy actors interpret as the democratisation of science. Such media-enhanced forms of participatory science, for example in science communication (blogs, podcasts) or knowledge production (citizen science, crowd sourcing), show that the boundaries between professional science and the general public become increasingly permeable. At the same time, new asymmetries are being produced (Wenninger/Dickel 2019): participation and its opening processes entail tensions in the demarcation between science and non-science (boundary work, Gieryn 1999). Alongside the emergence of new media formats, these processes generate and define new places, institutions, infrastructures, practices and arenas for the production and negotiation of (scientific) knowledge. Media art is a form of medial enhancement that additionally irritates these processes by breaking with circulations, locations, and references of ideal-typical science (Latour 1987) by drawing on cultural-aesthetical practices of world description and the production of social knowledge (Casini 2021). Current works, e.g., (1) use sensor data for moving spatial installations (David Bowen 2011: tele-present water), (2) refer to images, forms and metaphors generated by scientific practices (ecoLogicStudio 2021: GAN-Physarum: Le dérive Numérique). (3) They can also be found in exhibitions contextualised by scientific concepts (ZKM 2021: Critical Zones) or as means of political-ecological activism (Joanie Lemercier since 2019: Projection Rebellion). The intention of such contributions is to make science emotionally tangible and to “amplify” ist impact. Can they therefore be understood as a form of participation through "co-experiencing" (in contrast to participation as communication and co-creation)? What does this mean in the context of digital participatory science, to what extent are boundaries reinforced, dismantled or redrawn? How can such openings manifest spatially? In other words: under what conditions do circulating references of science move from the laboratory to the atelier, from the natural history museum to the art gallery? And: What can science studies learn from such forms of media-enhanced participatory science and its artistic working methods? We pursue these questions trough a creative exploration: Drawing on carefully selected scientific texts as input data we work out central concepts in order to develop images based on data visualisation and programmed aesthetics. In doing so, we orient ourselves towards the methods of Generative Art, i.e. programming procedural results via a set of formal rules in an attempt to achieve algorithmic autonomy (Galanter 2003). The results and the processes will be presented and discussed as part of the walkshop. Our contribution thus reflects mediatised boundary work caught between epistemic authority, digital technology and aesthetic appeal.

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#96 'Doing Citizen Science on the Coast – Some Reflections on the Influence of Place on the Relations Between Scientists and Participants' by Gereon Rahnfeld (Bauhaus-Universität Weimar, Germany)

Contribution abstract For several decades, citizen science has become an important approach in science. Its goal is not only to provide scientists with additional resources for their research, but also to enable participants to understand and contribute to science. The idea of involving diverse people in scientific processes also recognizes the assumption that science and society are always already intertwined and that the scientific research should recognise this when designing its processes (see for these basic assumptions for example Hecker et al (2018) and Vohland et al (2021)). However, opening up science to more participation is also problematic. Can citizen science be conducted in a way that breaks down the hierarchies between scientists and participants and, in turn, modifies the exclusive formats that come with those hierarchies? One area where this question is particularly evident is in the distribution of knowledge between scientists and participants. Here, a deficit between scientists and participants is often assumed (Irwin, 2014). Are there situations that run counter to this argument and that might legitimize the inclusion of participants in the research process beyond their use as "living sensors"? In what ways are knowledge hierarchies between scientists and participants overcome without neglecting the autonomy of scientists? My presentation will take these questions as a starting point and explore the importance of space and place in maintaining and/or irritating knowledge hierarchies within citizen science projects. It will draw on material from field research I conducted through observation and participation in a citizen science project on the coast of Ireland. In doing so, I will explore the question of whether space and place have an impact on knowledge hierarchies between scientists and participants. With this in mind, I will focus on three moments that seem interesting to me in this context. First, I will consider space as a discursive basis for negotiations between scientists and participants. Second, I am interested in the structure of

places and how they can act as mediators between scientists and participants. Finally, I will look at the relationships between places and participants and how these change the focus of scientific research. In doing so, I will present the coast of Ireland as a place where the conventional relationship between scientists and participants within science is challenged and its possibilities are negotiated through operations influenced by places.

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Academic Practices & Self-reflection

Room S13

Panel organised by Julian Schäfer (RWTH Aachen, HumTec)

Panel abstract As the title suggests, the panel focuses on current epistemic practices within STS, other social sciences, and beyond. With a wide thematic variety, participants take a critical and self-reflective look at their work environment and its implications for the future of academia. The topics of discussion range from the rediscovery of classics within the frame of STS to post-pandemic influences on the everyday working life of a researcher.

with

97 'Trickling off? On the Circulation of Social Sciences and Humanities Knowledges in Applied Research' by Veit Braun (University of Frankfurt) and Maria Gerullis (RWU Bonn/Cornell University) and Bettina Heimann (Danish Agricultural Agency)

Contribution abstract The inclusion of social science and humanities (SSH) perspectives in applied research has been an ongoing concern for research funding agencies in Europe during the last decades. All too often, however, these endeavours remain unsatisfactory for the parties involved. Why do SSH knowledge and expertise, despite all efforts to make them circulate, continue to trickle off? We try to give some answers here by following the proliferation and disappearance of SSH perspectives in a case study of a European funding round for applied agricultural research projects: from call to porject workflows to mid-term presentations to delivery of project results. What emerges over the course of the funding round

is a mixed picture of SSH integration: some projects were able to interact well across the 'two cultures' while others struggled to incorporate their SSH partners. We try to explain this in four ways: a) a lack of imagination at the call stage of what SSH can and should contribute to applied research, b) varying access of STEM and SSH researchers to cross-disciplinary networks, c) diverging disciplinary imperatives regarding 'results' and d) a persistent STEM-centric model for designing project objectives and workflows.

98 'How Useful are the Classics in STS' by Janine Hagemeister (Goethe University of Frankfurt, Institut für Kulturanthropologie und Europäische Ethnologie (KAEE))

Contribution abstract To study STS means to learn right from the beginning that it is not yet settled if it even is a discipline (Jasanoff 2013). However, no matter how broadly we define or carefully demarcate our field, a common understanding is that STS always acted as an alternative – a critical reflection of mainstream beliefs about science. To "open black boxes" still is a characteristic mode of analysis in many projects, although the imagery might feel worn out to some scholars and has already been criticized in the past (Winner 1993). Nonetheless is still the motivation of most STS inspired research to unravel what drives current changes in science and technology: who and what is involved in forming, rejecting, and supporting the developments in these areas of society and which cultural practices are associated with the technical and the scientific? This brings STS interests close to classics of Critical Theory and Marxism, which traditionally focus (among other things) on the social basis for science and technology. In their defection from mainstream sociology, STS however seems to also have departed from those older critiques of mainstream thought. Especially the Frankfurt School philosophy established a solid critique of naïve tech-utopianism and determinism alike, decades before the formation of STS as such. This is why one could wonder for example about David Hess' (2001) observation of ethnographers' expertise in fieldwork within scientific institutions, where he points out that STS researchers gain a specific position among their informants when they delve deeply "into the archives that are often unread by contemporary researchers, who may have a bias against reading literature that is more than five years old and therefore may not know how current controversies repeat old ones". Because what is true for natural scientists might just be as true for STSers, if our references to "the classics" do not go further back than the 1970s – at most. It therefore seems interesting to ask how STS today, as well as in its own classical studies, is at the same time related to and cut off from other classical critiques of science and technology. The contribution to the panel discussion argues that older positions from Marxism and Critical Theory are not that much outdated but rather forgotten. It explores two examples as a thread to engage discussion: In Theodor W. Adorno's lecture for

engineering students at the TH Karlsruhe (Adorno 1993[1953]), he talks about the communication problems between philosophers and natural scientists in a way that reminds of current discussions about colaboration (Bieler et al. 2021). And the computer scientist Joseph Weizenbaum, whose artificial intelligence program ELIZA was one of the first of its kind, was known for his philosophical positions on algorithmic logic that do not fall short of contemporary critical algorithm studies (Seaver 2019). What can we learn from re-reading those classics in contrast to case studies of today? What has changed and, more interesting, what has not?

99 'Doing reputation: How can the classics help us to understand the role of conferences for scientific reputation in post-pandemic times?' by Max Braun (Faculty of Business, Economics and Social Sciences, Department of Social Sciences, Universität Hamburg) and Simone Rödder (Faculty of Business, Economics and Social Sciences, Department of Social Sciences, Universität Hamburg)

Contribution abstract Conferences are a central feature of academic life. However, the scientific meeting faces recent challenges, from a trend towards digitisation in academia, the COVID-19 pandemic and critiques of the climate impact of air travel. Yet, in-person conferences persist. Why do academics still travel to professional meetings, when virtual alternatives appear so much more convenient and when travel by air has lost some of its former support in both science and society? For classic social studies of science conferences have played a minor role. Seminal perspectives on science's stratification and reward system have focused near exclusively on the role of publications and on interactions of scientists in non-public spaces, i.e. laboratories. What academics do at conferences has been left largely out of view. Some recent works, e.g. in the emerging field of conference studies, suggest that conferences play a relevant part in the negotiation of scientific reputation. Academic life is not only about "publish or perish" but also about "fly or die". This creates recent tensions with numerous initiatives and opinion pieces aiming at reducing air travel among academics. The return to in-person conferences after the pandemic conference halt suggests that they are not as easily replaced by virtual alternatives as is sometimes suggested. While this is coming increasingly into the view of the behavioural sciences, sociologically-oriented social studies of science have been largely absent in this debate. What do the classics have to say about the apparent necessity of academic conferences? In this contribution, we will present a research project recently approved by DFG that investigates the role of academic conferences with regard to doing reputation in interaction. We will discuss (1) how conferences fit into the publication centred-view of reputation that is arguably shared by classic authors in social studies of science. It will be argued that (2) this can be supplemented, if not updated, with a focus on scientists' interaction at conferences to help account for

the persistence of conferences, namely with a view toward doing reputation; and that (3) this can also highlight the strengths of a sociology of science perspective, bringing into view factors such as disciplinary differentiation and disciplinary cultures that are as of yet not captured in perspectives in the literature currently focussing on this topic.

100 'Time traces – post-pandemic academic working hours and its devices-in-use' by Julie Sascia Mewes (Ruhr University Bochum)

Contribution abstract Academic work unfolds in time. Since the start of the COVID-19 pandemic, health measures such as lockdowns or remote-work mandates required extensive ad hoc re-adjustments to suit the new social, material, and technological needs of work off-campus. The paper focuses on the question of how, when, and through which means working time is organized by academics on- and off-campus after (?) the pandemic and in a troubled world. Increasing academics' workloads and its predominantly negative impact on the experience of time within novel funding regimes (Ylijoki & Mäntylä, 2003), and of experiences of altered speed and resulting time pressure are well-studied (Vostal, 2015, 2021). However, the paper argues, that the pandemic measures further increased 'flexible' (or untamed) working hours and specific transtemporal and translocal academic time-spaces (Sheail, 2018). The "mediatization of time" is adjusted through and despite logistical media such as calendars and clocks (Wajcman, 2019). Therefore, the paper focuses on these seemingly boring, mundane timing devices acting as micro-coordinators of daily academic work life. The notion "timing device" describes digital and non-digital tools and infrastructures which – with or without intention and/or recognition – measure, track, synchronise, or account for working hours and daily time routines in the broadest sense (Mewes, forthcoming). The paper discusses the relationship between altered work arrangements and working hours in (post-)pandemic academia, and theoretically explores the relationship between academic "chronopolitics" and "chronodesigns" (Dieter & Gauthier, 2019) and which digital ethnographic methods are particularly useful to ethically research the timings and time traces of academic work.

101 'Embracing fluidity in style and theorising: Drawing Inspiration from Bruno Latour' by Kumar Koushik Ravi (Technische Universität München)

Contribution abstract Classic literature in Science and Technology Studies (STS) have given us relatable, powerful concepts that can be and still are mobilised to understand the technoscientific world. This conceptual clarity is highly revered in "malestream" academia (Cunliffe, 2022) that condense the world around us and is frequently referenced to theorise and abstract even more. In my experience as a student in the field of STS, I have found that this conceptual clarity

as a writing style is placed above evocative, situated, and hermeneutic ways of expressing our society. Beyond powerful abstract concepts that are invaluable in classis STS literature, I argue that we can draw inspiration from writers like Bruno Latour, who use fluidity in expression, wit, humour and radical self-reflexivity to present relatable concepts for understanding science in society. Fluidity in expression, in styles of writing and going beyond the binary of masculine or feminine ways of writing within the academia of STS still provide the community with relevant ways of thinking. To present this, I use the text "Circulating Reference" by Bruno Latour (1999), which theorises a reverential concept but uses a mix of masculine and feminine ways of unravelling the world we live in. Further, I use "Must I Grow a Pair of Balls to Theorize about Theory in Organisation and Management Studies" by Ann L Cunliffe (2022) to showcase how Bruno Latour's writing style helps provide a personal experience within STS, which should be about human experiences and not ivorytower abstractions. I draw from my situatedness as a student – of being asked to follow academic guidelines in my writing, to use extensive references and write less creatively – all ensuring a certain conformity within academia in STS, which ironically prides itself on plurality and criticises science and technology of being exclusive. My argument is that situatedness, creativity and unbridled imagination can provoke impressive conceptual understanding of our lived experiences and should be valued in educational institutions that mould the future of academia.

Found problems and found practices in science (2/2)

Room S12

Panel organised by Sophia Efstathiou (Department of Philosophy and Religious Studies, Norwegian University of Science and Technology, Norway) and Robert Meunier (IMGWF, Universität zu Lübeck, Germany)

Panel abstract STS scholars have developed conceptual tools to address situations where scientific research interfaces with other areas of practice, i.e. other scientific fields or other areas of human activity like medicine, agriculture, industries, trades, public services, arts, etc. Among them are nomadic concepts, theory-methods packages, boundary concepts, and boundary objects, as well as trading zones, social arenas, or ecologies of practice. All these frameworks address the circulation of elements of discourse and the spaces in which this circulation unfolds. This open panel features contributions reflecting on the framework of found science. Found science serves similar purposes as the mentioned frameworks but emphasizes a particular trajectory where elements are found by scientists outside of their own context, are noted as as interesting, and subsequently become founded as constituents of the science in question. The concept was inspired by an

analogy to found art (Efstathiou 2012). The object trouvée of found art typically moves into an artistic context from a realm of everyday usage. Yet found objects acquire (and lose) meaning by becoming founded in new milieus and practices. Thus, the famous art piece Fountain is no longer properly speaking a urinal: It is a found art piece, or equivalently, a urinal founded (appropriately positioned, named, exhibited, etc.) in a context of artistic practice/use. Through this process of finding and founding, objects acquire new significances and yet still signify based on associations with milieus they originate in. Found science uses this as a model to think about the interfaces of scientific practice with other practices and specifically about introducing ideas or elements from other contexts into science. For example, everyday ideas like race, wellbeing, or knowledge, can be picked up as interesting for scientists and founded (articulated in appropriate scientific terms, operationalised, measured, published, etc.), and thereby transfigured into scientific concepts. When human population geneticists document individuals' 'race' (Efstathiou 2012, Lee et al. 2021), when development economists estimate nations' 'wellbeing' (Efstathiou 2016), or when data scientists talk of extracting 'knowledge' from articles (Efstathiou et al. 2019), they are working with non-scientific ideas founded into scientific fields: these founded concepts are not the ideas of the original context anymore, but they can purport to speak back to problems in these contexts through science.

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with

102 'Surrealing - Making real as Founding and Kinding' by Sophia Efstathiou (Department of Philosophy and Religious Studies, Norwegian University of Science and Technology, Norway) and Catherine Kendig (Department of Philosophy, Michigan State University, MI, US)

Contribution abstract This presentation explores the practices of scientific practitioners in performing 'the real', and the implications of those activities of 'realing' in the case of food and agriculture. 'Realing' entails positing entities that ground facts and truth claims about the world as real. Realing further relies

on founding and kinding activities. Founded scientific concepts can be considered as elucidating the 'real' meaning of some everyday phenomenon, while kinded categories claim to capture the ontological structure or metaphysical picture of the world that shapes its epistemic and normative landscape. In some ways these practices of realing can be characterised as following a surrealist drive. The movement of surrealism in art, aimed to reconcile the imagined or possible and the real into an ultra, super reality, or surreality. Things 'made real ' through realing, have certain agent-facilitated capabilities that enable them to perform reality and achieve realness. By doing so realing becomes a kind of surrealing: it reconciles scientifically kinded and founded entities with reality, and the performative capabilities required of these by reality, into a scientific super-reality. These things include products and processes which are made through interventions in the world by humans, objects, technologies either accidentally or intentionally. The routes of these makings, in founding or kinding can be understood to be a combination of activities that include concept-framing, standards-setting, or bringing them into being in other ways, in part, in virtue of their being identified thusly. We discuss two case studies in food and agriculture that shine a light on the role of making real in science, and on how the language of founding and kinding activities can be a useful tool in unpacking reality making / surrealing / as process and performance. In the case of food we discuss the finding and founding of meat in food biotechnology and the development of meat replacements. In the case of agriculture we discuss how the activities of kinding in the process of standard-making and standard-revising entails the making of a new reality as well as bringing into existence new products as internationally traded agricultural commodities.

103 'Recognizing Science-like Knowledge: Citizen Data, Climate Disasters, and Epistemologies at the Boundary' by Clarissa Ai Ling Lee (Käte Hamburger Kolleg: Cultures of Research, RWTH-Aachen University, Germany)

Contribution abstract In this paper, I am interested in developing a framework for articulating the idea of 'science-like' knowledge that aims to do two things: First, like 'found science', the notion of the science-like can address how a scientific object, idea, or theory comes to be recognized as such before it becomes a part of a scientific discipline. Second, science-like epistemic objects can be understood as contributing to technologizing scientific problem-solving, but nonetheless also as challenging assumptions made within a science, sometimes dislocated from lived conditions, and as enriching how a particular science is understood. Perhaps the most crucial point is the proposal that science-like objects need not be assimilated into institutional science. The idea of 'found' problems within the context of a socially-embedded and technologized post-modern science and the related notion of the 'science-like' can be used to address 'wicked'

problems faced by scientists and technologists when communicating the risks of radiation exposure to the public and assessing risks through standards that are neither coherent nor consistently trustable (Lee, forthcoming). For this paper, my focus will be on the kind of climate-change data that are created and collated through social media platforms. These data supplement the gap between the scientific knowledge of climate change and the anthropogenic consequence of climate change related events as they happen, especially in parts of the world where there is a data 'blackout' as the result of inaccessibility or policy blind spots. Such data have both aesthetic and techno-social values that do not merely reshape research questions around climate disasters, but could offer a way into practice-oriented, transdiciplinary science studies.

#104 'Problem-solution coordination at the science-policy interface' by Henrik Thorén (Department of Philosophy, Lund University, Sweden)

Contribution abstract Problem-feeding (PF) denotes a process in which problems, and sometimes also solutions, are exchanged between different scientific disciplines, or between society and science (Thorén and Persson 2013). A particularly interesting form of PF is bilateral, where first a problem is exchanged in one direction, and then later a solution is exchanged in the other direction—problems are formulated in one disciplinary context but solved in another. Exchanges of this kind also occur across the science-policy interface where science is expected to come in handy and inform policy and decision-making when tackling various social problems. Topical examples include the use of models in managing the recent COVID-19 pandemic, or the role of climate sciences broadly construed in planning for adaption and mitigation efforts. Here the problems are social or practical, but solutions are at least partly scientific. The challenge in these kinds of situation is the maintenance of problem-solution coordination (Thorén 2015). As a scientific discipline absorbs a problem from a different context that problem typically must be fitted to the discipline along several dimensions (Thorén and Persson forthcoming). For instance, the problem needs to be made into a problem for the 'receiving' discipline, as well as being expressed in terms that makes the problem accessible to the problem-solving resources available within that discipline. In this talk I will explore the connection between problem-solution coordination at the science-policy interface on the one hand and what Sophia Efstathiou (2012; 2016) calls founding—also a process of fitting everyday concepts and ideas to the strictures and restraints of scientific practice and discourse. In particular the dual nature of this process is noted as it functions both to make science available to social problems and at the say time risks severing the appropriate coordination between problem formulators and problem solvers.

13:00–15:00: Lunchbreak meetings

STS@NRW network session

Room S01

Panel organised by Estrid Sørensen (Ruhr-University Bochum) and Cornelius Schubert (TU Dortmund)

Panel abstract The regional network meeting offers a space for STS scholars working in North Rhine-Westphalia or close by to come together, get to know each other, exchange ideas, and discuss options for future collaborations in research and/or teaching. We invite scholars from all academic stages and backgrounds with the hope to spark mutual exchanges in an informal setting.

15:00–17:00: Session slot 4

Circulations between STS and the arts (1/2)

Room S05

Panel organised by Nadine Osbild (Technical University of Munich (TUM), Department of Science, Technology and Society (STS)) & Matthias Wieser (University of Klagenfurt (AAU), Department of Media & Communications (MK))

Panel abstract Since the early years of Science and Technology Studies, there have been strong links between STS and the literary, visual and performative arts, and circulations between the two have undergone a fruitful trajectory: Institutionally most prominent might be the collaborations between Bruno Latour and Peter Weibel in their three ZKM exhibitions or the establishment of a 'Master en arts politiques' (SPEAP) at the Médialab of Sciences Po. Meanwhile, in academic writing, said links have led to new literary forms (Ashmore 1989) in the field of STS. Today, STS practitioners experiment together with artists from diverse creative disciplines such as visual and fine art, performance, media art or even culinary art (Marres/Guggenheim/Wilkie 2018; Rogers et al. 2021; Salter/Burri/Dumit 2017; Voß/Guggenheim 2019). Recently, Monopol, the leading art magazine in the German-speaking world, named Donna Haraway the most important person in the art world today. Other artists such as Ólafur Elíasson and Tomás Saraceno are working at the intersection of the arts and the sciences with great success. Accordingly, over the last decade, there has been a broad discourse on the funding and conduct of arts-based research or research creation that has connections with STS theory and practice (Borgdorff/Peters/Pinch 2020; Sormani/Carbone/Gisler 2019). With creativity being front and centre in innovation policy, the realms of STS research and art further melt together. 'Studio Studies' (Farías/Wilkie 2016) established research into creative practices in studios of different kinds in analogy to the investigation of scientists and engineers at practice. Finally, and more generally, one can refer to the travelling concepts from STS to the arts and vice versa, with theoretical constructs such as the 'cyborg', 'intra-objectivity', 'improvisation', and 'dance of agency' coming to mind. This session wants to create time and space to speculate on these circulations, to report on ongoing research at the intersection of STS and the arts or for performances of creative STS.

We seek for contributions - from presentations to performative interventions and other alternative formats - that engage with • STS research in the field of arts and creative practices • Arts-based research on science and technology • Experimental and creative methods in STS research • Travelling concepts and practices between art and STS

with

105 'Circulations between STS and the arts. Introductory Remarks' by Nadine Osbild (Technical University of Munich (TUM), Department of Science, Technology and Society (STS)) and Matthias Wieser (University of Klagenfurt (AAU), Department of Media & Communications (MK))

Contribution abstract Since the early years of Science and Technology Studies, there have been strong links between STS and the literary, visual and performative arts, and circulations between the two have undergone a fruitful trajectory: Institutionally most prominent might be the collaborations between Bruno Latour and Peter Weibel in their three ZKM exhibitions or the establishment of a 'Master en arts politiques' (SPEAP) at the Médialab of Sciences Po. Meanwhile, in academic writing, said links have led to new literary forms (Ashmore 1989) in the field of STS. Today, STS practitioners experiment together with artists from diverse creative disciplines such as visual and fine art, performance, media art or even culinary art (Marres/Guggenheim/Wilkie 2018; Rogers et al. 2021; Salter/Burri/Dumit 2017; Voß/Guggenheim 2019). Recently, Monopol, the leading art magazine in the German-speaking world, named Donna Haraway the most important person in the art world today. Other artists such as Ólafur Elíasson and Tomás Saraceno are working at the intersection of the arts and the sciences with great success. Accordingly, over the last decade, there has been a broad discourse on the funding and conduct of arts-based research or research creation that has connections with STS theory and practice (Borgdorff/Peters/Pinch 2020; Sormani/Carbone/Gisler 2019). With creativity being front and centre in innovation policy, the realms of STS research and art further melt together. 'Studio Studies' (Farías/Wilkie 2016) established research into creative practices in studios of different kinds in analogy to the investigation of scientists and engineers at practice. Finally, and more generally, one can refer to the travelling concepts from STS to the arts and vice versa, with theoretical constructs such as the 'cyborg', 'intra-objectivity', 'improvisation', and 'dance of agency' coming to mind.

106 'The uncanny valley of media practices: How STS becomes more like art and science' by Michael Guggenheim (Goldsmiths College, University of London, Department of Sociology)

Contribution abstract In robotics, the notion of uncanny valley designates the trough in a graph where a robot appears as uncanny because it is neither too different nor too similar to a human (Mori et al 2012). STS sits in a similar uncanny valley of media practices, because it misunderstands the differences between art and science and its own position within. Moving out of this uncanny valley implies changing its media practices, without changing its field logics. In my presentation I will outline the theoretical problem and demonstrate some paths out via my own projects. To understand the problem, I would like to highlight

first that the distinction between STS and art (or science and art more generally) is a theoretical distinction that looks very different, depending on different theories. I would like to mobilize the contrasts between Bourdieusian field theory, contextual theory (Howard Becker) and a theory of modes of existence (Latour) to demonstrate that specific modes of existence are not necessarily coextensive with their fields or institutional contexts. Practices of scientific reference (REF in Latour's terminology) have recently proliferated in the field of art. At the same time, the disciplinary logic of STS and particularly its material setup tends to wrongly equate specific media practices (the use of drawings, photography, exhibitions) with the field of art, the mode of FIC and with popularization. But STS research tells us that visual media practices are not the unique to the field of art, but are also prominent in science (which also explains in some way why certain art-science collaborations work so well). For STS the following issues follow: The discipline could take the mode of existence of REF (reference) more seriously by learning from science itself: a multiplication of the (media) practices might create better REF. But to multiply media practices would also require to change the material contexts of the discipline. In terms of the contextual operation of our practices, we may indeed want to learn from the field of art in two ways: First we can learn from its "punk" DIY ethos embodied in non-institutional art, by moving away from institutional contexts as the only relevant places where STS takes place. Second, we can learn from the organisational care that various media practices in both science and art receive, and the different modes of accounting of this care work.

107 'Doing STS in/with Space Art: between science communication and collaborative approach' by Zinaida Vasilyeva (Technical University of Munich (TUM), Department of Science, Technology and Society (STS))

Contribution abstract Recent STS scholarship in science communication has emphasized the growing role of art in the processes of communication and reflection on new technologies (Davies 2022, Perrotta 2012, Fraaije et al. 2022). At the same time, researchers have noted that we sorely lack an understanding of how artistic interventions contribute (if at all) to public understanding of science and technology, trajectories of technological change, and democratic dialogue about technology. Another strand of STS researchers has insisted on the importance of active citizenship in relation to new forms of knowledge and knowledge production; these scholars proactively engaged in art-science research practices and collaborations with artists in order to discover new forms of knowledge at the intersection of art, social science, and new media (Marres, Guggenheim, Wilkie 2018; Salter, Burri, Dumit 2017; etc.) In my paper, I would like to discuss my current approach to the study of science-art in the field of outer space by presenting my pilot fieldwork conducted in 2022 at the Kosmica Institute in Berlin, at

the Ars Electronica Festival in Linz, and at the International Astrronautical Congress in Paris. In the first part of my presentation, I will focus on how artistic interventions participate today in the production of meanings about outer space, human-cosmos relations, and space technologies, such as satellites, earth observation, and space agriculture. Drawing on McKenzie's (2019) argument that contemporary forms of capitalism are based not so much on the ownership of the means of production but rather on the ownership of means on value creation, my analysis will focus on what kinds of values are articulated in contemporary artworks about space, and what material and intangible means are used to express those values. In the second part of my presentation, I will speculate about the extent to which these artistic practices can be explained and understood through such well-established STS concepts as "public engagement," "public participation," "responsible innovation," etc., how the political is being produced through these artworks, and what is the repertoire of participatory roles available to the STS researcher in science-art.

108 'Intra-Axion! – On the performative materiality of QCD axion dark matter' by Olivier Rossel (Brandenburg University of Technology Cottbus-Senftenberg, Chair of Technoscience Studies)

Contribution abstract Dark matter, which makes up about 85 % of all matter in the universe, could not be proven by physics until now. Nevertheless (or just because of that) speculations far beyond physics have been taking place in art, pop and game culture for a long time, challenging the physical concepts of Dark Matter. With my PhD project 'Intra-Axion!' I therefore start from the assumption that Dark Matter interacts in a much more multilayered way than actual physics tends to accept. Thus, I understand Dark Matter not exclusively as a hypothetical material predicted by physics, but rather as a performative and vibrating matter that generates ambivalent-constructive reflections in many ways. In this back and forth of states, my project challenges an understanding of dark matter dominated by physics at the MADMAX experiment through practice-based artistic research. In the context of my project, I investigate dark matter - in the case of the MADMAX experiment, QCD Axions – in its nexus of formal physicality and collective imagination across disciplinary boundaries, by unfolding a post-humanist, non-representational understanding and/or non-understanding of QCD Axion Dark Matter. By means of an indisciplinary, self-reflexive-artistic approach, I particularly aim at gaining knowledge in the field of performative materialities. With my contribution to the conference I want to offer a deeper insight where practice based artistic research provides access to previously opaque areas of theoretical, experimental and computer-simulated physics beyond the standard model. In particular, my contribution focuses on human and non-human collaboration. Specifically, I intend to talk about 'crystal mattering' – a case of

intra-action of crystals that is central to my project. In doing so, I intend to show how autoethnographic open world video gaming is related to indisciplinary crafts practices at the MADMAX experiment, and to what extent a multiple body of knowledge – that embraces little-noticed, tacit and situated forms of knowledge at the intersection of art, new physics and the STS – can be unfolded.

Epistemic dizziness: Coping with the side effects of the fast-paced circulation of metaphors and figures in STS (2/2)

Room S02

Panel organised by Britta Acksel (Institut für Medienwissenschaft, Ruhr-Universität Bochum) and Jonna Josties (Institut für Europäische Ethnologie, Humboldt-Universität zu Berlin) andMaxime Le Calvé (Cluster of Excellence »Matters of Activities«, Humboldt-Universität zu Berlin)

Panel abstract This panel addresses the vertigo triggered by the intense circulation of ideas and pictures in our research fields. We are inviting proposals that toy with the discomfort triggered by proliferating metaphors and figures. We believe that this ambiguous kind of serious fun is a promising path for an engaged while playful anthropology of science and technology. We take up anthropologist Anna Tsing's article "Getting by in terrifying times" (2018), where she writes that "it is important not to let the metaphors and figures make you dizzy." Dizziness may be especially induced by their incessant circulation. Vertigo describes different sensations generally associated with discomfort and unpleasantness, but that are rarely life-threatening: false senses of motion and spinning, a loss of balance, and light-headedness. Yet vertigo is also one of the four fundamental types of play according to Roger Caillois (1961). What can a practice of epistemological vertigo teach us about the current challenge of overflowing ideas, tools, and pictures floating and circling in STS? Are there techniques to grow ourselves out and through this state of off-balance, which we could share and benefit from? How might it be possible to embrace it rather than study against it? Based on our collaborative engagement in the Laboratory: Anthropology of Environment I Human Relations (HU Berlin), we want to overclock the conversations between research on policy and sustainability, on high-tech economy, and on human and planetary health. We invite proposals that address these fields from any disciplinary background and are interested in joining blissful encounters with circulatory epistemic dizziness.

with

109 'Sketching through the explosion: Learning the world all things at once.' by Maxime Le Calvé (Cluster of Excellence »Matters of Activities«, Humboldt-Universität zu Berlin)

Contribution abstract This title is a provocation following a seminal paper by Joe Dumit: "Writing the implosion: teaching the world one thing at a time" (2014). There he presents a careful account of the teaching modes of Donna Haraway: "Both people and things have a nonreducible trickster quality that resists categories and projects of all kinds. Yearning is fed from the gaps in categories and from the quirky liveliness of signs." (Haraway 1997, 128). He brings her in dialogue with Deleuze and thus with one of the most pervasive questions of the postmodern movement: "If our sensory-motor schema jam or break, then a different type of image can appear" (1989, 20). Dumit suggests a refined method to bring students (and more experienced scholars) to dive in and focus on "one thing at a time," which has ignited further interest in experimenting with writing methods in anthropology (and STS) (see Ballestero & Winthereik 2021). Another way to bring into correspondence anthropology (and STS) with writing practices can be sought in the work of another noted pedagogue, the anthropologist of technique Tim Ingold, who recently climbed on the shoulders of John Dewey with a book on anthropology "and/as" education: school should be "a middle-place (milieu) of study that calls for active co-presence and affords a collective opening to feeling." (2017, 1). STS scholars who have grown to maturity in an oversee-able research context haven't addressed so far, however, the steep conceptual inflation of the field and the tricky situation it represents for newcomers. Learning a world "all at once" and navigating this hilly landscape can trigger intense feelings, akin to epistemic dizziness. In this short paper, I will argue that starting from this very emotion can be a very powerful way, to begin with: a typical STS move bringing the equipment and the context of science-making to the fore. In my education-as-fieldwork practice, I do not teach technical "academic writing" classes, but rather a class of anthropology of making ethnography, an inquiry of anthropotechnics applied ways of writing and being at work (Tresch 2016). Drawing from my own experiments in graphic ethnography, I have found the practice of sketching a great ally to "cope" with the dizziness procured by the proliferation of methods (Le Calvé 2021). Sketching in the field can be used to liberate the hand of wannabe writers who feel paralyzed by the multifarious analytical options at hand. Sketching through them can offer a small window of self-awareness and an opportunity to touch on a radical idea: that writing can become a mode of self-exploration and fieldwork in itself. This includes confronting the dizziness that Anna Tsing speaks about – the circulatory troubles of our academic scene (2018). The specificity of ethnographic writing (and sketching) is precisely the continuity between description and theoretical developments: triggering one brings the other into motion. Bringing oneself to experience that motion helps to survive the

pressure of having to choose among the many methods, tools, and figures which are up for grabs in the field — embracing epistemic dizziness rather than studying against it. I will conclude this short presentation by proposing to the audience to engage with an "epistemic dizziness practice" focusing on sketching and writing.

#110 'Of wax worms, museums and art: On the dizzying notion of "care" ' by Martin Grünfeld (Metabolic Science in Culture at the Novo Nordisk Foundation Center for Basic Metabolic Research and Medical Museion at the University of Copenhagen)

Contribution abstract In recent years we have seen a "care turn" within STS scholarship. But what do we study when we study care and what (if anything) do we learn? In this paper, I wish to delve into a dizzying array of caring engagements by way of an allegedly simple object of care: waxworms – the caterpillar larvae of wax moths (Galleria mellonella). Waxworms are avid plastivores capable of metabolizing soft plastic materials – metabolic processes that we have recently tried to host and turn into sound art in an experimental-exhibition entitled The Living Room at Medical Museion in Copenhagen. Drawing on my transdisciplinary collaboration with artists and conservators, in this paper I explore how our work with waxworms opens a wormhole of unsettling careful engagements and multiply what it means to care at the museum and beyond. In the paper, I develop a chronological yet chronically uncertain story of troubled, ambivalent and uncertain modes of caring. Building on the serious play of working with waxworms, an epistemological vertigo is unfolded that disrupts stable notions of care. Yet precisely by bringing this concept off-balance, perhaps we can learn something important about the objects, modes and temporalities of care. The unstable choreography of care I unfold in this paper, begin as concrete stories of moments when we were working with waxworms to localize the specificities of our engagements in space and time. As I follow the different steps in our process to host waxworms from home cultivation to museum installation and artistic performance, these different contexts reveal multiple objects of care simultaneously present (not just worms, but also institutions, buildings, selves and environments) and intertwined, yet temporally differentiated modes of engagement (as nurturing, hosting, responding, noticing, controlling, killing). In the end, I show how our unsettling dilemmas of careful engagements with living organisms not just trouble our self-given understanding of what it means to care today, but itself is also troubled by the uncertain and uncontrollable forces of life.

#111 'Circles and Messiness - Communicating Policy' by Britta Acksel (Institut für Medienwissenschaft, Ruhr-Universität Bochum)

Contribution abstract Mind metaphors – this is a warning I was given in an introduction to academic writing class early in my studies. Chances are that the metaphors you come up with are askew or misleading. The first metaphor that comes to mind thinking about policies might very well be the Policy Cycle; this neat figure depicts policy processes from agenda setting over adoption to evaluation. As famous as it is, are critiques against it. Often, the cycle is already introduced with a disclaimer: of course, it is more complicated than this. Criticizing simplifying metaphors is one thing, but thinking, writing, and communicating the messiness of policies is another. How, instead of trying to escape vertigo while trying to come to terms with messiness, can we deal with it, play with it, and make it productive? And how to connect and engage about it with a diverse set of actors and discourses? I will conclude this short presentation by proposing to the audience to engage into an "epistemic dizziness practice" focusing on communicating.

112 'Green Discourse, the Energy/Materials Ecosystem, and Technologies of Environmental Care' by Matthew N. Eisler (Faculty of Humanities and Social Sciences University of Strathclyde Glasgow)

Contribution abstract Green discourse purports to express science whose theoretical, observational, and normative elements are in accord: climate change caused by legacy industrial infrastructure that converts energy and matter in linear modes that produce waste can be ameliorated by new infrastructure that converts energy and matter in holistic modes that yield zero waste. In important ways, however, the elements of this syllogism are in discord. Green discourse models society as an energy/materials ecosystem, and while other forms of physical and biological essentialism align with and reinforce the capitalist social order, with its ontology of morally acceptable imbalance, implementing the energy/materials ecosystem within this ontology has caused serious epistemic vertigo. Policymakers have coped with the costs and complexities of closing the circle of the energy/materials conversion chain by focusing on particular infrastructural components over others and signifying them astechnologies of environmental care worthy of public support. These privileged objects perform important ideological work demonstrating proof of principle and establishing model markets for green goods and services but complicate and even contradict the goal of building the net-zero circular economy. This paper, based on original research including a new book (Age of Auto Electric: Environment, Energy, and the Quest for the Sustainable Car, MIT Press 2022) explores the instrumentalization of the energy/materials ecosystem metaphor in technologies of environmental care and analyzes the social/environmental paradoxes these objects enable.

Infrastructure & Materiality

Room S06

Panel organised by Suzette Kahlert (European University Viadrina) and Peter Kahlert (European University Viadrina) and Nicole Lühring (University of Augsburg)

Panel abstract If circulations are assumed "one of the key organizing principles", so is infrastructure - either as a circulations enablement, or as the result of ongoing circulation, the erosion and homeostatic grind of a river's bed. Although circulations can be conceived as a rather abstract and mental process, there is no such thing as circulation that can flow without the use of floating files, channels, common language, pipelines and circuits. With them, efforts of maintenance become due, and like physical circulations must cause entropy, social circulations must perform shifts within consistencies. However, infrastructure is one conceptual response to this insight. It lays weight particularly on the materiality that accompanies practice and grounds discourses. Hence, we are going to refer to classic conceptualizations of the social: discourse, practice and infrastructure. We argue that those vantage points erect a vast field including different features of research objects, which are sufficiently distinct to demand differentiation in study, yet do require each other at their scope's horizon in order to respect completeness. In conclusion, we argue that this triad is an outstandingly effective and apt vehicle of understanding socio-technical complexes. Discourses in and with their orders can also be understood as entities and formations that can be thought of as infrastructures and linguistically materializing forms of what is sayable, doable and thinkable. Discourses thereby follow certain regulations and policies that have a decisive influence on the construction and constitution of reality and thus also to the possible malleability of infrastructures and materiality. Likewise, praxis, practice, or - more complicated phrased - ecologies and circulations of behavior are established theories of the social to understand the realms of possibilities (or that which is thinkable, doable, or sayable within discourse) and specific, materially embedded routines, that - like infrastructures - render events and ontologies possible, feasible, and eventually real. Therefore, we want to call for contributions that illustrate the need or use of those concepts in different disciplines and the different fields and cases of science and technology studies they produce and process. In this panel we want to approach these questions of materiality and infrastructures from a discursive and praxeological perspective. Possible questions we want to explore together are: How can discourses and practices in different contexts and with the 'glasses' of different disciplines be understood against the background of infrastructural formations and materiality and its agency? What conditions underlie discursive and praxeological formations? How do discourses and practices of negotiation take shape and what structural effects result from

them? What's risks and opportunities derive from the use of such concepts in specific, empirical cases?

with

113 'Social innovations through the lens of practice theory: Towards an understanding of the role of material and immaterial structures for the diffusion of social innovations' by Rick Hölsgens (TU Dortmund) and Marthe Zirngiebel (TU Dortmund)

Contribution abstract Over the past decade-and-a-half, social innovation has been on the rise, both as a concept and a topic/field of research. Social innovation research draws on various theoretical schools and disciplines, including regional studies, business studies, complexity theory and, as the focus of this paper claims, practice theories. Although scholars of social innovation and technological innovations partly refer to the same frameworks like the MLP, the two research areas have largely shielded themselves and their field off from another (Weber forthcoming). Thus, we call for a constructive, yet critical, engagement of social innovation researchers with established disciplines and research traditions such as STS, innovation studies, transitions studies and theories of practice. Although the concept of social innovation is still ambiguous, one common definition defines social innovations as deliberate changes in social practices (Howaldt & Schwarz, 2010). Defined as changes in social practices, it seems natural – though surprisingly uncommon *1 – to aim to understand social innovations through the lens of practice theory. Practice theories and social innovation research share an interest in similar process dynamics going from small to large, from individual actions to social practices, from local initiatives to social change and vice versa. In both, people with their capabilities, history, and interests play a vital role in the creation and the reproduction of the social by being simultaneously enabled and constrained by existing institutions and structures (Rabadjieva & Zirngiebl forthcoming). The ostensibly natural marriage of social innovation research and practice theory is astoundingly challenging though. Theories of practice are dispersed, but find common ground in the contention that social life is composed of many interconnected (complexes of) practices (cf. Schatzki, 2019). Analyses of practices are therefore, almost by definition, complex. If social innovations are defined as changes in practices, processes of adoption and diffusion of social innovations must by necessity also be complex due to the interconnectedness of practices influenced by the change in one practice. Just as technological innovations are always 'in context' (Rammert, 1997), social innovations have to be embedded within a certain context. Social innovation research has, to date, not engaged extensively with the environments and (material) infrastructures within which social innovations have to be(come) embedded though. We claim that social innovation research should build upon the knowledge generated by practice scholars (as well as STS) to study the embedding of new practices, i.e. of social innovations, within material and immaterial (infra-)structures that enable or

hinder the adoption. The uptake of social innovations is not a simple adoption-decision-making process. Nor is it solely a matter of imitation (and innovative adaptation), nor can it be characterized in terms of a niche-regime interaction. New practices need to be embedded within a complex web of existing bundles and complexes of practices. *1Exceptions include Hölsgens et al. (2018), Howaldt et al. (2015) and Rabadjieva and Butzin (2020). References Hölsgens, R., Lübke, S., & Hasselkuß, M. (2018). Social innovations in the German energy transition: An attempt to use the heuristics of the multi-level perspective of transitions to analyze the diffusion process of social innovations. Energy, Sustainability and Society, 8(8). Howaldt, J., Kopp, R., & Schwarz, M. (2015). On the theory of social innovations: Tarde's neglected contribution to the development of a sociological innovation theory. Beltz Juventa. Howaldt, J., & Schwarz, M. (2010). Social Innovation: Concepts, research fields and international trends. Technische Universität Dortmund. Rabadjieva, M., & Zirngiebl, M. (forthcoming). Operationalizing Practice Theories for Social Innovation Research. In J. Howaldt & C. Kaletka Encyclopedia of Social Innovation. Edward Elgar Publishing: Cheltenham, UK Rabadjieva, M., & Butzin, A. (2020). Emergence and diffusion of social innovation through practice fields. European Planning Studies, 28(5), 925–940. `https://doi.org/10.1080/09654313.2019.1577362` Rammert, W. (1997). New Rules of Sociological Method: Rethinking Technology Studies. The British Journal of Sociology, 48(2), 171–191. `https://www.jstor.org/stable/pdf/591747.pdf` Schatzki, T. R. (2019). Social change in a material world: How activity and material processes dynamize practices. Routledge studies in social and political thought: Vol. 142. Routledge. Weber, M. (forthcoming). Social Innovation and Technological Innovation. In J. Howaldt & C. Kaletka Encyclopedia of Social Innovation. Edward Elgar Publishing: Cheltenham, UK

114 'Smart Home: questions on the relationship between materiality, practice, and discourse' by Alexander Orlowski (Eberhard Karls Universität Tübingen)

Contribution abstract Smart home is one of many current buzzwords that advertise the promise of improving all of life – besides other things through AI. It denotes a network of different smart devices, which promises through sensors, interconnectedness, and automatization to enhance life at home. In particular, it brings smart devices and various sensors into interaction with human agents. Furthermore, access to the internet and reconciliation with various databases should create additional value. These devices should make life more convenient, give easy access to entertainment, or save energy in an uncomplicated way. This promise is conveyed by many imaginaries: If your fridge, heating, or TV is a smart one, your life will become easier (Lupton et al. 2021). On the other hand, the practices in daily life with smart home devices do not correspond to

these envisioned applications. The convenience and seamless interaction many devices guarantee, and media discourses suggest, do not hold up in everyday use. Rather, with systems that are currently available, the saved effort is substituted with new forms of work, such as maintenance of the systems and problem-solving (Strengers et al. 2019). The technology itself lags far behind the imaginaries. The field of smart homes, therefore, is a good case study to investigate the relationship between discourses (in the public and through media) around a technology and everyday practices. So, what is the influence of these imaginaries on everyday use? Do they play a role in everyday practice or only in an intermediate sense through the visions of the developers (Ribak 2019; Seaver 2017)? Playing into these questions is also the role of social science in this relationship. Should it concentrate on the imaginaries or the everyday use of technologies? Literature suggests that in the field of the smart home – or the Internet of Things (IoT) as a whole – a fixation on the imaginaries overlays everyday practice (Lupton 2020). While an analysis of the imaginaries is important to understand the expectations of the people who develop and use these devices, it is at least as important to know what the everyday practice of use looks like in order to contrast these often unrealistic imaginaries. I want to ask the question, what is actually happening in the smart home, and would like to contrast this with these discourses. This relationship between the imagined technology, the actual technology available, the practices around the actual technology, and the discussions about the technologies can thereby shed light on numerous (AI) technologies. Through this contrast, it can be made clear which false expectations of techno-solutionism (Morozov 2013) are often involved in the discussions and, accordingly, shift the focus from abstract problems that may never occur to actual problems that already exist today.

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115 'Material Resistance, Infrastructures, and Intelligibility: Theoretical explorations of In/visible Infrastructures ' by Suzette Kahlert (European University Viadrina)

Contribution abstract Susan Leigh Stars concept of infrastructures is widely used to research infrastructures and especially classification systems (Star 1999; Bowker/Star 2000). In the nine aspects of infrastructure Star claims, material resistance plays an implicit role and is not assigned a distinctive category. Nonetheless, analyzing my online ethnography of the ongoing process of building the (decentralized) infrastructure matrix.org for five months, it was apparent that resistant materiality (of technology or the infrastructure itself) often played a crucial role in the sense making of the infrastructure through their users and developers. For example, the breakdown of the main matrix.org server led to two very different reactions from users: one group of users was concerned that the infrastructure itself is not reliable and some of them left, while the other group was pleased that the functionality of decentralization was proven through this break down. Until further investigation this aspect of material resistance was deeply linked to the concept of in/visibility within the infrastructure itself. This led me to turn Stars concept on its head and focus on in/visibility as a theoretical vehicle. In the theoretical framing of Star invisibility itself is embedded in these nine dimensions, but it is linked to different actors and focuses mostly on in/visible work. It is worthwhile to expand the concept of in/visibility (Arrive 2020; Butler 2004) to stress the dimensions of co-construction – which also includes material resistance - and intelligibility. The shift and focus of in/visibility of infrastructures stresses the relational aspect of in/visibility itself. I claim that in/visibility as theoretical and analytical frame for researching infrastructure is very productive and helps to embed infrastructure into practice and vice versa.

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116 'Technology in use: the examination chair as infrastructure, interactional resource and social practice in the gynecological practice.' by Malin Houben (University Bielefeld)

Contribution abstract Technology can be considered as essential infrastructure for modern medical procedures. While technologies like the stethoscope or the ultrasound sonogram circulate in numerous medical practices, a particular utilization of technology can be observed in medical subfields (e.g. using ultrasound sonography to construct the unborn fetus as a body and a person in pregnancy screenings). For some specialized medical fields, certain technologies can even be considered as indispensable infrastructure. For the discipline of gynecology this is the examination chair. It´s material appearance circulates between a piece of extraordinary furniture – a hybrid of and a chair and a divan with stirrups for the legs – and high-tech engineering device that moves and rotates by demand. It´s key feature is to position the patient´s genital area vis-à-vis to the eyes and hand of the gynecologist. Following the ethnomethodological approach of Suchman et al. (1999), I will empirically reconstruct this technology as social practice, by conducting a critical analysis of technical discourses and practices of technologies-in-use. Instructions and scripts on the execution of a vaginal examinations highlight the examination chair as an essential tool that comes with specific problems: In particular, the patient´s fears/experiences of discomfort and exposure, and the practitioner's reliance on ergonomic access to a well prepared and internally relaxed body. Reconstructions of discourse on the technology in use (e.g. Sabisch 2007, Ehrnberger et al. 2017) primarily focus on generalized gendered asymmetries of power between (male) practitioners and (female) patients. However, ethnographic data I have conducted in a gynecologist´s office allow to reconstruct the procedural handling of the examination chair and indicate even more practical interactional problems: To position a patient on the chair is a coordinated interactional accomplishment in which the materiality of the device and the ability of the bodies involved make a difference. Noticeably, every step towards bodily proximity is instantly paired with practices of achieving distance. The technology of the examination chair is not just a static infrastructure or discursive script participants react to, but an interactional resource for social practice in the gynecological practice.

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#117 'Conceptualising everyday practices within social-ecological provisioning systems' by Luca Nitschke (ISOE) and Lukas Sattlegger (ISOE)

Contribution abstract Social-ecological problems, like climate change or biodiversity loss, are directly linked to the societal regulation of stocks and flows of energy and matter. The (un-)sustainability of these circulations – as certain bio-physical flows between technical infrastructures and natural ecosystems – is a core topic of social-ecological research. Systemic approaches in social ecology (SES) in general and provisioning systems in particular have proven themselves as powerful tools for analysing the specific patterns of regulation that determine certain circulations (Liehr et al. 2017; Fine et al. 2018). However, while SES enable a profound understanding of infrastructures as enabler and stabiliser of certain material circulations, current system models are less sensitive for the dynamics of everyday use and appropriation of these infrastructures. In this regard, theories of social practices (Shove et al. 2012; Schatzki 2019) provide a useful model for analysing the routines, habits and changes of human behaviour that are crucial for the efficiency, functionality and sustainability of certain infrastructures and the material flows they enable. For example, the analysis of social practices can help to understand energy consumption, land use or mobility as embedded in certain ways of living that connect several provisioning systems. Vice versa, exists a strong interrelation of the material circulations that determine climate change and biodiversity loss with the persistence and change of everyday practices. Our contribution aims to elaborate on the relationship between social practices and provisioning systems in order to develop a comprehensive model combining both lenses. Both concepts apply a relational perspective that brings together material and symbolic elements. Hence, they agree in considering infrastructures and materiality as important aspects for the ongoing reproduction and transformation of societal configurations. However, bringing together these differing conceptual perspectives, leads to multiple epistemological difficulties regarding scale, the role of materiality and agency. Abide these differences, we propose an analytical model, which enables the empirical investigation of complex circulations between society and nature through a praxeological perspective, without remaining on a micro-sociological level. The model takes the analytical distinction between social structures and processes ('society') and natural structures and processes ('nature') as a starting point, in order to investigate their interrelations. Specific social practices (e.g. commuting, gardening) and the network of practices they are connected to, play a central role in mediating the several material (e.g. infrastructures) and symbolic (e.g. values) dimensions of the societal relationship with nature. Our model thereby enables a case specific analysis of regarding the stability as well as the (un-)sustainability of certain circulations. After presenting our conceptual approach, we will briefly exemplify our concept on one or two cases from ongoing research in the fields of urban commuting and urban gardening.

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Circulating futures: On how to analyze, evaluate and shape the circulations of sociotechnical futures and their impacts for the demands of technology assessment (2/4)

Room H10

Panel organised by Jascha Bareis (Institute for Technology Assessment and Systems Analysis (ITAS)) and Christopher Coenen (Institute for Technology Assessment and Systems Analysis (ITAS)) and Torsten Fleischer (Institute for Technology Assessment and Systems Analysis (ITAS)) and Alexandros Gazos (Institute for Technology Assessment and Systems Analysis (ITAS)) and Janine Gondolf (Institute for Technology Assessment and Systems Analysis (ITAS)) and Alexandra Hausstein (Institute for Technology Assessment and Systems Analysis (ITAS)) and Peter Hocke (Institute for Technology Assessment and Systems Analysis (ITAS)) and Andreas Lösch (Institute for Technology Assessment and Systems Analysis (ITAS)) and Dirk Scheer (Institute for Technology Assessment and Systems Analysis (ITAS)) and Jens Schippl (Institute for Technology Assessment and Systems Analysis (ITAS)) and Ulrich Ufer (Institute for Technology Assessment and Systems Analysis (ITAS))

Panel abstract Technology Assessment (TA) is a research and advisory practice, that works with sociotechnical futures like visions, expectations, utopias, dystopias, and scenarios. These futures influence future-oriented decisions and actions by (co-)structuring and (pre-)determining socio-epistemic practices in the present. Because they circulate between different arenas of society involved in processes of innovation and transformation, they become effective means of transformation. Therefore, TA develops and applies a set of methods to (co-)analyze, to (co-)evaluate and to (co-)shape not only these futures, but also their circula-

tions. In doing so, TA aims to contribute to a responsible generation, shaping and use of these futures by minimizing undesired and fostering desirable impact on decisions and actions. The circulating futures serve as essential mediators between different socio-epistemic practices. They are generated for different needs and applied for different reasons. While circulating they are interpreted, translated, and (co-)shaped by their use-cases. TA seeks to assess said transformations in order to study their effects in and on the processes of innovation and the patterns of societal change accompanying them. When futures and their circulation are analyzed in practice, implications and presumptions come to the fore, that can transform traditional research practice. In that, TA is a driver of integrative, interventive or co-constructive research practices when and for interacting with society. The Institute of Technology Assessment and Systems Analysis (ITAS) is organizing this panel for the STS-Hub. The panel is divided in four slots, which will consist of presentations of ITAS researchers as well as from other contributors from the broad field of STS. The aim is to establish a mutual learning environment, so to engage in the circulation of approaches between the different research practices and research cultures in the communities of the STS-Hub. 1) Theories and methods applied in research and interactive practices on circulating futures (Slot organizers: Andreas Lösch & Jascha Barais (ITAS/KIT) 2) Heuristics (co)shaping the circulation of futures in knowledge productions processes (Slot organizers: Janine Gondolf & Christopher Coenen (ITAS/KIT). 3) Circulating futures in the co-evolution and co-shaping of sociotechnical systems (Slot organizers: Torsten Fleischer, Jens Schippel, Dirk Scheer & Peter Hocke) 4) Circulating Futures by Anticipation: Resilience, Innovation, Complexity and Crisis (Slot organizers: Ulrich Ufer, Alexandros Gazos (ITAS/KIT) & Alexandra Hausstein (ITZ/KIT)

with

118 'Techno-anthropological visions as a focus in hermeneutic technology assessment' by Christopher Coenen (Institute for Technology Assessment and Systems Analysis (ITAS) Karlsruhe Institute of Technology (KIT) Postfach 3640 76021 Karlsruhe)

Contribution abstract Technological visions of a reconstruction of human corporeality, grouped under terms such as 'human enhancement', 'cyborgisation' and 'transhumanism', have played a key role in the emergence of hermeneutic technology assessment. This contribution discusses why and how this has been the case, and what this can tell us more generally about the use of futures in processes of communication and knowledge production in technology assessment and related science and technology studies. In addition, some suggestions are made from a hermeneutic technology assessment perspective to eventually take

discourse and research on this topic a step forward again. Some results of the FUTUREBODY project will be presented in this context.

119 'Tracing Scientific Responsibility, Integrity and Legitimacy: The Case of Scientific Policy Advice' by Janine Gondolf (Institute for Technology Assessment and Systems Analysis (ITAS) Karlsruhe Institute of Technology (KIT) Postfach 3640 76021 Karlsruhe)

Contribution abstract Today, anything is on the Internet and available forever e.g., because accessibility, shareability and intelligibility are key factors to public justification that fosters legitimacy, integrity, and responsibility. So, even policy advice institutions engage in e.g., online activities underpinning policy advice statements by press releases. Ideally this should not be problematic: scientific policy advice is that kind of expert exchange that is specifically designated to work without capacity building for contexts of application and without feedback loops. But in practice epistemic breaks and narrative miss match are easily detected e.g., in textual artefacts, and are well known t: o TA and STS practitioners. While contextualizing and problem solving, epistemic traceability, and the context of origin of knowledge and information are seldom moderated nor curated – so, the political and historical context of facts and figures transmitted, as well as the knowledge (co)creation processes of expert teams producing advisory texts are lost in translations. With my contribution, I probe this specific field of scientific work and its artefacts, examining what is meant by labeling these practices 'scientific', then pointing out implications for 'scientificness' writ large for this form of expertise at intersections. If scientific statements in textual artefacts preserve their multi-dependent translation processes and their provenance, how can scientists translate deep knowledge into useful information for those outside the field? How does science better go about explaining itself and its findings? How does modern scientific policy advice better phrase e.g. uncertainties and open questions? What renders scientific knowledge meaningful and reliable for e.g., politicians and publics?

120 'Spinning in circles – structuring the circulation of techno cultural imaginaries' by Wenzel Mehnert (Societal Futures, AIT Vienna; Berlin Ethics Lab, TU Berlin)

Contribution abstract Sociotechnical Futures (SF) are mediated visions of emerging technologies and how these technologies might change society in the future. As various contemporary authors from science and technology studies point out, these visions are shaped by the culture from which they originate. For example, visions of mind upload show similarities to Christian believes of immortality or the promise of artificial life becomes repeatedly attributed to new technologies throughout western history – without ever fulfilling the promise. It

appears as if SF is not about the technology, but rather a steady renewal of culturally shared imaginaries. Thinking with Cornelius Castoriadis, imaginaries are the building blocks from which culture is constructed. For a hermeneutic reflection of SF, the concept of the social imaginary can be helpful to structure a deconstruction process of the future visions at hand, to understand where the often-overhyped promises of emerging technologies come from and to trace how they circulate in different arenas of society. From this perspective, SF merge culturally shared imaginaries with new technologies, institutionalize them and shape the imaginative and associative space of new technologies before the technologies exist. In this paper, I want to present an approach for a hermeneutical reflection of SF building up on the concept of the imaginary. Following different approaches and definitions, I will present an epistemological heuristic for a structured analyses of imaginaries and their circulation within the temporal and cultural ecosystem of emerging technologies.

121 'From Reliability to Trustworthiness - A Hermeneutics of Suspicion' by Alfred Nordmann (Institute of Philosophy Technical University of Darmstadt (TU Darmstadt) Residenzschloss 1 64283 Darmstadt)

Contribution abstract Reliability is a technical category signifying steadiness, stability, predictability of performance. Trustworthiness is a social category that is motivated and underwritten by motives and reasons. To trust a technology or to trust science involves more than knowing that it works reliably. And yet, reliability often displaces trustworthiness - presumably because it is all we have to go on: In the absence of other criteria, reliability constitutes the relatively best evidence and reason for trusting science and technology. The presentation seeks to unpack this judgement, explore its limits and expose its presuppositions.

Critical Data & Software Studies

Room S01

Panel organised by Paula Helm (University of Amsterdam/Media Studies Department)

Panel abstract 'Raw Data is both an oxymoron and a bad Idea. Instead, data should be cooked with care.' Geoffrey Bowker, 2005.

Based on the almost mythical promise that data-driven insights are the foundation for optimized processes and decisions, data has developed as an immensely powerful socioeconomic and political force over the past two decades. In response to this, the new field of Critical Data Studies is concerned with demystifying Big Data. CDS deconstructs the notion that data is a raw mass and thus an immediate reflection of reality. Instead, this notion is replaced with an understanding

of data as the product and catalyst of complex social practices that are not only contingent, but oozing with asymmetries of power. The discursive act of replacing the metaphor of raw data with the metaphorical concept of cooking is a central feature of Critical Data Studies. Borrowing from the allegory of cooking, one of the main tasks of CDS is to deconstruct the process of preparing data meals from ingredients to dish, and to illuminate step by step what happens during this process. In the spirit of engaged research, this also serves to clarify what distinguishes a good cooking process or dish from a bad one.

with

122 'Retracing the circulations of infrastructural influences in and through software-embedded models' by Dzifa Ametowobla (TU Berlin)

Contribution abstract Software contains models of the social embedded in code. [...] Through software, models of the social circulate in digitalized societies. Their contents and purposes change through negotiations shaped by the power structures in the contexts they traverse. While practices of software use are often visibly contested, the shaping and circulation of embedded models goes largely unnoticed. Social scientists who investigate applications, algorithms, or other aspects of software usually treat these artefacts as monolithic entities. But software consists predominantly of standardized components, recombined to generate new functionality. Popular components are part of the infrastructure of digital societies [...] While many actors on the trajectory of a software may add something to its embedded models, the power to influence software use on a large scale converges where many of these trajectories meet: in processes of component design. [...] I propose a methodology for investigating practices of software use that brings such influential negotiations into focus by retracing the circulations of software-embedded models. The methodology is illustrated with examples from a case study about the use of SAP in surgical planning.

123 'Analysing the conceptual space of ont*. A Theoretical Sociology of Verran's Ontics, Mol's Ontologies and Barad's Apparatuses' by Ingmar Lippert (Brandenburg University of Technology Cottbus-Senftenberg)

Contribution abstract Ontologies, ontics, onto-epistem-ologies – these three terms encompass at least four concepts, doubled even when paired with the notion of politics, at least in the work of STS scholars Mol, Barad and Verran. The concepts, in this conceptual space of ont*, are slightly overlapping, in complicated relations, but also afford different analytical work for problematising reality effects in more or less direct action. Empirically, I draw on an ethnography of data practices within a contemporary infrastructure for accounting the corporate self within the anthropocene. I set out from showing that with the conceptual space of ont*, I can bring forward in analysis how doing data in politically-organisationally

situated moments is stabilising and destabilising political-economic relations. I then analyse how the three scholars' various ont* concepts differ in analysing the political effects of mundane data practices. For that, I tell and reanalyse an ethnographic story of data work for, and with, each of the three scholars. I conclude in terms of ont*'s affordances for STS analysis of hegemony and counter-hegemony, working towards a form of grounding critique from below.

124 'Circulation of Data and capital as praxis' by David Waldecker (Universität Siegen)

Contribution abstract While a close relationship between the growing relevance of data and new forms of capital accumulation has been noted, an interesting similarity between capital and data has been often missed: data and capital both need to circulate, they need to be activated and mobile in order to be what they are. The last 50 or so years have been described as an age of "space-time compression" (Harvey 1989) and as a "space of flows" (Castells 1996), as an age of heightened mobility of people, goods and values. The Internet as a global infrastructure was seen as a central element in the organization of the new "information society" (ibid.). Nowadays, data is seen as a "ressource" (e.g., Srnirek 2016) for a new form of global and financialized capitalism. Instead, this paper conceives capital, with Marx, and data as a social relation. Both data and capital become relevant only in practice. The paper combines theories concerning the circulation of data and the circulation of capital as well as a "praxeology of datafication" (Burkhardt et al. 2022) in order to understand how circulation of data and capital are intertwined today.

125 'What the Climate Hack?' by Paula Bialski (Universität St. Gallen) and Julien Mc Hardy (University of St. Gallen)

Contribution abstract Our contribution explores our current fieldwork, that follows a regular climate hackathon. The Swiss-centred, globally-dispersed group of climate activists, tech start-up entrepreneurs, software engineers, designers, researchers and students has been meeting weekly since 2021 to 'do something' against climate change, by building technologies that solve climate-issues. The online hack meetings are shaped by agile methods and oriented towards speed, efficiency, corporate leadership, datafication, and disruptive action. The urgency of 'the hack,' that promises to 'do something now,' clashes with the temporalities of slow, legacy infrastructures and bureaucratic systems that move at snail-speed and contrasting temporal outlooks such as long-term planning. The participants prioritise start-up methodologies to 'get stuff done.' Yet, they acknowledge that the start-up model with its imperative for action is part of late capitalist modes of production that accelerated climate change to the point of no return. Based on eight months of ethnographic fieldwork with this collective, our contribution

explores the hack as a place where notions and practices of climate activism, start-up culture, citizen engagements circulate, clash and shift. The commitment to speed is set against the backdrop of catastrophic climate change and slow infrastructural change; and threaded with notions of care and community that carry potentially radically different possibilities. We'd love to share our ongoing work at the STS-hub conference to understand if and how the tactics for participating in climate action we see in the hack might apply to various forms of ad-hoc climate action.

What makes data circulation possible?

Room S13

Panel organised by Anne Koppenburger (RWTH Aachen) and Danny Lämmerhirt (Siegen University)

Panel abstract We live in an era where data-driven practices have long left the scientific and public administrative realm to become an important part of day-to-day activities, like nutrition, physical exercises and self-observation. Data draws ever wider circles, it seems. However, at the moment, legal, regulatory and infrastructural efforts to enclose free floating data can be observed in many countries (Floridi 2015). For example, aside established actors such as biobanks and clinics, the health data ecosystem is increasingly expanding, including novel data sources like "digital phenotypes" (Jain et al. 2015; Birk et al. 2021), public and private actors that mediate access to datasets (Snell, Tarkkala, and Tupasela 2021), and various practices for interpreting what counts as normal and pathological (Sharon and Lucivero 2019). Just in May this year the European Health Data Space was launched by the European Commission saying: "Health data are the blood running through the veins of our healthcare systems." (European Commission 2022). In Europe and elsewhere, these governmental activities and investment in building capacities for health data management have been prepared for a while now. These preparatory policy- and lawmaking activities, as well as the accompanying infrastructural efforts raise questions as to how health data circulation will be structured according to social, cultural, political, economic and technological norms, standards and practices. They also raise questions as to what counts as health or medical data in the first place, based on what valuation practices. This panel seeks to explore what makes the circulation of data possible and its normative, ontological, and economical consequences (Abend 2020). We are interested in both conceptually and methodologically oriented contributions. Relevant topics for abstracts include, but are not limited to, the following issues: Who is involved in building, regulating and operating spaces in which data cir-

culates? Are there emerging any (new) data related professions related to spaces of data circulation? How do novel arrangements of data circulation interact with existing institutions? How are roles of gatekeeping and mediating redistributed? What kind of ideas, interests, goals and desires are motivating the circulation of data? Are they related to particular arrangements of data circulation? What role could organizational arrangements, such as established commercial platforms, data trusts or health data cooperatives play for mediating between multiple interests in health data?

with

126 'Educational Data Journeys: Unpacking the work behind data flows and data friction' by Juliane Jarke (University of Graz) and Irina Zakharova (University of Bremen, ZeMKI & ifib)

Contribution abstract Educational institutions are the backbone of social, cultural, and economic development and digital data play an increasingly important role for the organisation of teaching and learning. Digital data deliberately produced for the purposes of observation or assessment and data generated automatically through the routine operations of digital devices and systems allow creating comparable accounts which enable comprehensive evaluation. Key to this process is the ability of data to move between and adapt to different social and organisational contexts. Digital data make it possible to synthesise and integrate information from heterogeneous data sources and different types of structured or unstructured data. However, data rarely flow smoothly, friction occurs that impedes data movement because of the wider technical, organisational, political, social, and cultural aspects of data creation and use. That data flow within and across organisations is, consequently, an accomplishment and not a given. This raises the question of how data are connected within and across organisations, namely, how data flows are produced and maintained. To answer this question, this paper proposes data journeys as a conceptual tool for examining the work required to make data flow within and across organisations. This paper is based on a broader three-year research project that explored datafied organising in the field of education and specifically focuses on movement of data about lessons cancellation. We conducted interviews with educational actors in K-12 schools in four federal states of Germany and with information systems designers responsible for development and maintenance of educational data infrastructures in these federal states. On a conceptual level, a data journey approach attends to the organisational knowledge practices and data infrastructures as central for shaping how data move. We argue that data always emerge from and move through (organisational) knowledge practices of those organisational actors working with data along specific legs of their journey. Data work, movement, and friction are all situated in these knowledge practices. The organisational information infrastructures

provide and shape the vehicles through which data travel. Empirically, applying the proposed data journey approach we identify three types of journeys defining, to a diverging extent of detail, what counts as data how (e.g. actionable data, good or bad data, valuable data, trustworthy data). Surprisingly, our findings show that despite the individual differences the implications of each data journey are similar. For the future research of data movement, this raises a question of whether the embeddedness of organisational practices and data infrastructures into broader political, economic, and normative relations has a dominant role in shaping data movement than the data work of single organisational actors.

127 'AI data circulation: data politics between openness and extraction' by Katja Mayer (University of Vienna)

Contribution abstract Lately, many have asked what "open in AI" actually means (Ding, 2022). Does it refer to collaboration and the open science paradigm to make AI research more transparent, accessible and re-usable, maybe even allow for citizen participation in its development? Or does it mean access to training data and AI models free to use? How open are not only the technologies, but also the processes involved in their development, distribution and use? Who are the actors, the structures, and what types of agency is created in this data circulation? Could new open dataset and methods aggregator platforms become the new centres of calculation and hence power (Latour, 1987)? My contribution - a paper currently in writing - will attempt to address and answer some of these questions. It is part of my research project on open data practices in the computational social sciences, where I have so far touched upon the social constitution of openness of training data for machine learning especially in regard to responsibility and ethics. Based on my approach informed by critical data studies (Kitchin & Lauriault, 2014) I am looking at the public discourse around open data aggregators as venues of knowledge production, which allow for both the accumulation and circulation of resources. Following Leonelli's suggestion to investigate "packaging strategies", hence the activities that prepare the data for de-contextualisation, travel and re-contextualisation depending on specific epistemic cultures (Leonelli, 2010), we can discuss how these new forms of data (and methods) supply format data production, data availability, and data use. A focus then is ownership and trust - on the new possibilities to gain recognition for the creation and maintenance of data sets, but also to evaluate them in scientific quality as well as ethical framework. We will consider whether these new possibilities challenge previous extractive logics, which have disconnected data from the often exploitative context of production.

128 'Expectations as enablers?' by Robin Preiss (University of Lübeck) and Daniela Zetti (Technical University of Munich, Department of Science,

Technology and Society) and Christian Herzog (University of Lübeck)

Contribution abstract This contribution is based on an empirical study that addresses expectations of e-government from both public administration and citizens. It is indicated that trust, obligations and reciprocity play decisive roles in the negotiation processes between citizens and the administration. Our research results suggest that, in addition to the perceived added value, flexible online and offline administrative procedures, as well as transparent processes, can be decisive success factors for e-government. Furthermore, the data indicates that requirements for digital and analog administrative procedures differ. Both interfere with the human self-image as a self-determined individual. In order to be able to examine the exchange processes between administration and citizens in more detail, we present the extent to which sharing personal data with the public administration occupies a special position. We argue that personal motives play an enabling but also an aggravating role regarding the circulation of data in this area of social coordination. This contribution is based on results from a set of guided interviews with citizens and we also use findings from participant observations with administrative personnel performing the administrative routines of birth registration, registration of a new residence and unemployment registration. Overall, the study is intended to provide an insight into the promotion of a city´s citizens´ digital sovereignty. Here, we elucidate how a comprehensive approach can help to understand and explain digital sovereignty. We ask and discuss how the concepts of reciprocity and trust are negotiated between citizens and the administration and why they play an important role for e-government approaches.

129 'Testing the anonymity of social science data' by Jan Schmutzler (Ruhr-University Bochum) and Estrid Sørensen (Ruhr-University Bochum)

Contribution abstract The transfer of sensitive microdata for research purposes is in constant tension with data protection and must therefore be justified on an ongoing basis. Data institutes have developed processes to minimise the risk of data protection breaches and thus to enable data sharing (Watteler/Kinder-Kurlanda 2015). These processes involve various tests that among others assess the anonymity of the data, and the trustworthiness of the recipients. The criteria of these tests are partly based on international standards and partly on experiential knowledge which is often the decisive criterion. Data protection authorities have the duty of supervision and can intervene in case of doubt. However, data protection authorities generally have great faith in the self-control of science, and intervention rarely happens. Our analysis inquires into a German data institutes' standard process of testing data anonymity. Our interest is to understand how these tests work as devices to end controversies over data privacy, and thus to

enable data circulation. Marres and Stark (2020) proclaim a new generation of the sociology of testing, in which the focus is on the growing generative power of tests and the consequently growing complex of testing cascades. For them, testing is not only a method of knowledge generation or assessment, but also explicitly a form of intervention. The whole ecology of testing is relevant and not only the moment of testing itself. We propose to use their framework to analyze the various testing and countertesting which are involved in social science data institutes. Inspired by Collins (1982), who described how scientific disputes can only be conducted qua experiments, we understand every testing as arguments which can be subjected to rhetoric analysis. Part of this is Vertesi's notion of institutional regress, by which, borrowing from experimental regress, she means scientific practices characterised by institutional uncertainty. As in rhetoric, many factors play a role in testing and not all of them are transparent.

What STS contribute to Science Communication (Fishbowl)

Room S03

Panel organised by Dr. Pascal Berger (Forum Internationale Wissenschaft (FIW), University of Bonn) and Prof. Dr. David Kaldewey (Forum Internationale Wissenschaft (FIW), University of Bonn) and Dr. Julia Schubert (Universität Speyer)) and Prof. Holger Wormer (TU Dortmund)

Panel abstract In this panel we present the research program of the Rhine Ruhr Center for Science Communication Research (RRC) – a joint project of TU Dortmund University, the Institute for Advanced Study in the Humanities Essen (KWI), the University of Bonn and Bonn-Rhine-Sieg University of Applied Sciences. Funded by the Volkswagen Foundation (2021-2026), the consortium aims to investigate and evaluate what role STS play in science communication. The research strategy of the RRC is informed by the observation that in times of disinformation, media fragmentation, and instrumentalization of science, scientific knowledge occupies a precarious position in the public sphere. On the one hand, it is overshadowed by conspiracy narratives and science skepticism; on the other hand, it is politicized or simplified – often even with the best of intentions. Scientific research, by contrast, is diverse, confusing and uncertain – and yet leads to reliable, robust and relevant knowledge. Against this background and in times of digital communication, both journalists and scientists face new challenges. It is no longer enough to communicate only disciplinary knowledge and research results. Rather, it is crucial to also expand communication practices in order to adequately convey both the nature and functioning of science and the science

system. This requires new ways of communicating science, but also new methods to explore them. The panel is organized as a fishbowl format. We start by briefly introducing the research program of the RRC. Session attendees will then be invited to join a discussion about what kind of STS knowledge might be particularly relevant to address problems of science communication and post-truth debates in the public sphere. This will also allow us to reflect on the problem of how visible or invisible STS are in the public sphere. As we are also planning an international conference on this topic in Bonn, 14-16 June 2023, the panel may also serve as an appetizer and an opportunity to build a network of STS researchers interested in science communication.

Die Fabrikation und Zirkulation von 'Bildung'. Zur Reflexion bildungsbezogener Kernthemen aus Perspektive der Science and Technology Studies. (2/2)

Room S09

Panel organised by Julia Elven (Friedrich-Alexander-Universität Erlangen-Nürnberg) and Susann Hofbauer (Helmut-Schmidt Universität, Fachbereich Erziehungswissenschaft)

Panel abstract Das Panel lädt zu einer Reflexion der akademischen Bearbeitung zentraler bildungsbezogener Themenfelder, Gegenstände und Begriffe aus einer durch die Science and Technology Studies informierten Perspektive ein. Vom Standpunkt der STS aus betrachtet, geraten dabei nicht so sehr Ideengeschichte und epistemologischer Aufschluss als vielmehr die wissenschaftspraktische Herstellung interdisziplinärer und disziplinspezifischer Kernkonzepte und (Denk)Schulen, aber auch von Problemstellungen, Forschungsgebieten etc. in den Blick. Liegt der Interessensfokus auf dem konkreten, kontextbedingten Modus der Produktion und Zirkulation, ist nach den Technologien der Herstellung und Weitergabe, nach produktiven und distribuierenden Praxisensembles, Netzwerken und Aktanten, nach Machtdynamiken in definitorischen Konkurrenzen bzw. Interferenzen, nach diskursiven Hegemonien und blinden Flecken, nach Polysemien, aber auch nach Begriffsgenealogien zu fragen. Die STS betont beim Vergleich differenter Begrifflichkeiten wie auch bei der Betrachtung von deren Zirkulation und historischen Entwicklung, die praktische Fabrikation, Vieldeutigkeit und Kontingenz von ‚Bildung', ‚Erziehung', ‚Lernen' etc. Das Panel soll der Auslotung bzw. Entfaltung STS-spezifischer Zugänge in Themenbereichen der Bildung und Erziehung dienen.

Teil 1: Hegemonien, Konkurrenzen und soziale Ungleichheiten
Teil 1 des Panels beschäftigt sich dabei insbesondere mit den Hegemonien, Kon-

kurrenzen und Interferenzen in der (diskursiven) Herstellung und Zirkulation bildungsbezogener Interessensgegenstände. Die STS erhellt nicht zuletzt auch machtanalytische Aspekte: Die Herausbildung und Zirkulation hegemonialen Wissens, die Durchsetzung bestimmter Theorietraditionen oder die Ausdehnung einzelner Forschungsmethoden müssen in ihrer Kontingenz reflektiert werden. Dies gilt insbesondere auch auf konzeptioneller und begrifflicher Ebene: Gegenstände und (Kern-)Konzepte zeichnen sich trotz ihrer z.T. erheblichen definitorischen Strenge immer auch durch eine Unschärfe der Bedeutung bzw. Polysemie aus, die gerade durch den Anspruch wissenschaftlicher Exaktheit verdeckt wird; sie wirken dabei aber durchaus zentrifugal, helfen, eine richtungslose Zirkulation zu korrigieren (Keiner 2019) und eröffnen nicht zuletzt den Spielraum für Umdeutungsprozesse. Die Beiträge gehen den globalen Durchsetzungskämpfen um die machtvolle Etablierung und Perpetuierung von bildungsbezogenem Wissen sowie Technologien der Wissensproduktion nach. Dabei verweisen sie nicht nur auf die Situiertheit (Haraway 1995) erziehungswissenschaftlichen und edukativen (Bildungs-)Wissens, sondern auch auf die hierin eingelassenen Macht- bzw. Herrschaftsstrukturen, die sich in der selektiven Wahrnehmung (und Nicht-Wahrnehmung) von zirkulierenden Wissensangeboten ebenso ausdrücken, wie in der Definition von Bildung und Kompetenzen.

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Teil 2: Technologien, Praxisensembles und Materialitäten Teil 2 des Panels beschäftigt sich dabei insbesondere mit den Technologien, Praxisensembles und Materialitäten der Produktion wissenschaftlichen Wissens zu Bildung und Erziehung: Dass entsprechende Interessensgegenstände und Konzepte aufgrund ihrer vorwiegend geistes- und sozialwissenschaftlichen Bearbeitung gemeinhin nicht zu den technologieintensiven Disziplinen zählen, verkennt, dass auch bildungswissenschaftliche Praktiken maßgeblich auf Technologien, d.h. auf Verfahrensstandards und einer instrumentellen Rationalität basieren (Häußling 1998). Zudem bringt die interdisziplinäre Auseinandersetzung mit ‚Bildung' etc. beständig Aktanten wie z.B. Publikationsorgane, oder Analysesoftware hervor, die maßgeblich an der Hervorbringung der Interessensgegenstände und Wissensbestände mitwirken, bislang allerdings wenig Beachtung finden. Die Beiträge setzen sich ethnographisch und historisch mit der Bedeutung auseinander, die Forschungsmethoden, Techniken der Wissensaufbereitung und -weitergabe, Modi wissenschaftlicher Praxisreflexion, Praktiken der Evaluation, Selektion, Kanonisierung etc. in ihrer spezifischen Materialität und Technisiertheit für die Herstellung, Reproduktion und Transformation bildungsbezogenen und bildungswissenschaftlichen Wissens entfalten.

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with

130 'Technologie-Effekte in der ethnographischen Erforschung "affektiver Landschaften"' by Birgit Althans (Kunstakademie Düsseldorf) and Mirjam Lewandowsky (Kunstakademie Düsseldorf) and Janna Wieland (Kunstakademie Düsseldorf) and Fiona Schrading (Kunstakademie Düsseldorf)

Contribution abstract „Wasteland?", ein an der Kunstakademie Düsseldorf angesiedeltes BMBF-Forschungsprojekt untersucht mit einem interdisziplinär zusammengesetzten Team (Erziehungs-, Kunst-, und Medienwissenschaft sowie Kulturanthropologie) „Ländliche Räume als Affektraum und Kulturelle Bildung als Pädagogik der Verortung". Drei verschiedene Kulturinstitutionen (Theater, Kunststiftung, Museum) in unterschiedlichen ländlichen Regionen Deutschlands und deren lokaler ‚Umraum' werden dabei als ‚Räume affektiver Verortung' aufgefasst und mittels teilnehmender Beobachtung, ethnografischen Interviews, Praktiken des „Dérive" (Debord 2005) und der „Sensory Ethnography" (Pink 2015) beforscht. Um Orte und ihre Geschichten als ‚Affekträume', die sich in der täglichen Verschränkung der Aktivitäten menschlicher und nicht-menschlicher Akteur*innen entwickeln, zu beschreiben, werden neomaterialistische und affekttheoretische Ansätze (vgl. u.a. Slaby/v. Scheve 2019, Massumi 2002, Gregg/Seigworth 2010, Seyfert 2019) herangezogen. Wir folgen den Spuren der naturkulturellen Landschaften der drei Regionen als „affective landscapes" (Ivinson/Renold 2013) in ihrer ‚performativen Materialität' und den Praktiken und Politiken, die diese prägen. Die im Forschungsprozess produzierten Transkripte, Beschreibungen, Fotos, Videos, und Tondokumente werden dabei als performative Materialien begriffen, die keineswegs als neutrale, objektive Ergebnisse (Daston/Galison 2007), sondern als in ‚Response zur beobachteten Realität' reagierende, als diese befremdende und oft auch ästhetisch wirksam werdende Artefakte (Althans/Engel 2016) aufgefasst werden. In unserem Beitrag könnte unser Forschungsprozess insbesondere mit Fokus auf die technisch-medialen Apparate, Gegenstände und Materialien, mit und durch die wir forschen, analysiert und dabei diskutiert werden, wie diese ‚Erhebungstechnologien' in den Aufzeichnungs- und Darstellungsweisen von ‚Affekträumen' selbst Handlungsmacht haben und mitbestimmen, was sichtbar, hörbar, fühlbar wird – und was nicht. Indem Forschungsapparate – im weitesten Sinne, sowohl Aufzeichnungstechnologien wie auch die künstlerischen Formate umfassend - bestimmte ‚Schnitte' setzen und dabei ‚Unterschiede von Gewicht' (vgl. Barad 2012) erzeugen (und andere nicht), konstruieren sie die ‚Affekträume' in gewissem Sinne mit, bringen sie mit hervor. Ausgehend von empirischem Material aus den drei Forschungsfeldern möchten wir folgende Fragen diskutieren:

• Wie haben Materialien, Aufzeichnungspraktiken und soziotechnische Assemblagen Teil am Forschungsprozess?

• Wie bilden sie Affekträume und affektive Zusammenhänge nicht nur ab, sondern bringen sie mit hervor?

• Welche Un/Sichtbarkeiten, unerwartete Zusammenhänge, Nebeneffekte oder blinde Flecken erzeugen sie?

• „Welche Positionierungen sind geeignet, um in dieser von Spannungen, Resonanzen, Transformationen, Widerständen und Komplizenschaft geprägten Situation zu sehen?“ (Haraway, 1988, 88)

• Wie verhält sich ethnographisches Material wie Texte, Fotos, Video und Sound zu den multisensorischen und affektiven Aspekten der Forschungssituation?

• Wie kann dabei Material entstehen, das auf affektive Dimensionen reagiert, für diese ‚durchlässig‘, empfindsam wird?

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131 ‘Praktiken des Experimentierens. Zur Zirkulation von Wissen im naturwissenschaftlichen Schulunterricht’ by Anna Dorn (Universität Mainz)

Contribution abstract In den letzten Jahren sind im Feld der qualitativen Unterrichtsforschung viele materialitätstheoretische Studien entstanden, die unter dem Begriff der Social Studies of Teaching and Education (Kalthoff 2011/Kalthoff/Röhl 2011) subsumiert werden können. Somit geraten Schule und Unterricht jenseits der klassischen Felder der Laborstudien und der Science and Technology Studies in den Blickpunkt. Mit einer solchen Perspektive werden zum einen ver-stärkt Techniken und Objekte im Unterricht untersucht und zum anderen

tritt die Praxis und Praktiken der Teilneh-mer in den Vordergrund. So fragt der Beitrag erstens theoretisch-konzeptionell an die Laborstudien anknüpfend, wie das Experimentieren im Chemieunterricht gefasst werden kann. Obwohl Experimente im Schulunterricht ganz bestimmte, didaktisch implementierte naturwissenschaftliche Phänomene zeigen sollen, stellen sie für die Schüler*innen eine gewisse „offene Experimentalanordnung“ (Rheinberger 2001) dar. Sie dienen der Generierung eines theoretischen fachdi-daktischen Wissens und gleichzeitig werden Schüler*innen in eine bestimmte schulische Inszenierungspraxis des Experimentierens eingeführt. Der Beitrag beruht auf ethnografischer Feldforschung, die in verschiedenen Schulen sowie einem Schülerlabor einer Universität stattgefunden hat. Ausgehend davon wird gefragt, was Schüler*innen beim Hantieren mit Bunsenbrenner, Reagenzgläser und diversen Chemikalien einüben? Welche Art von Wissen wird durch den Umgang mit Instrumenten, Dingen und Substanzen fabriziert? Damit wird im zweiten Teil das kör-perlich-sinnliche Experimentieren untersucht. Es zeigt sich ein situierter Vollzug des Experimentierens, der gewisse Körpertechniken einschleift. Schüler*innen werden somit in die Praktiken des Laborierens eingeführt und trainieren aber auch zugleich einen disziplinierten Blick auf das Experiment. Durch das konkrete körperliche Manipulieren der Dinge und Substanzen gerät das sich zeigende theoretische Phänomen in Vergessenheit und wird erst bei der Transformation des Beobachteten in eine chemische Schreibweise reaktiviert. Das Experimentieren im Chemieunterricht benötigt eine formale Übersetzung, um ein für die Schüler*innen reproduzierbares Wissen zu erzeugen. Das naturwissenschaftliche Phänomen, das Wissen zirkuliert somit zwischen verschiedenen Ebenen – Sprache, praktischer Umgang, Schrift – des Unterrichts und ermöglicht differente Zugänge.

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132 ‘Technologische Turns in der Historischen Bildungsforschung’ by Manfred Heinemann (Leibniz-Universität Hannover)

Contribution abstract Als geistes- und sozialwissenschaftliche Disziplin steht die Historische Bildungsforschung vielfach vor der Überlegung, ob und wie heute IT-Techniken einsetzbar sind. Naheliegend ist dabei für ihre Empirie die Auswertung von Massendaten in sehr vielfältigen Erscheinungsformen. So beruht der kürzlich von Reinhard Buthmann erschienene Band zur Geschichte der TU Il-

menau (Universitätsverlag Ilmenau) auf nicht weniger als ca. 120.000 Dokumenten. Die Serie „Datenhandbuch zur deutschen Bildungsgeschichte“ (bei Vandenhoeck & Ruprecht, Göttingen) hat als Erbe der föderalen Struktur des Deutschen Reiches bis hin zur föderalen Bildungsgeschichte der Bundesrepublik Millionen von Daten aggregiert, die vierbändige Universitätsgeschichte von Waltre Rüegg (Cambridge University Press, 2011) ist als Lebenswerk entstanden. Die relevanten Archive in diesem Gesellschaftsbereich enthalten heute Unmengen von Dokumenten, deren Forschungserschließung in der Regel thematisch nur punktuell reduziert erfolgen kann. Damit rücken die Transformationsprozesse, die in einer Wechselbeziehung zur Methodologie stehen, in den Vordergrund. Diese wiederum reichen von konstruktiven Software-Entwicklungen, z.B. rahmenorientierten Anwendungen im Bereich der Bild- und Textverarbeitung, bis zur Entwicklung von Hardware zur Unterstützung einer leistungsfähigen Computerausbildung. Die Mitentwicklung von Unicode als einer weltweiten Softwarestruktur zur Textübermittlung, heute bei der Datenübermittlung als UTF-8 im Einsatz, hat zugleich die Wissenskommunikation international revolutioniert und dieses wiederum über die Etablierung der International Standing Conference for the History of Education grundlegend gewandelt. Anfangs noch durch Newsletter, Publikationsreihen usw., noch in traditionellen Formen gestartet, wird die Erkenntnismöglichkeit heute durch gemeinschaftlich IT-basierte Forschungsgruppen weiter gefördert. Dies kann hier nur als angedeutete Erfahrung der jüngeren universitären Arbeit vermittelt werden. Heute erlauben Darstellungen aus bis dato ungenutzten vielfältigen Massendaten Erkenntnisse auch aus jüngster Zeit, z.B. aus der Zeit ab 1945, mit ihren einwirkenden komplex-kulturellen Besatzungen in heterogenen Kulturauffassungen bis weit in die erneuerte föderale Struktur des deutschen Hochschul- und Bildungswesens.

17:30–18:45: Keynote

Keynote by Susann Wagenknecht

Room H02

Panel organised by STS-Hub 2023 Steering and Managing Committee

with

133 'Circulate and leak' by Susann Wagenknecht (Technische Universität Dresden, Institute of Sociology)

Contribution abstract Everything seems to be circulating: knowledge, information, money, commodities, resources, energy, materials, air, the virus. Circulation is a ubiquitous notion in Science and Technology Studies (STS). It is also a notion, however, that hardly anybody attempts to define. It is mentioned across various domains of study, usually in a loose sense and rather by way of a gesture—signalling commitment to relationality and non-linearity, to a dynamic perspective that attends to movement and change, to the study of complex interdependencies that transcend established boundaries and are difficult to trace. While I share these commitments, I seek to probe stronger, more specific notions of circulation. To this end, I reconsider circulation as articulated in theories of practice, in Actor-Network-Theory, and cybernetic social theory. What are these notions good for, what do they make us see? As I will argue, stronger notions of circulation not only illuminate the role of practices and infrastructures, the threat of interruption, and the inevitability of leakage. They draw attention to transformation, materiality, and morality. To probe the purchase of circulation as an analytic term, I will discuss circular economies—i.e., heavily-infrastructured, highly-organized attempts to design novel circulations (of energy, materials, and commodities) and reconfigure existing ones. In my discussion, I focus on the moral economies that sustain circular economies and the ways in which they handle leaks.

19:00–19:45: Open Forum #WeDoSTS 1/2

Open Forum #WeDoSTS – a panel discussion

Room H02

Panel organised by STS-Hub 2023 Steering and Managing Committee and Julie Sascia Mewes (Best Practice working group, stsing)

Panel abstract We invite you to the Open Forum #WeDoSTS to collectively address questions of power within STS. Reflexively, we embrace STS's potential to critically analyse relations and distributions of power, including abuse and struggles, within STS itself. We focus on the structures and infrastructures of STS within the academic system in Germany. What are the patterns of power, how can these be problematised and what reconfigurations of our practices and infrastructures should we explore in our STS community?

Extended abstract Autumn 2022 moved #WeDoSTS on the agenda, positioned in the challenging and critical concern with whether or how STS community enacts some of its analytically postulated values (from feminist care to critical reconfigurations, which are frequently used to frame STS engagement or intervention). This broader framing, #WeDoSTS, in our reading, seeks to create a discursive space in which relations and distributions of power, including abuse and struggles, within STS can constructively inform our discussion and better practice. With this Open Forum #WeDoSTS we seek to initiate a reflexive discourse within the STS community in Germany considering how STS observe ubiquitous asymmetries of power within our scholarly field, how we can problematise these asymmetries and which reconfigurations we should be working towards.

STS has developed an analytic capacity to identify and trouble relations of power within research communities and the academic field, at large. We find these, for instance, in conflicts over sexist behaviour, labour conditions, and contestation over what constitutes good and bad scientific conduct. Inequalities and asymmetries exist. These can be productive and destructive, even toxic. Hitherto, the field of STS in Germany has evaded reflexive analyses of power relations within STS. This is troubling for we can easily sense and recognise the effects of said asymmetric relations within everyday STS practices, considering for instance gender, race, class and labour inequalities. Might these effects even be more problematic in STS than in other fields because of the situatedness of STS in Germany, as a young and not yet well institutionally established and accepted field, compared to more dominant disciplinary communities?

We structure the Open Forum towards meeting this key objective: We hope to spark a productive discussion of how we as members of the STS community want relations of power to be configured tomorrow, for ourselves and for the generations of scientists to come.

Towards this objective, we structure the Open Forum into two parts

Open, 19:00-19:45 We open the Forum with a sketch of the range of relations of power, their asymmetries and abuses. Experts provide us with a starting impulse to discuss existing problematisations and solutions, with short inputs on dealing with abuse of power within academia, conflicts of data, authorship and integrity, feminist and intersectional problematisation as well as labour perspectives on precarious academic working conditions.

Forum, 20:00-20:45 We present guiding questions for small group discussions to support us in de- and reconstructing situated entanglements of power with our everyday STS work and the (infra)structures of academia. For these discussions, we reserve seminar rooms in which informal discussion, as well as discussion with our experts, is possible. We provide documentation material and will draw together these materials for a later publication.

Conceptualising and organising this Open Forum has deeply benefitted from the efforts achieved by the Best Practices working group of stsing, its engagement with feminist, postcolonial and labour struggles in Germany and internationally. That group's process draws on sacrificial labour by a range of non-privileged colleagues, including women and non-binary people, people without permanent residency permits, and scholars without employment or with precarious employment. Note, this paragraph enacts a version of inclusion and recognition that we feel we see far too rarely in STS.

Invited experts

Fanny Oehme has been working as research integrity advisor in the office of the German Research Ombudsman ('Ombudsman für die Wissenschaft') since 2017. Together with her colleagues, she advises researchers on issues of good scientific practice. She is the first point of contact for researchers reporting a suspected scientific misconduct and researchers seeking confidential advice or mediation in specific conflicts related to good scientific practice. Moreover, she supports the ombudsman committee in mediating and arbitrating concrete cases of conflict (e.g., authorship or data usage conflicts). Before joining the German Research Ombudsman, she worked in the field of comparative education research at Westfälische Wilhelms-Universität Münster and Humboldt-Universität zu Berlin. She studied educational sciences and history in Berlin and Groningen (Netherlands).

Claudia Gertraud Schwarz-Plaschg is a postdoctoral STS researcher, activist, and science communicator living and working in Vienna, Austria. She is currently a digital visiting scholar at the University of Edinburgh's Usher Institute. Her interest lies in studying and intervening in the sociopolitical dynamics of (re-)emerging scientific fields, furthering debates about ethical and legal issues, and building (feminist) social movements and communities. Claudia recently

spoke out publicly about her experiences of harassment, sex discrimination, and abuses of power within the STS community, which has sparked a broad debate within the field. She mobilizes the hashtags #MeTooSTS and #WeDoSTS to raise awareness and generate collective action against this problematic status quo—and she wants you to join her!

Dr. Daniel Müller has been the head of the University of Siegen's postgraduate centre 'House of Young Talents' since its inception in 2016. He studied journalism (diploma 1995) and history (MA 1999), and completed his PhD in East European history at Bochum in 2005. 1996-2009 he was a research assistant (concurrently elected speaker of the Junior researchers' group of the DFG-funded Collaborative Research Centre 615 'Media Upheavals' 2007-2009). 2009-2015 he was the head of the Joint PhD Programme at TU Dortmund University (concurrently a member of the university's Staff council for academic and artistic personnel 2012-2015). Since 2019 he has been one of three elected speakers of the Working group of members of the mid-level faculty at Siegen, and in 2021 he was one of the founders of the 'Network against the abuse of power in science' in the D-A-CH countries (Germany, Austria, Switzerland).

20:00–20:45: Open Forum #WeDoSTS 2/2

Open Forum #WeDoSTS – small group discussions

Room H8 for Fanny Oehme; H10 for Dr. Claudia Gertraud Schwarz-Plaschg; H11 for Dr. Daniel Müller; Seminar rooms S01-06 for the independent group discussions

Panel organised by STS-Hub 2023 Steering and Managing Committee and Julie Sascia Mewes (Best Practice working group, stsing)

Panel abstract To open and intensify the conversation about power within STS, we provide you with the opportunity to either discuss with one of the invited experts or to engage in independent small group discussions, for which we have developed some guiding questions. Check out the seminar rooms for the independent small group discussions. You can find the guiding questions online at `https://www.soscisurvey.de/wedosts/`.

Friday, March 17, 2023

08:30–10:30: Session slot 5

Circulations between STS and the arts (2/2)

Room S05

Panel organised by Nadine Osbild (Technical University of Munich (TUM), Department of Science, Technology and Society (STS)) & Matthias Wieser (University of Klagenfurt (AAU), Department of Media & Communications (MK))

Panel abstract Since the early years of Science and Technology Studies, there have been strong links between STS and the literary, visual and performative arts, and circulations between the two have undergone a fruitful trajectory: Institutionally most prominent might be the collaborations between Bruno Latour and Peter Weibel in their three ZKM exhibitions or the establishment of a 'Master en arts politiques' (SPEAP) at the Médialab of Sciences Po. Meanwhile, in academic writing, said links have led to new literary forms (Ashmore 1989) in the field of STS. Today, STS practitioners experiment together with artists from diverse creative disciplines such as visual and fine art, performance, media art or even culinary art (Marres/Guggenheim/Wilkie 2018; Rogers et al. 2021; Salter/Burri/Dumit 2017; Voß/Guggenheim 2019). Recently, Monopol, the leading art magazine in the German-speaking world, named Donna Haraway the most important person in the art world today. Other artists such as Ólafur Elíasson and Tomás Saraceno are working at the intersection of the arts and the sciences with great success. Accordingly, over the last decade, there has been a broad discourse on the funding and conduct of arts-based research or research creation that has connections with STS theory and practice (Borgdorff/Peters/Pinch 2020; Sormani/Carbone/Gisler 2019). With creativity being front and centre in innovation policy, the realms of STS research and art further melt together. 'Studio Studies' (Farías/Wilkie 2016) established research into creative practices in studios of different kinds in analogy to the investigation of scientists and engineers at practice. Finally, and more generally, one can refer to the travelling concepts from STS to the arts and vice versa, with theoretical constructs such as the 'cyborg', 'intra-objectivity', 'improvisation', and 'dance of agency' coming to mind. This session wants to create time and space to speculate on these circulations, to report on ongoing research at the intersection of STS and the arts or for performances of creative STS.

We seek for contributions - from presentations to performative interventions and other alternative formats - that engage with • STS research in the field of arts and creative practices • Arts-based research on science and technology • Experimental and creative methods in STS research • Travelling concepts and practices between art and STS

with

134 'STS and the Arts Facing Planetary Crises: Circulating Perspectives on Knowledge and Perception in Postanthropocentric Times' by Christiane Schürkmann (JGU Mainz, Department of Sociology) and Lena Von Goedeke (artist, based in Berlin and Svalbard)

Contribution abstract During the last decades approaches and positions deriving in the context of STS as well as in the arts argue for postanthropocentric perspectives. These perspectives question humans' relationship to earth in times of the great challenge of anthropogenic climate change, species extinction, and the production of waste that more and more appears as toxic and hazardous to human and other life. Referring to their ontological, political and ethical ambitions they decenter human subjects and deconstruct assumptions about any kind of human supremacy. In this way, they focus on a productive matter (Barad 2007), argue for a vital and vibrant power of materiality (Bennett 2010), and emphasize the role of nature, ecology, the environment and other species as "actants, acting agents, interveners" (Latour, 2004, p. 75, see also Haraway 1991, Bennett 2010). Regarding such theoretical and aesthetical accounts STS and the arts do not appear as two distinctive and separated fields. In contrary, they circulate their perspectives and are interwoven in multitude ways. In the field of contemporary art postanthropocentric concepts are broadly taken into account by various artists (e.g. Ólafur Elíasson, Julien Charrière, Lena von Goedeke). At the same time, different postanthropocentric approaches intensively develop their theoretical argumentations by relating to artworks (e.g. Michel Serres, Bruno Latour, Donna Haraway). While in the context of STS neomaterialistic and posthuman approaches bring these perspectives to speech and provide textual based theoretical figures, figurations and forms, positions in the visual arts unfold their potentials to make such phenomena perceivable and accessible through images, installations and materialized, sensual concepts. The proposed contribution, planned as a dialogical lecture, sheds light on the circulation of knowledge and perception, theory and aesthetics by illuminating artistic research practices of the artist Lena von Goedeke through the lense of approaches located within STS. During her regular stays in Longyearbyen Lena von Goedeke works with data obtained through remote sensing, drones, and formations she discovers during her expeditions on the ice. In a circular way, her practices of work are discussed in order to question established theoretical and sometimes schematic figurations of natureculture-relationships in light of an artistic research that does not only emphasize the role of a fragile, vulnerable, and highly threatened nature, but also negotiate the role of human subjects in such harsh and unruly environments.

135 'Artificial and artistic intelligence Inquiries into the collectivity and plurality of research' by Fabian Pittroff (Ruhr-University Bochum, SFB 1567: Virtuelle Lebenswelten)

Contribution abstract My contribution addresses the multiple circulations between algorithmic and aesthetic practices of research. I propose to present findings from a theoretical and empirical study on artistic work dealing with artificial intelligence (AI). Current AI technologies mobilise new kinds of concerns because they operate with huge data sets, evaluate them in opaque ways (Burrell 2016; Mühlhoff 2021), and emerge in highly dispersed training constellations that bring together humans and machines in unseen ways (Seaver 2018; Engemann 2018; Kropf 2021). Thus, AI has become not only an issue of economic and political design controversies (Lamla 2019) but also subject to various aesthetic experiments (Kunstforum International 2021). That is why my contribution examines the multiple relations and exchanges between AI and the arts – for example, some art works try to critically address the shortcomings and blind spots while others act like use cases to test the creative abilities of AI (Rauterberg 2021). To map out artistic modes of dealing with AI, first of all, I propose concepts of a sociology of intelligence that takes the collectivity and plurality of intelligence into account (Fleck 1980). This notion of intelligence is not limited to the cognitive abilities of an individual (neither human nor machine) but refers to a societal medium (Luhmann 2017) that enables a variety of experimental practices (Dewey 2001). Then, intelligence is not so much the deployment of a relatively stable body of knowledge but a distinctly open procedure of research (Rheinberger 2006). In the case of AI and the arts, the question then becomes how algorithmic and aesthetic procedures make use of intelligence by distributing (active) agency and (passive) experience respectively (Luhmann 2022; Dewey 1988). Secondly, I review these concepts by linking them to findings from an empirical study (Flick 2011; Clarke 2012) on aesthetic uses of AI. These unfold some of the ways in which artistic practices handle the thing called AI and illustrate how aesthetics can be a subject to test the scope of AI as well as a method of making AI processes more tangible. While some AI projects try to automate aesthetic experiences, there are also artistic practices that aim to make the loops materialised in AI accessible in new ways. It is precisely such circulations of technologies and practices that help mediate new kinds of technologies and broaden the understanding of research as plural and collective.

#136 'Inside the Visual Effects Studio: Sociotechnical practices of digital creative work' by Ronja Trischler (TU Dortmund, Department of Social Sciences)

Contribution abstract As stated in the context of Studio Studies, the production of cultural goods deserves special attention. Creative and cultural industries do not only carry economic significance. Culture (in a narrow sense), its aesthetic experiences and unique objects hold a strong, some might say increased value in everyday life. Also, the ways in which work is carried out and

organized in the creative and cultural industries have shown an impact on other fields of work, and have received some criticism with regard to their precarity. In many areas of cultural production, work as well as its products is now partly or primarily digital: new forms of work and related jobs are identified, such as 'influencers' or 'content creators', characterized by new forms of collaboration and (online) participation as well as new or modified cultural goods. At the same time, important aspects of digitalization, such as 'platformization', are analyzed as a reinforcement of precarious working conditions in the cultural sector. But while some cultural products and parts of their production become more visible and accessible as they are published and circulated online, what happens in the studios of digital creative work on a daily basis remains largely understudied. Against this background, my ethnographic analysis of the production of visual effects opens up a detailed view of digital creative work, focusing on the organization of collaborative work and its specialized materialities. In visual effects studios, practices of designing and evaluating as well as saving digital objects take place, in which film effects gradually take shape as cultural products. In the paper, I offer insights into the central features of collaborative practices in visual effects studios. In this 'conditionally creative production', specialized socio-material drafting and evaluation practices with different affective intensities can be identified. They are connected through time by methods of trans-sequential organization: an ongoing exchange of digital drafts through a shared database, their versioning as well as standardized steps of approval. These practices make the case under study comparable to other, also 'less digital' forms of production of cultural goods. This studio study contributes to showing digital creation both in its productive potentials and its practical pitfalls. Neither digital technology nor the division of labor per se determine the aesthetic design of new, potentially effective and affective media images in the visual effects commission. Rather, the ethnographic analysis reveals concrete practical possibilities and limitations in the cooperative formability of visual effects. Thus, from a STS perspective 'creation' is understood as social, i.e. socio-material practice: it is historically contingent and, in the context of creative work, also takes place in dependence on the respective technological means of work.

Embodying circulation: STS researchers in circulation

Room S10

Panel organised by Lisa Wiedemann (Helmut-Schmidt-Universität Hamburg) and Jan-Peter Voß (RWTH Aachen)

Panel abstract We want to make circulation a self-reflexive theme: How do we embody circulations in our own experience? As STS researchers, we often move across different organizational, disciplinary and national contexts. On the one hand, in the context of our field research and on the other hand - and this is our main concern - in terms of opening up research and institutional connections or funding opportunities for our often inter- or transdisciplinary work. Our circulatory flows take place (in Germany) against the background of a scientific and academic landscape that is still largely structured by academic disciplines. On the funding and labor market, we are required to purify and purposefully rationalize our life and educational paths. Experiences of curiosity, exploration, searching, drifting, combining, hybridizing, being lost, confusion, failure, unexpectedly finding something out, etc. take a back seat when we are supposed to fit predetermined qualification profiles. The idea of the panel is to unblackbox our own experiences as researchers in regards to our circulation experiences. At first, we planned a panel with four invited guests, who would interview each other in order to encourage a plenary discussion. However, feedback has shown that the position of "sitting between the chairs" involves personal vulnerability. Also, it may be strategically unhelpful to publicly "confess" to currently being a circulating STS researcher when, in the future, the next application process will require a distinct disciplinary profile; when we have to demonstrate that every keystroke since the beginning of our studies was aimed towards this project or this one position. For these reasons, we have changed the format: We would like to announce at the beginning that over the course of the conference we will collect anonymous notes on the topic in a "mailbox": Stories, descriptions of situations, autoethnographic associations, conceptual reflections, etc. There may be a call for participants via email in advance. We would like to present the results in a 2-hour slot in a loosely sorted form – in other words, in a kind of crowd-sourced exhibition that will be organized, conceived, opened and shown during the conference. The idea is to highlight two or three central themes at the beginning of the slot to initiate a dialogue in the audience on further experiences. The following guiding questions will be displayed on a prominently located billboard as a way to encourage the sharing of stories. – Does a particular story come to mind when you think of circulation and your path as an STS researcher? – What is it like and what is the benefit of not being firmly anchored as a researching subject and body in a social network, a professional discourse, an arsenal of methods, an institutional setting, a material arrangement, but to "circulate" in between, e.g.

in search of insights, perspectives, expertise, suggestions, research projects and alliances/collaborations/ positions? – Between which (research) worlds do you circulate or are you circulated? – Is there a direction from A via B to C, is it an oscillation or rather a circular movement? – What are your experiences with your circulatory movements? – What are the reasons why you move or have to move "between the chairs"? – In what ways do you experience it as positive – e.g., gratifying, stimulating, fertilizing, beneficial, productive – to circulate back and forth between different (trans)disciplinary and (trans)national research cultures? In what ways do you experience it as negative, e.g., frustrating, blocking, unsettling, tension-filled, futile? How are the two feelings related or how do they connect? – What effects do your circulations have in relation to scientific contexts? – Can you imagine that the circulation will stop at some point and, if so, under which conditions? The stories can circulate at the conference in both German and English.

Circulations of Knowledges in (Digital) Medical Applications (1/2)

Room S12

Panel organised by Renate Baumgartner (Zentrum für Gender- und Diversitätsforschung/Center for Gender and Diversity Research; Tübingen) and Tamara Schwertel (Institute for History, Theory, and Ethics in Medicine, Mainz)

Panel abstract In medicine what is considered as knowledge is especially contested because the field greatly influences knowledge in other fields and other fields also influence how and which knowledge is constructed in medicine. We see this in archives of standardized knowledge that get circulated a lot also in other disciplines, such as brain atlases, anatomy books and the like (conceptualized by Susan L. Star as boundary objects). With new technologies and new digital applications also new disciplines and stakeholders get involved and claim their say. E.g., (bio)medical applications based on artificial intelligence are being developed by teams of medical and technical experts, ethicists, legal advisors, and others, such as it is intended in the ELSI (ethical legal sociological implications) framework mandatory for BMBF projects. The new working alliances raise questions about how knowledge is created, translated, passed on, and create new relationships of dependency. Feminist STS has a long tradition in criticizing (hegemonial) knowledge and analyses how knowledge is formed (or constructed), who is involved with which power and which consequences result thereof. By

providing important analytical tools to ask about the production of knowledge and its effects, feminist STS makes an important critical contribution.

with

137 'FemTech and the Promise of Empowerment: A Critical Feminist-HCI Study of Reproductive Health Apps' by Beatrice Tylstedt (Department of Informatics and Media at Uppsala University.)

Contribution abstract FemTech – Female Technology – is a fast growing industry and billions of users around the globe use reproductive health apps such as Natural Cycles, Clue and Flo to track their menstrual cycles, safe periods and fertile windows. Challenging traditional pen-and-paper menstrual tracking and the dependency on medical solutions and health professionals for contraception, FemTech offers new digital tools for women to manage their reproductive health. Yet, we still know little about how these apps affect how women relate to their bodies and the knowledge they (co)produce about reproductive health. Further, the apps are often marketed in terms of empowerment. Natural Cycles for example, wants to pioneer women's health by empowering women with the knowledge they need to take charge of their health. Clue's vision is that everyone with a cycle is empowered to make informed choices for themselves around menstrual, sexual, and reproductive health and well-being. Flo argues that knowledge is power and the app company claims to be on a mission to put the power back in the hands of their users. At the same time, empowerment is a term known for its many meanings (Schneider et al., 2018). The question then becomes, how are ideas of empowerment manifested in and through design of these apps? This study uses data from reproductive health apps collected using the app-walkthrough method (Light, Burgess & Duguay, 2018) to look at how ideas of empowerment is manifested within the apps. The study performed in-depth analysis of the ways in which ten of the most popular English language menstrual tracking apps represent empowerment in their design. The study is part of a broader research project that aims to understand what empowerment means within FemTech – how it is constructed, played out and experienced by users. Analysed from a critical feminist-HCI perspective, preliminary results indicate that reproductive health apps can have empowering aspects but also function in dis-empowering ways. While giving women tools to take charge of their reproductive health, users' power in terms of action space is limited and the apps' content and functions can be seen to contribute to a medicalization of women's bodies and to the reproduction of stereotypic norms about women in general and as reproductive subjects in particular.

138 'Contested bodily knowledge: Evidence-based opioid prescription and the role of new technologies for the recognition of pain' by Sarah Diner

(Institute for Medical Humanities, University Bonn)

Contribution abstract In light of the current pandemic, other medical emergencies such as the ongoing opioid overdose epidemic have almost disappeared from public discourse. Even though efforts to contain the spread of infections have been raising access barriers and relapse risks posing a great challenge for on-side programms tackling substance use disorders (Vranken et al., 2016; Alexander et al., 2020). Key to the ongoing opioid crisis are prescription-patterns: More particularly, the question which evidence underlies initial drug prescriptions for drug-naive individuals as well as regulations on the treatment of opioid use disorders (Howard et al., 2018; Madras et al., 2020). Disputes on how to acknowledge (chronic) pain have a long tradition: Along political lines, debates have been concerned with the credibility of first-person accounts of people affected. Thereby the need to provide 'objective' evidence to support personal testimony has frequently been the subject of political arguments or even judicial disputes – when social security reforms implied negotiations on the kinds of impairment that made people affected eligible for social welfare. Such requests particularly concerned the credibility of people suffering from pain who were female, from ethnic minorities, or war veterans (Strick, 2014; Wailoo, 2015). This contribution aims to take a closer look at these lines of argument that deeply affect doctor- patient-relations. Thereby focussing on the role of new (visualization) technologies that despite the hope to contribute to „objective" evidence bear the risk to even corroborate existing prejudices. In addition, the contribution wants to further explore the potential of prescription drug monitoring programs that make use of digital therapeutics in shifting power hierarchies that concern the recognition of pain and suffering.

139 'Knowledge transfer within treatment optimization tools for HIV: the cycle of legitimization' by Renate Baumgartner (Zentrum für Gender- und Diversitätsforschung/Center for Gender and Diversity Research; Tübingen)

Contribution abstract HIV infections are a relevant health issue to date. While treatment was challenging at the beginning, the field can look back to several success stories. From 2006 onwards a single-tablet-regime of antiretroviral drugs is available to push the viral load of the HI virus to "undetectable". In the early 2000s treatment optimization tools (TOS) were developed to identify the most appropriate HIV therapy. They constitute one of the success stories within personalized medicine and are used until today. This paper is based on empirical material on the development of digital treatment optimization tools for HIV (HIV-TOS). The history of TOS dates to tables being used, followed by rules-based digital TOS, and later ML-based tools. Rules-based TOS and to ML-based tools are still used side by side in today's practice. They have different

functions within the field: the ones are used as an archive (similar to former expert systems), while the others are used to generate new knowledge. The talk follows the knowledge production of the ML-based tool and its transfer to the rules-based tool, analyzing its social function within the field. It will explore the so called "cycle of legitimization" with and by ML-tools, hypothesizing that it is mitigating "inefficienty and uncertainty" in healthcare.

Testing as a research object of STS. Transdisciplinary perspectives on testal translation chains (1/2)

Room S03

Panel organised by Simon Egbert (Bielefeld University)

Panel abstract The COVID-19 pandemic has underlined a fact that was already manifest before, but now, since the beginning of the pandemic, is more evident than ever: contemporary society is significantly shaped by tests. There is in fact hardly a person who has not been tested in their life, hardly an area of society in which tests do not play a significant role (Pinch, 1993; Hanson, 1994; Marres/Stark, 2020). From an STS perspective, tests are particularly relevant not only because of the considerable social consequences they are capable of evoking, but also due to the fact that they are inevitably socio-technical instruments, embedded in relational webs of human and non-humans, that do not test for extra-worldly phenomena. Instead, they utilize always and inevitably socially mediated indicators, which have to be understood as defined by humans and stabilized by conventions (MacKenzie, 1989). Test procedures are therefore inescapably subject to epistemic fractures since they per se only indicate a representation of what is the target information of the test procedure – which applies to the testing of people (Hanson, 1994; McNamara, 2003) as well as the testing of technology (Pinch, 1993; Downer, 2007). Consequently, testing implies closing epistemic gaps between the test result and the actual target information. This closing of epistemic gaps in testing procedures, we aim to put forward in this panel, can be fruitfully conceptualized as a "chain of translation" (Latour, 1999), referring to "the work through which actors modify, displace, and translate their various and contradictory interests." (Latour, 1999: 311) This transformative journey is understood as a cascading, socio-technical process, in the course of which (scientific) reference is constantly being modified. Before this backdrop, testing can be understood as translation work as well, reformulating the argument of the necessity of closing epistemic gaps in testing procedure in a way that makes it sensitive to the heterogeneous web of human and non-human actors. Although tests and testing procedures are highly relevant in contemporary society,

tests have hardly been researched systematically in STS. This panel will therefore attempt to conceptualize the role of tests in present-day society, with a special focus on the transdisciplinary perspectives required to analyse the application of tests in detail, which especially includes the knowledge of the scientific and (bio-)technical test instruments.

with

140 'Putting Influenza Surveillance to the Test. How standardisation & localisation practices shape our experience of seasonal flu epidemics' by Kevin Hall (Philipps University Marburg)

Contribution abstract How do we know about the seasonal flu? Or put differently: How do we know that it's really the influenza virus causing our symptoms? And how do we know that our ailment is part of a population wide epidemic? Flu like symptoms are ubiquitous among respiratory viruses prohibiting an equation of clinical symptoms with the disease. So much so, that the laboratory confirmation is the central reference in the International Classification of Diseases (ICD). However, for various reasons not every case of acute respiratory illness is tested. And those that are tested positive have to be linked to aggregated observations of symptoms in the population. Thus, knowing about influenza viruses and their impact is no simple task. In this paper I argue that at the core of our knowing about seasonal flu epidemics are practices of standardisation and localisation. Through ethnographic field trips to surgeries and public health labs I followed the viruses and the practices of spatio-temporal localisation of viruses within the German territory. Due to the mutability of flu viruses each test not only tests the sample, but also puts the whole sociotechnical testing assemblage to the test. At the core of detecting flu viruses is the Global Influenza Surveillance and Response System (GISRS), a network of laboratories affiliated to the World Health Organization (WHO). I show how the network and flu viruses are stabilised trough the work of continuous standardisation of laboratory procedures and materials. While the laboratory network stabilises flu viruses in their molecular characteristics the geographical distribution of sampling sites within the German territory stabilises the viruses' epidemiological characteristics enabling the laboratory network to make claims that go beyond the binary of presence|absence. Cartographic and statistical projections extrapolate the infection localised in individual bodies to levels of influenza risk distribution across the state territory.

141 'Imperfect and truncated diagnoses: the Brazilian Zika virus testing experience' by Jonatan Sacramento (University of Campinas)

Contribution abstract Diagnoses tests can be understood as devices in the foucauldian sense, that is, as entities inscribed in truth regimes that through in-

stitutional practices shape relations of knowledge and power. In the context of Brazilian Zika virus epidemic, testing has become a way to make the health emergency visible, a means to prove the nature of congenital anomalies linked with the virus, and a manner to construct the Zika virus epidemic as a gender issue, that is, as a "women's epidemic". In this perspective, the aim of my presentation, that reports an ongoing-research, is to think about how the Zika virus tests shaped the social and bureaucratic experience of the Zika virus epidemic, especially concerning about how establishing the link between Zika virus and congenital anomalies was important to legitimise the sanitary and scientific actions against the virus and also the idea of risk of microcephaly. Analysing the Brazilian Ministry of Health protocols on Zika and the interviews with official technicians and health professionals and in the co-production approach, the contribution of this study is to point out that these processes were gender-based, that is, they were shaped by gender and at the same time they shaped gender as well.

142 'Point-of-care-testing re-tested. Enabling circulating references through humans, non-humans, and organizational practices' by Justus Rahn (Leibniz Universität Hannover)

Contribution abstract At the latest with the use of rapid antigen tests during the COVID-19 pandemic, Point-of-care-testing (POCT) has become a popular practice. Tests are designed to be, quick, easy, and accessible for the users; this easiness in the "front-end" of the POCT however comes at a high cost of work in the "back-end" of the practice – especially in organized contexts like hospitals. Drawing on Latour's early work of circulating reference and the Goffmanian distinction of front and back I aim at laying out Blood Gases analysis POCT in intensive care as a presuppositional and fragile practice, that relies on the intertwined relationship of human and non-human actants. In addition to the mere distinction mentioned above, I add a third layer of reliance, which is the one of organizational practices: 1) Human actants: Personnel of the central laboratory, monitoring and maintaining the devices, users (nurses) 2) Non-human actants: Hardware such as devices and fitting syringes, software such as the device software and the middleware 3) Organizational practices: influencing both, 1) and 2), allowing them to speed up analysis What appears a very niche act in the everyday work-life of a nurse, is a hugely complex assemblage, that works like a fragile gearwork – if one of the gears do not play their role, the blackboxed assemblage breaks and the sensitive fractures become visible. I will show the growing amplification of the circulating reference, crossing the borders from front to back and back to front, becoming mobile, the factors for success and reactions to failure . I will conclude with some thoughts on completing the translation of materiality with temporal translation, a concept derived from Hernes and Schultz, to build a

more integrated heuristic for analysing test practices in high-speed environments.

#143 'Testing the untestable: Assessing vitality in cord blood banks' by Ruzana Liburkina (Goethe University Frankfurt) and Veit Braun (Goethe University Frankfurt)

Contribution abstract Freezing living cells and tissues is a technology for keeping them available for future use – at the same time, however, it is also a means of making them unavailable. Based on an ethnography of cord blood banks, this talk explores the relationship between the materiality of frozen hematopoietic stem cells and the logic of routine testing it is interwoven with. Assessing the vitality of the organic material to be frozen is a central part of biobanks' activities in this field. The results of these tests determine what will go into cryo-storage and what will be discarded. While testing practices in public and private cord blood banks resemble each other, their results and consequences do not: same testing knowledge and tools can be mobilized for divergent institutional logics and purposes. Once frozen, physically removed accessions are no longer available for testing, requiring an elaborate framework for proxy testing through retention samples put aside in anticipation. Through representation, frozen samples thus become available semiotically even if they are unavailable materially. In discussing testing as gate-keeping, testing as a chameleon, and testing the untestable, we propose a tentative agenda for the empirical study of testing in biobanks.

Circulating futures: On how to analyze, evaluate and shape the circulations of sociotechnical futures and their impacts for the demands of technology assessment (3/4)

Room H10

Panel organised by Jascha Bareis (Institute for Technology Assessment and Systems Analysis (ITAS)) and Christopher Coenen (Institute for Technology Assessment and Systems Analysis (ITAS)) and Torsten Fleischer (Institute for Technology Assessment and Systems Analysis (ITAS)) and Alexandros Gazos (Institute for Technology Assessment and Systems Analysis (ITAS)) and Janine Gondolf (Institute for Technology Assessment and Systems Analysis (ITAS)) and Alexandra Hausstein (Institute for Technology Assessment and Systems Analysis (ITAS)) and Peter Hocke (Institute for Technology Assessment and Systems Analysis (ITAS)) and Andreas Lösch (Institute for Technology Assessment and Systems Analysis (ITAS))

and Dirk Scheer (Institute for Technology Assessment and Systems Analysis (ITAS)) and Jens Schippl (Institute for Technology Assessment and Systems Analysis (ITAS)) and Ulrich Ufer (Institute for Technology Assessment and Systems Analysis (ITAS))

Panel abstract Technology Assessment (TA) is a research and advisory practice, that works with sociotechnical futures like visions, expectations, utopias, dystopias, and scenarios. These futures influence future-oriented decisions and actions by (co-)structuring and (pre-)determining socio-epistemic practices in the present. Because they circulate between different arenas of society involved in processes of innovation and transformation, they become effective means of transformation. Therefore, TA develops and applies a set of methods to (co-)analyze, to (co-)evaluate and to (co-)shape not only these futures, but also their circulations. In doing so, TA aims to contribute to a responsible generation, shaping and use of these futures by minimizing undesired and fostering desirable impact on decisions and actions. The circulating futures serve as essential mediators between different socio-epistemic practices. They are generated for different needs and applied for different reasons. While circulating they are interpreted, translated, and (co-)shaped by their use-cases. TA seeks to assess said transformations in order to study their effects in and on the processes of innovation and the patterns of societal change accompanying them. When futures and their circulation are analyzed in practice, implications and presumptions come to the fore, that can transform traditional research practice. In that, TA is a driver of integrative, interventive or co-constructive research practices when and for interacting with society. The Institute of Technology Assessment and Systems Analysis (ITAS) is organizing this panel for the STS-Hub. The panel is divided in four slots, which will consist of presentations of ITAS researchers as well as from other contributors from the broad field of STS. The aim is to establish a mutual learning environment, so to engage in the circulation of approaches between the different research practices and research cultures in the communities of the STS-Hub. 1) Theories and methods applied in research and interactive practices on circulating futures (Slot organizers: Andreas Lösch & Jascha Barais (ITAS/KIT) 2) Heuristics (co)shaping the circulation of futures in knowledge productions processes (Slot organizers: Janine Gondolf & Christopher Coenen (ITAS/KIT). 3) Circulating futures in the co-evolution and co-shaping of sociotechnical systems (Slot organizers: Torsten Fleischer, Jens Schippel, Dirk Scheer & Peter Hocke) 4) Circulating Futures by Anticipation: Resilience, Innovation, Complexity and Crisis (Slot organizers: Ulrich Ufer, Alexandros Gazos (ITAS/KIT) & Alexandra Hausstein (ITZ/KIT)

with

144 'Circulating expectations of autonomous vehicles and their relevance for future developments in the mobility regime' by Torsten Fleischer (Institute for Technology Assessment and Systems Analysis (ITAS) Karlsruhe Institute of Technology (KIT) Postfach 3640 76021 Karlsruhe) and Jens Schippl (Institute for Technology Assessment and Systems Analysis (ITAS) Karlsruhe Institute of Technology (KIT) Postfach 3640 76021 Karlsruhe)

Contribution abstract Autonomous vehicles (AVs) have become an important topic when it comes to future of mobility systems. The technology is not yet really commercialised as a product or a service, however, many pilot projects and field trials are carried out all over the world and companies active in this field are able to attract huge amounts of venture capital and/or substantial support from publicly funded research and deployment activities. Not surprisingly, innovation actors in the mobility regime (and beyond) raise various expectations regarding the potential of AVs to solve societal problems, including aspects such as safety, efficiency and social inclusion, or just convenience. Expectations that are shared among a group of actors in a certain domain have been shown to be of considerable impact on the development of technologies. Support for and resistance against new technologies are often closely linked to different expectations. Expectations can have formative effects, including favoring certain sociotechnical constellations and designs and restraining others, depending, i.a., on their position in the discourse. Hence, expectations do not only shape current developments but also are of long-term relevance for the dynamics in a sociotechnical system. In order to better understand the arguments for and against different variants of AVs and AV-based services, it is helpful to clarify which expectations exist in the current societal discourse on AVs. In this contribution, we will firstly provide an overview on the dynamics of expectations of AVs. Further, we illustrate how the perceived relevance of different expectations towards AVs is changing over time, using data from a small media analysis. On that basis, we will develop and discuss theses on the interdependences of expectations hold by different innovation actors as well as on the future interplay between expectations and development trajectories of AVs.

145 'Circulating Futures by Narratives and the Limiting Factor of Path-Dependencies. The German Debate on Final Disposal of High-level Radioactive Waste' by Peter Hocke (Institute for Technology Assessment and Systems Analysis (ITAS) Karlsruhe Institute of Technology (KIT) Postfach 3640 76021 Karlsruhe) and Stefanie Enderle (Institute for Technology Assessment and Systems Analysis (ITAS) Karlsruhe Institute of Technology (KIT) Postfach 3640 76021 Karlsruhe)

Contribution abstract New installations for waste management - esp. in the case of hazardous wastes - cause processes which reach far into the future,

particularly if not only the approval procedure is taken into account, but also an installation's operating period. In Germany, the siting procedure for the central underground repository of high-level radioactive waste is planned to take another decade from now. Whether this schedule can be kept is uncertain as the comparison of different host rocks and the planned evaluation of different identified sites for the repository is a challenging approach with a number of unknows. Optimistic scenarios promise that the installation of the site and the storage of nuclear waste in it will be finished within this century, but not before 2080. Not only challenging underground research, but also the paradigm of "reversibility" cause great challenges for decision-makers, society and affected regions, particularly if the current high demands for participation are to be met. In debates on safety and social standards not only the near future, but also a "midterm" time period of 30, 50 or 100 years is addressed. Reversibility means in the German context that it is assumed that under certain conditions decisions in the stepwise process can be changed and the science-based procedure has to integrate the "thinking in alternatives" (Grunwald). Not only the present generation, but also the next two or three generations have to be convinced that these aspects are important in terms of sustainable waste management. Based on empirical research on central narratives about nuclear waste management and expectations for long-term governance (Hocke et al. 2022) and reflections on the more or less far future we conducted an interdisciplinary analysis of probable pathways and their alternatives. In a further step these circulations of expectations on future development will be integrated in a transdisciplinary research process.

146 'Long-term Governance – towards a framework concept' by Dirk Scheer (Institute for Technology Assessment and Systems Analysis (ITAS) Karlsruhe Institute of Technology (KIT) Postfach 3640 76021 Karlsruhe)

Contribution abstract Climate change, energy transition, nuclear disposal or certain key technologies such as robotics, artificial intelligence, and digitalization are examples of societal grand challenges with great scope and long-term impact. The concept of long-term governance (LTG) is promising to better understand and prepare the necessary political actions to shape and govern such challenges in the long run. Hence, a long-term governance approach to cope with grand challenges is necessary. We therefore aim at elaborating a framework concept for a better LTG understanding. We interpret and define LTG as the most foresighted and adequate political handling of far-reaching change processes that have the potential to influence our society positively as well as negatively. In order to master these major challenges, overarching integrated and long-term efforts are needed that combine technical with organizational, social and economic dimensions. Policymakers face the task of making socially and politically robust decisions coping with grand challenges that reach far beyond usual planning ho-

rizons. The LTG framework elaborates on several building-blocks, namely the LTG generic approach, LTG obstacles, the roles of science, ethics and technologies, and LTG principles and strategies. The LTG approach essentially focusses on a problem, solution, and connecting pathway perspective. For LTG to become relevant, a major, socially relevant problem with long-term implications needs to be identified, their consequences consistently understood, and prioritized as relevant for action. Key LTG principles and strategies that we identified are located in the areas of multi-level integration of a long-term perspective (e.g. learning environment, participation, institutional embedment), problem definition and agenda setting (e.g. science policy interface, problem identification), pathway and policy formulation (e.g. target specification and goal setting, solution options), decision-making and implementation (e.g. time management), and monitoring and reformulation (e.g. iterative impact assessment, specification of major points of decision). Taking the suggested LTG framework concept as the base, we plan to further work conceptually, methodologically and empirically on LTG in order to further develop the concept as well as test its practical applicability and academic merit.

147 'Long-term Governance challenges in structural change processes – the case of the Rheinische Revier' by Sandra Venghaus (Forschungszentrum Jülich (IEK-STE) RWTH Aachen University – School of Business and Economics Kackertstr. 7 52072 Aachen)

Contribution abstract The current global challenges of climate change and fossil resource scarcity led the German government to decide in 2020 to phase out coal-fired power generation by 2038. To counteract the associated structural change in the affected regions, policy measures aim for the long-term creation of employment opportunities and the diversification of the economy, under consideration of the German Sustainability Strategy. As part of this process, the Rheinische Revier, Europe's largest connected lignite-mining area, set itself the objective of becoming a European model region for sustainable and circular bioeconomy. To guide the transformation, a thorough analysis of the region's political-administrative governance setting is required, as it provides the frame for the transformation. Therefore, a comprehensive, literature-derived monitoring system was developed, which in combination with expert interviews led to the identification of current trends in the Rheinische Revier. The results highlight that favorable agricultural, industrial and technological conditions face governmental challenges, such as discrepancies in transformation funding at different hierarchical levels or the lack of a common transformation strategy. They cause intransparency and uncertainty, which reduce the local stakeholders' willingness to participate in the transformation. Based on these insights, improvements in the design and implementation of integrative bioeconomy policies are key for a

successful transformation in the Rheinische Revier.

Circulating Experimental Knowledge: On Co-laborative stsing in the Anthropocene

Room S01

Panel organised by Tanja Bogusz (Center for Sustainable Society Research, Hamburg University) and Stefan Laser (Sonderforschungsbereich 1567 'Virtuelle Lebenswelten', Ruhr-Universität Bochum)

Co-moderated by Patrick Bieler (Institute of European Ethnology, Humboldt-Universität zu Berlin)

Panel abstract The panel argues that epistemological heterogeneity and international co-laboration through experimental knowledge practices are key for addressing the crises of the Anthropocene. Despite the partly contested status of "the Anthropocene" in the social and cultural sciences, we use the term to co-laborate critically across disciplinary and epistemic borders. Co-laborative stsing aims to create experimental spaces of knowledge practices where natural scientists meet with the social sciences, engineers, and various human and non-human entities concerned by the effects of the Anthropocene. Circulating experimental knowledge faces multipolar crisis and catastrophes, from ongoing health crises to Ukraine. It requires refined modes of "circulating references" (Latour), shared by heterogeneous participants to create pathways for transitions. In short, the panel asks: What does it mean to conduct socio-ecological stsing in and through Germany? What added value has an STS perspective brought to research, and what difference does the place Germany – as our reference point – make in the process? We will bring together a diverse range of experts, spanning research fields and experiences from heterogenous places and disciplines. Through a lively and interactive format, we aim to display the experimental and co-laborative approach of stsing in the Anthropocene throughout the panel.

with

148 'Co-Laboration in the Anthropocene. Marine Social Sciences and interdisciplinary opportunities within the UN-Ocean Decade 2021-2030' by Tanja Bogusz (Hamburg University, Faculty of Buisness, Economy and Social Sciences)

Contribution abstract The "Anthropocene event" (Blok and Bruun Jensen 2019; Haraway 2015) pointing on the dramatical planetary imprint of human activities on earth, offers a striking opportunity to enhance collaborative socio-ecological research with the natural and engineering sciences. In my input, I will discuss these opportunities, as well as their challenges through the currently emerging sub-field of Marine Social Sciences (MSS). The United Nations have declared an "Ocean-Decade" (2021-2030), aiming to promote the importance of the oceans regarding climate impact, biodiversity protection, sustainable global economies, as well as coastal communities. International Marine natural and engineering sciences have contributed largely to the rising public awareness of ocean's livelihoods. With the "Manifesto for Marine Social Sciences" (Bavink and Verrips 2020; see also Bleischwitz et al. 2022), social and cultural scientists have foregrounded their expertise for the fulfilment of the UN-Decade's proclaimed aims as well. STS-approaches are, however, still a minority within the MSS. In my input, I will present current developments and debates in the Marine Social Sciences linked to the question of co-laboration (Niewöhner 2016) and focus especially on STS's potential contribution toward interdisciplinary marine fieldwork (Bogusz 2022). My input concludes of three features of STS's particular expertise in organizing such co-laborations: a) Expertise in assessing and understanding heterogeneous epistemic cultures and practices (Barry and Born 2014; Knorr-Cetina 2002, b) expertise in integrating non-human-entities in their research and analysis, and c) experimental expertise in welcoming and anticipating serendipity, that is, in inventing fresh methodologies, analytically solidified through agnostic empiricism (Dewey 1906; James 1922) in an age of increasing ecological and political upheaval (Dewey 1956; Latour 2018).

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149 'The Platform for Experimental Collaborative Ethnography (PECE) - Reflections and Suggestions' by Kim Fortun (University of California Irvine's Department of Anthropology)

Contribution abstract Mystery content with potential monsters, ghosts, spider webs, earthly and other-worldly beings.

150 'Methodology that Breaks/Warms Your Heart: Tactical Exclusion and Para(-)siting' by Indrawan Prabaharyaka (Institute of European Ethnology, Humboldt University Berlin)

Contribution abstract Co-laboration, as I understand it, fundamentally differs from collaboration in that it does not necessarily aim at a shared outcome, say, between social scientists and natural scientists. It implies that each actor reserves her/his/their epistemic autonomy and only temporarily intersects in an ad hoc manner. To the extent that such co-laboration conditions the circulation of knowledge, there is a need to examine the politics of methods: on how to get along and be apart during and beyond fieldwork, embracing the methodology that can break and warm your heart at the same time. To that end, I want to reflect on two modes of co-laboration: tactical exclusion and para(-)siting. The first mode explicitly engages with and focuses on moments of detachment and the limit of relational thinking. In contrast, the second mode is about modulation, on keeping opposing people and ideas near; at one time becoming a parasite, a quasi-object who circulates among subjects; at another time blurring and overlapping field and lab, turning both into a parasite. Inspired by Ruth Behar's Anthropology that Breaks Your Heart, I will tell this methodology story in a confessional style, highlighting some moments of my journey in Munich, Berlin, Jakarta, Stuttgart, and the digital spaces in between them. Finally, I will give some thoughts on what might be the intersections between the ecological and the emotional.

#151 'Heterogeneous collaborations as an organizational experiment' by Martin Reinhart (Robert Merton Center für Wissenschaftsforschung, Humboldt University Berlin)

Contribution abstract One role my work frequently plays in heterogeneous collaborations is an accompanying one. In these cases, science studies is believed to be helpful in providing interactional expertise or evaluating some aspects of a collaboration. A number of recent collaborations with biomedical researchers that increasingly drifted towards questions around the organizational preconditions for successful heterogeneous collaborations prompt me to think about the role organizations and organizational change play. My input will, thus, discuss how research organizations, and especially German universities, respond to science policy concepts such as the anthropocene, responsible research and innovation, or translation that call for new collaborations. The role science studies plays in these responses will be my main focus.

Cyborgs, Grenzobjekte, Diffractions & Co: Die feministischen Wurzeln der STS und ihre Zirkulierungen (1/2)

Room S06

Panel organised by Diana Lengersdorf (Universität Bielefeld) and Bianca Prietl (Johannes Kepler Universität Linz) and Jutta Weber (Universität Paderborn)

Panel abstract Feministische STS bilden mit ihren mannigfaltigen kritischen Interventionen einen der ersten und zentralen Pfeiler des internationalen Forschungsfeldes STS. Feministische Perspektiven tragen dabei ganz grundlegend zu einer kritischen Perspektive auf Technowissenschaft bei, indem sie konsequent Fragen von Macht, Herrschaft und Ungleichheit in und durch Technoscience adressieren sowie gleichzeitig nach ‚alternativen Welten' und Möglichkeiten des In-der-Welt-Seins suchen, die auf Solidarität und Gerechtigkeit gründen. In Zusammenhang damit haben feministische STS-Perspektiven wichtige Themen- und Gegenstandsfelder eröffnet – etwa: Militärtechnologien, Reproduktionstechnologien oder Natur/Umwelt-Verhältnisse; und sie haben Impulse für die Theorie- und Methodenentwicklung gesetzt – vom Ökofeminismus bis zum new materialism – und damit auch simplifizierende Fortschrittsnarrative in Frage gestellt. Zugleich halten Feministische STS ein kritisches Archiv von STS-Wissensbeständen vor, in dem Ein- und Ausschlüsse der eigenen Community ebenso dokumentiert sind wie die Entdeckungen der Vergangenheit. Feministische STS lassen sich so als fortwährende Praxis der begleitenden, durchkreuzenden und auch widerständigen

Zirkulierung zwischen Vorhandenem und Neuschaffungen verstehen. Vor diesem Hintergrund laden wir uns zu einem Panel ein, um in Form von Podiumsinput und Plenardiskussion gemeinsam über den Beitrag feministischer STS zur Entwicklung von STS im Allgemeinen sowie ihr Interventionspotential für technowissenschaftliche Entwicklungen zu sprechen.

with

152 'Algorithmen im Sozialstaat neu-materialistisch gedacht' by Doris Allhutter (Österreichische Akademie der Wissenschaften)

Contribution abstract Automatisierung soll in vielen Bereichen Aufwand und Kosten reduzieren. Aber was geschieht mit dem menschlichen Wohlergehen, wenn diese Logik für Entscheidungen im Wohlfahrtssektor eingesetzt wird? Um sozialstaatliche Leistungen effektiv zu verteilen und die Effizienz der öffentlichen Verwaltung zu erhöhen hoffen viele Staaten in Europa, dass Wohlfahrt durch datenbasierte Entscheidungsunterstützung und künstliche Intelligenz (KI) radikal verändert werden kann. Als Teil eines internationalen Forschungsteams arbeite ich an einer ländervergleichenden Studie zur Automatisierung von Wohlfahrt. Im Zentrum steht dabei die Perspektive der Menschen, die in den Automatisierungsprozess eingebunden sind – die Systementwickler*innen, die Sachbearbeiter*innen, die mithilfe automatisierter Systeme über Sozialleistungen entscheiden, und die Menschen, mit deren Daten die Systeme gefüttert werden. Diese Perspektive verneint weder die materiell-diskursive Performativität algorithmischer Systeme noch die relationalen und emergenten Dynamiken, die mit ihr einher gehen. Mein Beitrag zielt jedoch im engeren Sinne darauf ab, die Möglichkeiten eines feministisch-neu-materialistischen Ansatzes für dieses Forschungsfeld zu diskutieren. In Feminist Theory 21(4) stellten wir Gastherausgeber*innen die Frage, ob und wie die neuen Materialismen zu einem Verständnis und einer Kritik der materiellen Bedingungen unserer historischen Gegenwart beitragen (Allhutter, Bargetz, Meißner & Thiele 2020: 405). Kann feministischer neuer Materialismus nicht nur als onto-epistemologischer Ansatz, sondern auch als eine kritische Gesellschaftstheorie betrachtet werden? Und eignet er sich daher für eine Auseinandersetzung mit aktuellen Transformationen der Wohlfahrt durch Algorithmen?

153 'Parole: Entsubjektivierung! – Feministische STS, Queer Theory und das Subjekt digitaler Technökologien' by Katrin M. Kämpf (Kunsthochschule für Medien Köln)

Contribution abstract Soziale Medien wie Facebook, Dating- oder Shopping-Plattformen, Corona-Apps und Repressionsinstrumente wie Fingerabdruckscanner stellen in gegenwärtigen Technökologien Schnittstellen dar, an denen spezifische Grenzziehungspraktiken zwischen Körper und Data Double vollzogen wer-

den. Mit der Verdatung von verkörperten Subjekten und der Abstraktion in Datenflüsse entstehen neue Zugriffspunkte für verschiedene Regierungs-, Steuerungs- und Herrschaftspraktiken.Mit Ansätzen aus den feministischen STS und der Queer Theory lässt sich das Verhältnis zwischen verkörperten Subjekten und mit ihnen verknüpften, ihnen zugeschriebenen oder von ihnen abstrahierten oder abgekoppelten Data Doubles, identificatory body bits, Datenschatten oder Datenspuren neu analysieren. Welche Regierungs- und Herrschaftsweisen sind in den spezifischen Subjektivierungsweisen digitaler Technökologien angelegt? Und können in ihnen auch spezifische Formen technökologischen Widerstandes erwachsen?

154 'Reproduktionstechnologien – Schlaglichter auf queer-feministische Kritik und Intervention' by Eva Sänger (Universität zu Köln)

Contribution abstract Seit der Geburt von Louise Brown im Jahr 1978 sind Reproduktionstechnologien wie die In-Vitro-Fertilisation und damit zusammenhängende Praktiken wie Eizell- und Samenspende oder Leihgebären Gegenstand (queer-)feministischer Kritik, z.B. an der Ausbeutung und Objektivierung feminisierter Körper in transnationalen Ungleichheitsverhältnissen. Auf diese Technologien richten sich jedoch auch Hoffnungen, da sie als eine Möglichkeit gesehen werden, heteronormative Familienkonstellationen zu dezentrieren und solidarische, nichtnormative Lebensweisen und Geschlechterverhältnisse zu verwirklichen. Der Beitrag wirft Schlaglichter auf Konfliktlinien in der queer-feministischen Debatte um Reproduktionstechnologien und diskutiert Interventionen in die Auseinandersetzung um eine Zulassung und rechtliche Regulierung bislang in Deutschland verbotener reproduktionsmedizinischer Verfahren wie der Eizellspende.

155 'Das Podium in der Diskussion – Bezüge und Zirkulationen', by Diana Lengersdorf (Universität Bielefeld) and Bianca Prietl (Johannes Kepler Universität Linz) and Jutta Weber (Universität Paderborn)

Integrating Ethics (1/2)

Room S02

Panel organised by Wenzel Mehnert (Societal Futures, AIT Vienna; Berlin Ethics Lab, TU Berlin) and Nele Fischer (TU Berlin) and Sabine Ammon (TU Berlin) and Dana Wasserbacher (Austrian Institute of Technology)

Panel abstract A major concern of the advances in emerging technologies, e.g. in Artificial Intelligence and Human-Machine-Interaction, is the risk of causing undesired effects in sensitive areas of our lives. Negative effects can result in discrimination, violation of data protection and privacy, lack of transparency of decisions as well as scaling effects and many more. As technologies are strongly

connected to the implicit ethics of the developers and the conceptual framing of the development process, it leads to a normalization of value systems hidden in the applications as well as in the developer's design frameworks. To tackle these issues, academic fields from the humanities like STS, sociology, Technology Assessment, foresight or philosophy, reflect on the possible implications and create guidelines for emerging technologies to counteract negative effects already at the beginning of the development process. However, translating often abstract principles into the specifics of a very concrete development process remains a challenge. Due to a lack in specific design tools or methods to cross the disciplinary gap between actual development and ethical reflection, developers seem to neither approach ethics systematically nor have the knowledge or training to reflect ethical questions (neither independently nor with guidance). In our panel we want to discuss this challenge and exchange experiences on how to integrate ethical reflection in the development process. It is an open call to present methods and tools, best practice examples and failures and to exchange praxeological knowledge within the wider STS-community. Guiding questions of the panel are – among others: What is the role of ethicists in technology development? What methods and approaches help to integrate ethics into development processes? What are best practices and best failures? What works, what doesn't and why? We invite practitioners as well as theoreticians to reflect on the methodological experiences on integrating ethics into the development process of emerging technologies. Examples can come from different fields of development, especially those that need ethical reflection processes (e.g. AI development).

The panel is a collaborative project by the Societal Futures research field at the Austrian Institute of Technology (Vienna) and the Berlin Ethics Lab at the TU Berlin (Berlin).

with

156 'Ethical evaluation of technology – two and a half practice-oriented and practice-proven methods' by Debora Frommeld (OTH Regensburg) and Karsten Weber (OTH Regensburg)

Contribution abstract Even if one tries to consider all stakeholders and their interests, judgements about the morally correct design of technology depend on many aspects. These include, for example, concepts of what human beings are, underlying ethical theories, understandings of professions, normative assumptions con-cerning the relationship between generations, or prioritization of normative claims. All these and prob-ably many other normative considerations affect ethical evaluations of technology at the theoretical level. Yet, if one wants to evaluate technology that is, for example, developed in a R&D project or should be deployed for regular use, further factors must be taken into account, since ethical consider-ations are now 'contaminated' by empirical aspects like personal involvement of the respective stake-holders, subjective attitudes (mostly unspoken and often unconscious) as well as external conditions. One of the ma-

jor aims of our work, particularly in R&D projects, is to employ methods of ethical eval-uation of technology that have been tested in practice in order to overcome to the above sketched situation. With the two and a half methods that we regularly use we pay special attention to the par-ticipatory involvement of as many stakeholders as possible while ensuring the greatest possible trans-parency in the process of evaluation: (1) MEESTAR: The basic idea of this tool is that those stakeholders being impacted by the use of tech-nology perform an ethical evaluation of the technology in question in a predefined way; the results of this evaluation are then fed into the development process. Ethical evaluation and the development of solutions for moral conflicts ultimately represent a process of negotiation – MEESTAR thus represents a method based on discourse ethics (i.e. Weber 2015). (1/2) Action Sheets: MEESTAR was originally developed for the ethical evaluation of AAL systems; the general idea is that in face-to-face focus groups the MEESTAR evaluation scheme is employed. Not only due to Corona that is not always feasible. Therefore, a derivative of MEESTAR was developed based on so-called actions sheets originating in requirements engineering. Action sheets are a-paper-and-pen substitute for face-to-face focus groups (Scorna, George & Weber 2022). (2) Scoping review meets discourse analysis meets value-tree-analysis meets MEESTAR: Scoping re-views are an established method to review a particular field of research. If combined with discourse analysis and a variant of value-tree-analysis a method of ethical evaluation is at hand. This method can be employed in two ways: Either it can be used to identify moral values (more or less implicitly) under-lying a particular (scholarly) discourse, or, in combination with MEESTAR dimensions as deductive an-alytical categories, it can be utilized to measure to which degree certain moral values are present in a particular (scholarly) discourse (Frommeld & Weber in print). Questions we would like to discuss

1. What methods and tools are existing and/or have been used so far for ethical analysis in the field of STS?

2. Are there specific (methodological) challenges of ethical analysis of secondary data?

3. Are there specific practical research problems or other limitations concerning ethical analysis of secondary data?

157 'Strategic, Operative and Subsidiary Support to Transfer Responsible Research and Innovation into Medical AI-Based Innovation Ecosystems' by Christian Herzog (University of Lübeck) and Sabrina Blank (University of Lübeck)

Contribution abstract The Responsible Innovation Platform (RI-P) of Northern Germany's consortium KI-SIGS (AI-spaces for smart health care systems) implements and explores methods to foster responsible innovation in translational AI-based medical technology research & development. The RI-P is a project of the Ethical Innovation Hub (EIH) at the University of Lübeck, which focuses on the task of integrating ethical reflection directly into the technological development process (Breyer & Herzog, 2022). Other projects include the integration of ethical requirements management into systems engineering-based development processes (Project SERAI) as well as conceptualizing the notion of cooperative and communicative AI in the context of ultrasound-based and AI-supported diagnostics at the point-of-care. The EIH is part of an interorganizational ecosystem of academic research, hospitals and medical device manufacturers that promotes AI-based innovation with a view on societally desirable solutions. In its facility as the RI-P project lead, the EIH subscribes to the ideal of interdisciplinary and participative collaboration in close connection to the principles of responsible research and innovation (RRI) (von Schomberg, 2013) on three levels. On a strategic level, the EIH ventures to support research teams in identifying and reflecting upon the major ethical challenges. According to the responsibility-by-design approach (CEN CWA 17796:2021), challenges and drivers as well as risks and barriers are identified while actions are planned and mapped onto these for mitigation within a so-called RRI roadmap. This offers both a sensitizing and participative way of encouraging ethical reflection within the development team as well as increasing a team's, or an enterprise's ability to strategically allocate and plan for the proper resources to address potential issues. Simultaneously, an enterprise's ethical vision is adhered to, potentially refined and reflected upon during the inclusive process. In addition, the positive ethical potential of the innovation considered can be highlighted and more clearly communicated. On the operative level, the EIH supports research teams in explicitly addressing ethical, legal and societal aspects (ELSA) within the development context, such as AI explainability (cf., e.g., Herzog, 2022), or algorithmic biases (cf. Wachter et al., 2021). Problem formulation and evaluation, task definitions and even support during algorithm selection is offered as an ethicist is embedded into the development team. Work on surveying potential technological solutions to both ethical as well as regulatory challenges has been supervised by the EIH and compiled as a significant collaborative endeavour within the AI ecosystem KI-SIGS (cf. Petersen et al., 2022). On a subsidiary level, the EIH contributes to, collects or initiates the production of tools for the independent analysis of ethical challenges by the research and development teams. Tools, such as the "ethics canvas" (Reijers et al., 2018) are proposed for integration on a procedural level. In addition,

the RI-P of the EIH is also working on a primer meant to sensitize researchers for the significance, implications, and potential remedies of a range of ethical issues and principles, which can be used as a 2 / 3 reference by developers. The primer is tailored to the needs of the local AI-based medical innovation ecosystem, which have been assessed in discussions and workshops beforehand. It also includes lessons learned from both the strategic and operative levels. In the panel on methods & tools for ethical reflection in development processes of emerging technologies, I would like to participate in an exchange on the following lead questions:

1- How can we systematically support a development team's ethical acumen?

2- What are viable ways to multiply the impact of an ethicists' work in supporting teams during ethical reflection and the mitigation of ethical issues?

3- What is the limit to proceduralism in tool-based ethical reflection? Will a standardized assessment of ethical aspects be able to do ethical reflection and deliberation proper justice?

158 'Ethics in the Wild? Investigating the AI Arena' by Carsten Ochs (University of Kassel)

Contribution abstract Being involved in a long-running interdisciplinary research project on privacy (https://www.forum-privatheit.de/), I currently deal with the relationship between Artificial Intelligence (AI), privacy, and democracy. In this context, my task is to accomplish the sociological sub-project's task of investigating the AI Arena, .i.e. the societal negotiation AI system development. Setting out from the premise of what I call "hypernormativity", i.e. the hypertrophic technological generation of social norms as induced by Machine Learning strategies, such as Neural Networks, we pose the question of how society negotiates this innate hypernormativity of contemporary AI systems. As indicated by the title, we approach the problematic from a Social Worlds/Arena perspective , i.e. we apply Clarke's Situational Analysis methodology in order to reconstruct the Arena where diverse social worlds assemble (e.g. global platform players, such as GAFAM, academic AI developers, the AI industry, regulators, institutional politics, civil society watch dogs, public authorities etc.) and wrangle over the conditions, rules, and institutional framing of il/legitimate AI usages. We have thus created in a first step situational map of the arena to gain an overview regarding the actors, things, knowledges, values, issues etc. involved in the negotiation. The second step was to translate the resulting catalogue into a social worlds map that provides a picture of the mainly involved social worlds and their interrelationships. Doing so, we found that "AI ethics" currently plays the role of a compromise formula: various distinct social worlds pursuing and propagating diverse interests and values (e.g. the AI industry, the world of philosophy, the EU world of institutional politics) use "AI ethics" as a practical way of reconciling contradictions between said interests and values. Whereas we have based our

mapping activities up to this point on research material conducted in the course of a) desktop research, and b) by organizing (and participating in/observing) an expert workshop together with colleagues from Fraunhofer ISI that included members from industry, academia, and institutional research organizations, we already have passed into the third step of the project. This is to conduct expert and ethnographic interviews with representatives of influential social worlds (academic AI developers, industry developers, public authorities, watch dogs – and users, of course), so as to valorize or modify the hypotheses that we have built so far etc. The questions that I am interested in addressing are the following: 1. What institutional innovations are required to ensure AI systems usage that fosters, or revives, or does not damage the democratic performance of society? 2. How to deal with the problem that in the AI Arena's negotiations a manifold of social worlds imagines, configures, and speaks for "the user", whereas users and/or affected-actors have no voice of their own? How to provide opportunities for interventions (e.g. such as Algorithm Watch's "Unding"-website, `https://algorithmwatch.org/de/unding/`), i.e. mechanisms for feeding "empirical ethics" into the Arena negotiations? 3. A related problem that concerns the data-based shaping of human behavior at large (e.g. via predictive analytics etc.) but is aggravated by the implementation of ML-based AI systems is the question of how to make users/affected actors even sense that AI systems operate "on" them? For this kind of "friction" seems to be a pre-condition for political pressure to emerge.

159 'The ethical dilemmas regarding development of AI under academic settings.' by Shaul Duke (University of Copenhagen)

Contribution abstract As a sociologist and an STS scholar I focus on the development and implementation of new technological tools, and the social and ethical questions they raise. In my work I mainly deal with surveillance technologies and AI technologies, and the risks that they create to different stakeholders. I also study developers' awareness and attitudes towards these risks, in order to see if and how developers internalize these risks and whether this internalization alters the development process. In a recent article of mine published in Ethics and Information Technology I deal with such a case, and examine the attitudes of AI developers in Israel in the field of radiology towards the risks their tools create for patients and healthcare professionals. My current project, which is part of European Union funded research, examines the development process of an experimental AI tool for early detection of a cancer-related syndrome called cachexia. In this project our team at the University of Copenhagen, examines issues such as the trustworthiness of this tool as well as the development process, as they relate to ethical questions in general. Hence, while my previous project dealt with the development of healthcare AI tools in a commercial setting in Is-

rael, my current project deals with the development of a healthcare AI tool in an academic and European setting. Three questions for discussion with the panel: 1. How can ethical standards be applied/suggested when a development project is in constant flux? 2. How can ethical responsibility be provoked when a developer feels no ownership of the project? 3. Is there any possibility to make developers doubt their own technological determinism?

160 'Building capacities for reflection: How to create a responsible innovation ecosystem?' by Philipp Neudert (RWTH Aachen)

Contribution abstract The BMBF-funded Cluster4Future NeuroSys – Neuromorphic Hardware for Autonomous Systems of Artificial Intelligence aims at enabling an innovative form of 'neuromorphic' computing, based on a novel chip architecture that emulates neural networks and mimics the human brain to increase energy efficiency and performance. Neuromorphic computing is imagined to be particularly well-suited for mobile and computing-intensive AI-applications. NeuroSys has been framed as advancing European technology sovereignty, as providing substantial economic potential for Europe and the Aachen region in particular, and as enabling socially desirable innovation. These explicit, yet vague goals allow for negotiations and trade-offs in the course of the project duration (e.g., sustainability vs. performance gains; accelerated regional commercialization vs. academic excellence), resulting in considerable, built-in flexibility. An emerging innovation ecosystem (IE) is imagined to create innovation-friendly conditions and to align the innovation produced by the cluster with broader political agendas. But how can the IE be set up and governed in such a way that these conditions are created, the mentioned trade-offs negotiated in a way that satisfies involved actors, and ethical issues included? The sub-project, which I am supporting as a doctoral researcher, tries to formulate answers to this question, drawing on STS methods and concepts. Ethical issues arising in the context of NeuroSys include, but are not limited to problems of unequal treatment and discrimination in AI-applications; rebound-effects; sourcing, e.g., of rare earth elements; and potential dual-use cases. Researchers from our sub-project are ascribed a double-role, first as embedded, yet critical analyst, second as constructive and cooperative contributors and team members expected to advance NeuroSys. During the panel, I would like to discuss the relationship between the mentioned double-layered flexibility vis-à-vis uncertainty and our research practice. As I will point out, the organizational construction of NeuroSys blurs the analyst-actor-distinction, and as embedded STS analysts we must reflect on our role as actors who will nolens volens impact our partners' research practice, decisions and results. While we should not give up on the traditional role as a distanced and observing, yet in no conventional sense 'neutral' instance, a shift from direct intervention to capacity-building enables academic researchers

and (potential) entrepreneurs to reflect on the broader social and political impact of their epistemic and development choices, e.g., by providing contextual knowledge, organizing scenario workshops and using Socio-Technical Integration Research (STIR) to stimulate reflection. We assume that, by these means, not only individual research and innovation projects, but also the entire innovation ecosystem can be made responsible. Paying closer attention to the requirements and internal dynamics of such a 'responsible innovation ecosystem' provides a new perspective to understand the possibility of practicing responsible innovation and integrate ethics in innovation processes. Discussion Questions 1- How can an innovation ecosystem be set up and governed in such a way that innovation-friendly conditions are created, and societal expectations and ethical values integrated? 2- How can capacities for reflection within the emerging ecosystems be built? 3- How can and should embedded social scientists/ethicists account for their ascribed double-role as analysts and contributors?

Ethics in/and STS

Room S11

Panel organised by Mone Spindler (University of Tübingen) and Paula Helm (University of Amsterdam)

Panel abstract In the interdisciplinary field of STS, ethics is and has been referred to in different ways: Ethical reflection is proposed as a mode of knowledge production as part of STS (see e.g. Grunwald 2011). When ethics is considered a part of STS, this is often in association with the "engaged program" (Sismondo 2008) and with "low-church" approaches (Fischer et al. 2015, Woodhouse et al. 2002), referring here not so much to philosophical ethics but to ethico-political activism. On another note, "ethical [...] implications of contemporary science and technology" are mentioned as a subject of STS, e.g., in the mission statement of the Harvard Program on Science, Technology and Society. At the same time, however, ethics is also thematized as a distinct, academic field with fluid but existing boundaries and active boundary work, including boundary objects (see, e.g., Star/Griesemer 1989). In this panel, we will explore the various meanings, relationships, roles, and practices of ethics in STS by discussing the following questions:

- How is the term "ethics" used in STS? How does the common use of the term "ethical" as a synonym for "good," such as in "ethical AI" (Jobin et al. 2019), relate to ethics as a scientific field? What are the relationships between the notion of ethics as a normative term referring to values and "ethical principles" such as "transparency, justice and fairness, non-malfeasance, responsibility, and privacy" (ibid.) and ethics as a scientific

discipline of reflection on morality? What is meant by "ethical implications" in STS, where the term is at times used as if it had nothing to do with philosophy?

- What interdisciplinary circulations can we observe between STS and (philosophical) ethics? (How) do they differ in their concepts and practices of description, prescription, and engagement? What role do concepts of "integration," "co-laboration," "intervention," and "embedding" play in both fields? Which boundary objects can we identify that facilitate circulation between the two fields, such as responsibility, agency, care?
- What about (debates on) normativity of STS and in ethics? What might an ethics of engagement for STS look like? Vice versa: what might an STS-informed ethics of technology look like?
- How do STS researchers navigate their professional identities, practices, and careers in and between STS, ethics, and their potentially differing disciplinary backgrounds?
- What role does ethics play in STS policies and their competition for funding and social recognition?
- What approaches to "empirical philosophy" (Rosenberger/Verbeek 2015: 30) does the field of STS offer and promote?
- How are STS, ethics, and their relationships perceived in the STEM field?

with

161 'Practices of description, prescription and engagement in STS and ethics' by Céline Gressel (University of Tübingen) and Mone Spindler (University of Tübingen/International Center for Ethics in the Sciences)

Contribution abstract I our talk we explore the relations between the academic fields of STS and applied ethics. We want to reach beyond the interdisciplinary stereotype that both fields differ in "too little" respective "too much" normativity. Based on the assumption that descriptive and prescriptive premises engender each other in the production of knowledge, we want to facilitate a mutual understanding of concepts and practices of description and prescription in STS and applied ethics and the forms of engagement that result from them. We therefore compare two concepts as examples from both heterogeneous fields. Our aim is to facilitate more reflexive cooperation between both fields.

162 'Philosophy and ethics in STS' by Jaqueline Bellon (Unniversity of Tübingen/International Center for Ethics in the Sciences)

Contribution abstract It has been stated that philosophy of technology, philosophy of science, and STS have difficult and complex relations with one another. Depending on who you ask and on various national differences in the traditions of philosophy and STS as well, the relation between the fields is described in very terms. For example, in philosophy itself when we speak about philosophy of science, even the germanspeaking, frenchspeaking and englishspeaking traditions differ enormously in their approaches. Against a quick sketch of this background, I will very roughly map out the history of philosophical branch building and subsequent current approaches bridging the perceived gap between philosophical disciplines and STS to finally ask the question of how ethics play a part in this landscape and how what is perceived and lived as "ethics" may differ for a philosopher, an STS practitioner, and in the end, for a person following a code of engineering ethics. I will focus primarily on the notion of "values" for this inquiry and point out how this notion corresponds to the level of applicability of ethical perspectives among moral philosophy, philosophy and ethics of technology, STS, and engineering.

163 'What does it mean to do STS research as an "embedded ethicist"?' by Theresa Willem (Technical University Munich/STS Department)

Contribution abstract Governing innovation is a major challenge of our time. Through what is described as a "new governance of science" (Balmer et al. 2015, p.6), scientists are encouraged to increase the active integration of social scientists and of the knowledge they produce alongside and participating in innovation, leading to a "collaborative turn" (Fitzgerald et al. 2014). With debates about this collaborative turn, as with any paradigm change, concerns have arisen that run as deep as the identity of the social science fields. With interdisciplinary ways of working, social scientists have found themselves entangled in actor constellations that have profound interpersonal relationships, which influence their "making and doing" (Downey & Zuderent-Jerak, 2017, p. 223) as scholars. Social scientists' roles before the collaborative turn, previously described as more passive - less integrated into the ongoing projects, not necessarily less intervening - seems to have had the stronger standpoint for criticism. This criticism sparked a debate that newly negotiates the role descriptions of social scientists and, again, fueled the debate about roles of STS-ers and empirical ethicists in interdisciplinary collaborations. In this paper I will depict the frictions, as well as the benefits, of working as an embedded ethicist in an interdisciplinary collaboration on machine learning healthcare applications for dermatology and radiologic diagnostics and simultaniously conducting STS-research about the same project.

164 'Engaged ethnography: Critical participation in valuation work.' by Mareike Smolka (RWTH Aachen)

Contribution abstract In recent years, the normative effects of mindfulness research have been discussed widely among scientists, scholars, and Buddhist practitioners. While some consider mindfulness research as contributing to the alleviation of chronic diseases, political conflicts, and environmental crises, others worry that a scientific framing of mindfulness makes it amenable for ethically dubious ends – for instance, as a concentration training in the military or a productivity booster in business corporations. Instead of reasoning about the ethicality of mindfulness research in the abstract, my recently published dissertation Ethics in Action explores how values emerge in practices and how engaged ethnography enables critical participation in these practices. By drawing on theoretical and methodological resources from STS as well as from interrelated discourses on Responsible Innovation and Responsible Research and Innovation, it introduces the concept of 'valuation work' to describe and re-scribe how mindfulness researchers mobilise different strategies and repertoires to enact values. In this talk, I will conceptualise and illustrate the concept of valuation work with empirical examples from my dissertation research. The analysis of the empirical material reveals that mindfulness research does not automatically have the normative effects which are anticipated in academic and public debates. Instead, normative effects for good and for ill can be traced, destabilised and modulated in scientific work through reflexive practices that are already embedded in mindfulness research and those that are stimulated by engaged ethnography. The talk seeks to initiate a discussion on how STS engagement research can introduce a shift in normative discussions on science from 'ready made ethics' to 'ethics in the making.'

#165 'Teaching Ethical Literacy to Non-Philosophy Students (working title)' by Michael Kühler (Karlsruhe Institut of Technology (KIT))

Contribution abstract In my talk, I will present a brief overview of how we at ARRTI teach ethics to STEM students and discuss some of the pitfalls students typically encounter when it comes to distinguishing "normative ethics" from "empirical STS" (broadly understood). The teaching methods I will mention are, firstly, an online course for self study in which students view short video lectures and engage with other study materials to learn the basics of critical ethical reflection, and, secondly, tailor-made co-teaching in which we take part in STEM courses and discuss with students ethical aspects of the STEM topics covered. The pitfalls most students stumble upon are essentially all connected to the divide between empirical findings (STS) and normative argumentation (ethics), e.g., distinguishing between empirical findings about "(social) acceptance" and normative ethical arguments about "acceptability." The basic question for students—and for teaching ethics to STEM students—thus amounts to the role

that empirical findings can plausibly play in ethical argument.

Universität als Kontext der Produktion, Zirkulation und Transformation: Hochschulorganisationale Technologien gesellschaftstransformatorischer Praxis im Zeichen der Nachhaltigkeit, Digitalisierung und anderer (historischer) Wandelprozesse

Room S09

Panel organised by Julia Elven (Friedrich-Alexander-Universität Erlangen, Institut für Pädagogik)

Panel abstract Universitäten sind nicht nur Orte der Produktion und Weitergabe gegenstandsbezogener Wissensbestände, sie bilden zugleich Felder, in denen gesellschaftliche Transformationsprozesse konkretisiert bzw. sozialer Wandel praktisch hervorgebracht wird. Dies gilt umso mehr, als sich hier Praktiken der Wissenserzeugung, der Vermittlung und Bildung, der Transmission und Umsetzung und jüngst verstärkt auch der öffentlichen Kommunikation überschneiden und wechselseitig durchdringen. Aus Perspektive der Science and Technology Studies geraten dabei die zum Einsatz kommenden und ihrerseits Wandel unterliegenden Technologien der Wissensproduktion, -zirkulation und -distribution, der lehr- und anwendungsbezogenen Theorie-Praxis-Vermittlung, sowie der Wissenschaftskommunikation in den Blick. Zudem ermöglicht sie eine Reflexion des Zusammenspiels all dieser Aspekte aus wissenschaftskultureller Perspektive. Solch eine übergreifende Betrachtung universitärer Praxisarrangements ist nicht zuletzt auch deshalb lohnend, weil gesellschaftliche Transformationsprozesse dezidiert die Universität einschließen: Die spätestens seit den 1980er Jahren diagnostizierte Ökonomisierung der Gesellschaft zeigt sich unter anderem als „akademischer Kapitalismus“ (Münch 2011), die sich seit Dekaden ausweitenden Kulturen der Digitalität wirken sich in verschiedenster Form auf die Praxis universitären Organisierens, Forschens und Lehrens aus (Demantowsky et al. 2020) und im Zuge (bildungs-)politischer Nachhaltigkeitsprogrammatiken werden neue, transformative Konzepte der Universität diskutiert (vgl. kritisch: Strohschneider 2020). Das Panel lädt dazu ein, die unterschiedlichen Verbindungslinien zwischen Universität und gesellschaftlichem Transformationsprozess zu diskutieren.

with

166 'Wissensdistribution in nicht verbandlichen Strukturen – Was unterscheidet die Scientists for Future von der Sektion BNE der DGfE?' by Henning Pätzold (Universität Koblenz)

Contribution abstract Es gibt unterschiedliche Formen der Kollektivierung von Wissenschaftler*innen (Hochschulen, Fachgesellschaften, Arbeitsgruppen usw.), die unter anderem an der Kommunikation und Distribution von Wissen mitwirken. Letzteres sind Aufgaben von Wissenschaft, die u.a. im Kontext von Begriffen wie „Third Mission" diskutiert werden, deren Relevanz aber zweifellos viel weiter zurück reicht. Spätestens seit der Aufklärung lässt sich diese auch als Bildungsaufgabe verstehen, insofern es nicht primär um die Produktion von Anwendungswissen für bestimmte Gruppen oder die Reproduktion nach außen geschlossener Professionen geht. Wissenschaftskommunikation und insbesondere die Verbreitung und kritische Diskussion von Wissen sind damit ein wesentlicher Beitrag der Wissenschaft zu individueller und gesellschaftlicher Transformation. In dem vorgeschlagenen Beitrag geht es darum, Wissenschaftskommunikation im Bereich Nachhaltigkeit durch nicht-verbandlichen Strukturen zu untersuchen. Hierzu werden exemplarisch die Scientists for Future (i) dahingehend untersucht, wie sie zur Zirkulation von (Nachhaltigkeits-)Wissen beitragen. Die Beobachtungsperspektive wird dabei durch die Akteur-Netzwerk-Theorie (Latour 2010) und speziell das Konzept der Übersetzung (ebd.; Callon 2006) vorgegeben, es geht also um Prozesse der Problematisierung, des Interessements, des Enrollments und der Mobilisierung (vgl. ebd.). Zur Kontrastierung wird außerdem die Kommission Bildung für Nachhaltige Entwicklung (ii) herangezogen, die als Teilgliederung der DGfE e.V. traditionell verbandlich organisiert ist. Die Frage, der in dem Beitrag konkret nachgegangen werden soll, lautet: „Wie geschieht Übersetzung wissenschaftlichen Wissensverbreitung in nicht-verbandlichen Strukturen und was lässt sich vor diesem Hintergrund insbesondere über deren Wirkung sagen?" Auch methodisch wird hierbei auf Konzepte der Akteur-Netzwerk-Theorie zurückgegriffen, weiterhin auf solche der Sozialen Netzwerkanalyse (vgl. Pätzold und Bestvater 2018). Die Verallgemeinerbarkeit der Ergebnisse wird dabei natürlich u.a. durch die Fokussierung auf den Bereich Nachhaltigkeit begrenzt, insofern hat die Studie auch explorativen Charakter. Die Ergebnisse sollen dennoch einen Beitrag zur Frage nach effektiven Formen und Strukturen der Verbreitung wissenschaftlichen Wissens und damit zur potenziellen Verbesserung von Wissenschaftskommunikation leisten.

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167 "'Slow Science" als Gebot der abduktiven Universität: Sachtheoretische Reflexionen zur Epigenesis theoretischer Forschung' by Florian Dobmeier (Eberhard Karls Universität Tübingen)

Contribution abstract „Jetzt, vor einer halben Stunde, sollte ich bereits woanders sein, und von Ihnen, Herr Professor Horkheimer, weiß ich, daß Sie in einer Viertelstunde bereits in Bad Nauheim sein sollen, und wir wollen uns doch ausgiebig, ruhig und vernünftig über dieses so enorm wichtige Thema unterhalten: ›Die verwaltete Welt‹. Und da sitzen wir also, sozusagen zitternd, nervös, weil andere Termine auf uns warten. Von diesem Zustand müssen wir frei werden. Ich für meine Person werde also jedenfalls bei unserem Gespräch jetzt so tun, als ob ich beliebig Zeit hätte. Und ich denke, daß aus diesem »als ob« eine Wirklichkeit werden kann." (Kogon in Adorno et al. 1989, S. 121) Gleichwohl die Debatte um nachhaltige ‚Slow Science' vornehmlich in Kreisen feministischer Wissenschaftspolitik und -kritik diskutiert wird (e.g. Rohstock 2021; Garcés 2020 [2017], S. 79–126; Haraway 1996), ist das darin aufgehobene Problem doch viel grundlegender und sachlogisch konstitutiv für jedwede Forschung in ihren Möglichkeitsbedingungen ‚guten' Gelingens überhaupt. Nicht einfach geht es dabei nur in der Sozialdimension um Entschleunigung, die den Zentrifugalkräften kommunikativer Vereinzelung, nicht anerkannter Care-Work (Waldmann 2020) und arbeitspsychologischen Überlastungen neoliberalisierter Subjektivität (Bröckling 2002) entgegen wirken soll. Auch und vor allem geht es wissenschaftstheoretisch in der Sachdimension um die neuralgische Frage, unter welchen Bedingungen Forschung, die den Anspruch der Neuartigkeitsgenerierung an sich stellt, überhaupt und kriterial ‚gut' gelingen kann. Dass die politische Ökonomie der eben nicht „unbedingten Universität" (Derrida 2018 [2001]) heute nicht nur Gelingensbedingungen universitärer Pädagogik zunehmend konterkariert (s.a. Freyberg 2011, S. 230–231), sondern auch auf die Art und Weise des Forschens selbst durchschlägt, wird nicht nur im Feuilleton prominent kritisiert (e.g. Kieserling 2022; Pörksen 2018; Thompson 2017). Auch in Debatten zur theoretischen Empirie, insbesondere im Folgenden zur Methodologie theoretischer Forschung (Bellmann und Ricken 2020; Thompson 2021; Fischer et al. 2021; Meseth 2016), stellt sich die Frage, welche programmstrukturellen Forschungsbedingungen es in der Umwelt wissenschaftlichen Arbeitens braucht, sodass diese ihrem bildenden Anspruch der Generierung abduktiv-neuartiger Aussagen (Reichertz 2013 [2003]; Dobmeier 2021; Jörissen 2016) im Medium der Wahrheit gerecht(er) werden können. Der

Beitrag spürt hierfür Modi akademischer „Neutralisierungen von Kritik“ (Garcés 2020 [2017], S. 79) nach und legt besonderes Augenmerk auf die Frage des Abduktiven angesichts epistemischer Kollateralschäden durch eine zunehmend digitalsolipsistische Konditionierung der Universität.

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11:00–13:00: Session slot 6

Experimental democracy (3/3)

Room S01

Panel organised by Jan-Peter Voß (RWTH Aachen University, Chair of Technology and Society) and Stefan Böschen (RWTH Aachen University, Chair of Technology and Society)

Panel abstract From an STS point of view, both science and democracy are "in the making". Major transformations over the last 50 years are discussed under alleged shifts "from mode1 to mode2 knowledge production" and "from government to governance". On both sides this reflects a reflexivization of modern functionally differentiated institutions, a debordering, opening-up and multiplication of hybridized practices. In new arrangements of open and collaborative experimentation (such as living labs, real world experiments, transformative research, sustainability experiments, experimental and polycentric governance etc.) such intertwining of epistemic and political practices is programmatic - but rarely it is reflected which specific practices of science and democracy are nurtured in the context of such processes. The panel "experimental democracy" thus explores ways to study (a) specific practical forms of articulating and validating representations of objective reality (facts, functions) and how they intertwine with (b) specific practical forms of articulating and validating representations of collective subjectivity (wills, interests) in such hybrid arrangements. It is concerned with democratizing experimental ways of shaping collective orders as well as with the ongoing experimental development of democracy itself.

#168 'Democratic Experimentalism or Experimental Democracy? Some Theoretical Reflections on the Concept of Consumer Democracy' by Jörn Lamla (University of Kassel, Chair of Sociological Theory)

Contribution abstract The contribution will reflect on different possibilities to relate democracy and experimentation. It takes issues of consumer society as a starting point to distinguish between experimental methods as procedural toolkits for democratic politics and established institutions on the one hand and experimentalism as a core feature of the political which leads to institutional/-constitutional transformations of democracy itself on the other hand. Both perspectives can be applied regarding consumer society and consumption practices. However, their theoretical relation is not very clear and must be elaborated to capture the instrumental capacity of democratic politics to adapt to the challenges of societal and planetary change.

169 'De-polarizing Nature and Society. Sociological Experimentalism in the Anthropocene' by Tanja Bogusz (Universität Hamburg, Center for Sustainable Society Research)

Contribution abstract My intervention draws on four key assumptions that make sociological experimentalism a useful tool for Circulating democratic practices as conceived by the panel: First [epistemology], sociological experimentalism is based on the pragmatist tradition of experimental knowledge production with striking consequences for the socio-political field. John Dewey and colleagues conceived experimentalism as a combination of natural-scientific, explorative and systematic approaches, aiming for a methodological integration of multiple public issues ("public problems") into a general framework of civic action – an approach that has been taken up from Chicago School up to STS and late Latour. Second [social theory], sociological experimentalism provides a procedural heuristics, thereby potentially de-polarizing nature and society as commonly distinct objects of research. This heuristic is of striking actuality as the current organization of the sciences often fail to meet the challenges of the Anthropocene; especially regarding the epistemology of eco-social relations being heavily impeded through a-symmetrical knowledge organization. Third [theory of society], sociological experimentalism advocates for the methodological importance of experiential difference and heterogeneous cooperation within the two domains of science and society. Experiential difference, expressed either through social disparities, political conflicts or epistemic delimitations, is thus conceived as productive irritation to explore unknown terrains to address the challenges of the Anthropocene. Fourth [practice] and finally, the entanglement between nature and society suggests a rather pro-active composition of heterogeneous communities of practice, streamlined through experiential difference, and organized around collectively explored issues that might potentially fuse into democratic expertise. To guarantee political legitimation, such expertise could lead to the establishment of inter- and transdisciplinary "third knowledge spaces", based on an experimental de-polarization of nature and society. In my intervention, I will present such a potential politico-scientific space based on my current research in marine social sciences.

170 'The role of the modern social imaginary in research funding for urban experimentation' by Cordula Kropp (University of Stuttgart, Chair of Sociology of Technology, Risk and Environment)

Contribution abstract Real-world labs, urban living labs and similar forms of participatory experimental research have spread and become an important branch of third-party funding. The aim of the presentation is to examine the underlying visions of research funding, as expressed in public requests for proposals, with regard to the intended contribution to a sustainability-oriented trans-

formation. Conceptually, the research builds on insights about the political role of sociotechnical imaginations in science and technology studies (S. Beck et al. 2021). The findings indicate that only vague notions of sustainability are articulated in the calls, but a clear demand for cooperation. The calls convey visions of future sustainability through Behaviour and Awareness Change, Technological Problem-Solving and Infrastructure Reorganization. The weak focus on sustainability is flanked by a strong interest in promoting digital innovation. The presentation contributes to research on experimental democracy by drawing attention to the ongoing significance of the modern social imaginary elaborated by Taylor (2002), which restricts society's search for transformative pathways to adaptive modernization.

#171 'When Experiments Fail' by Matthias Groß (Helmholtz Centre for Environmental Research, Department of Urban and Environmental Sociology & University of Jena, Institute of Sociology)

Contribution abstract Following a Popperian notion of experiment to test hypotheses in order to seek disconfirmation means to falsify a hypothesis so the experiment fails. In this view, only experiments that fail are successful experiments since they are the basis for innovation and learning. Put differently, falsified hypothesis can make the experimenters aware of their own ignorance (nonknowledge) and thus the impulse for new knowledge. This presentation moves the notion of failure into the context of debates on living labs, real world experiments, real world laboratories, or sustainability experiments so that accidental and strategic failure are conceptualized as conditions of knowledge production in general. This renders ignorance and failures as eminent in processes of transformation and raises questions on the limits of linear and targeted sustainability projects. This, in turn, challenges democratic foundations (stakeholder involvement, participation etc.) of experimental processes outside the laboratory. To illustrate this point, I will present examples from ongoing research on wind energy operations and geothermal heat installations as experiments in learning, unlearning, and non-learning from failure.

Circulations of Knowledges in (Digital) Medical Applications (2/2)

Room S12

Panel organised by Renate Baumgartner (Zentrum für Gender- und Diversitätsforschung/Center for Gender and Diversity Research; Tübingen) and Tamara Schwertel (Institute for History, Theory, and Ethics in Medicine, Mainz)

Panel abstract In medicine what is considered as knowledge is especially contested because the field greatly influences knowledge in other fields and other fields also influence how and which knowledge is constructed in medicine. We see this in archives of standardized knowledge that get circulated a lot also in other disciplines, such as brain atlases, anatomy books and the like (conceptualized by Susan L. Star as boundary objects). With new technologies and new digital applications also new disciplines and stakeholders get involved and claim their say. E.g., (bio)medical applications based on artificial intelligence are being developed by teams of medical and technical experts, ethicists, legal advisors, and others, such as it is intended in the ELSI (ethical legal sociological implications) framework mandatory for BMBF projects. The new working alliances raise questions about how knowledge is created, translated, passed on, and create new relationships of dependency. Feminist STS has a long tradition in criticizing (hegemonial) knowledge and analyses how knowledge is formed (or constructed), who is involved with which power and which consequences result thereof. By providing important analytical tools to ask about the production of knowledge and its effects, feminist STS makes an important critical contribution.

with

172 'Sociotechnical practices in the context of AI-based health apps for diagnosis' by Heike Gerdes (University of Applied Sciences Emden/Leer) and Anja Trittelvitz (University of Applied Sciences Emden/Leer) and Jannis Steinke (TU Braunschweig)

Contribution abstract As the history of science and (Feminist) Science and Technology Studies (STS) have shown, objectivity is not an a-historical constant, but is produced by the interaction of social practices and technical artifacts (Daston). Praxeological studies also raise questions about the extent to which AI-assisted decision-making is objective and what is meant by objectivity. In the research project "Sociotechnical Practices of Objectivation: An empirical examination of AI-based health apps for diagnosis (STePOn)", we ask from STS perspectives how practices of classification contribute to objectivity, and which social groups, knowledge, and practices are included and excluded in the developing process.The subject of our research is the production and use of health apps that include diagnostic and prognostic elements. Our initial thesis is that (among other things, statistical and medical) classification is a central practice in digitalized healthcare that connects the social and the technical (Star & Bowker). Based on an ethnographic approach and theoretical concepts of actor-network theory (Latour, Callon et al.), we observe and interview both users and developers in a participatory way. In our talk, we want to present some of our results from both our inquiries with users and developers. Research questions: On the developers' side, we explore the following questions: – How are medical classifications trans-

formed into technical infrastructures and ultimately interpreted by users? 2 – What are the development practices of the app? – What are basic assumption and categories? Which forms of knowledge and which potential user groups are considered? On the users' side, we explore the following questions: – How do users understand the app and its results? What meaning do users give them? – To whom or what do users attribute objectivity and epistemic authority? – How do practices associated with the app change health practices and notions of health knowledge?

173 'Between knowledge and ignorance: Implications of digital technologies for public health management' by Gabriel Bartl (Centre Marc Bloch)

Contribution abstract Responses to public health crises are increasingly technological in nature, as the prominence of COVID- 19 simulations and contagion models has demonstrated regarding their political impact, especially during the first waves of the pandemic. However, the use of technology is extremely preconditional, as there are various implications associated with it. These can not only affect acceptance, but also diminish the acceptability of these technologies. In contrast to the prominent and often binary structured "technology assessment models", the concept of acceptability encompasses the ethical and normative dimension. Thus, for the assessment of acceptability, the premises of data collection, sorting, and evaluation must be disclosed and reflected upon because knowledge cannot simply be detached from its contexts of origin (Mezes 2020). Consequently, the structural logics and normative presumptions in the social construction of knowledge production within digital health technologies are to be analyzed to examine their social and ethical implications. In this perspective the transfer of knowledge into policy decisions as well as objectivity and evidence in the context of mathematical simulation models urgently needs to be critically scrutinized (Bartl/Hardt 2022). This also addresses the question of how social conflicts in times of crisis are concealed or even deliberately ignored by recourse to technologies, as suggested, for example, by the concept of "strategic ignorance" (McGoey 2012). Against this background, it will be explored how the modern fantasies of control by crisis technologies can be contrasted with an experimental approach to uncertainty (Groß 2014). The contribution intends to shed light on the following questions: What expectations exist for technical solutions in crisis situations and how are these justified at the interface between science and politics? What deficits can be observed regarding the legitimacy of such an approach? What is evidence and how does it relate to number-based forecasts and simulations? How has public health been transformed by the treatment of emerging infectious diseases through simulation (Kelly et al. 2019) and how does this affect power hierarchies and the circulation of knowledge in medical applications? How can the relationship between natural and social sciences be described in terms

of an interdisciplinary agenda in the development and implementation of digital medical applications? What are the barriers in implementing more legitimate, transparent, and participatory modes of crises governance instead of top down structured, opaque, and discriminatory digital health technologies? All these aspects address the overall question of how we want to deal with health crises in the future.

#174 'Donna Haraway meets Adele Clarke: relational maps, becoming-with, and the importance of elements in situational analyses.' by Tamara Schwertel (Institute for History, Theory, and Ethics in Medicine, Mainz)

Contribution abstract In this contribution, I use Donna Haraway's neo-materialist and feminist concept of becoming-with as a sensitizing concept for relational mapping in situational analysis. Through Haraway's perspective, entaglements of elements in their ways of relating to and with elements can be viewed particularly well. Accordingly, becoming-with-others is an enriching extension of the theory-method-package of situational analysis. This is exemplified by my research on deep brain stimulation.

Testing as a research object of STS. Transdisciplinary perspectives on testal translation chains (2/2)

Room S03

Panel organised by Simon Egbert (Bielefeld University)

Session chaired by Veit Braun (Goethe University Frankfurt)

Panel abstract The COVID-19 pandemic has underlined a fact that was already manifest before, but now, since the beginning of the pandemic, is more evident than ever: contemporary society is significantly shaped by tests. There is in fact hardly a person who has not been tested in their life, hardly an area of society in which tests do not play a significant role (Pinch, 1993; Hanson, 1994; Marres/Stark, 2020). From an STS perspective, tests are particularly relevant not only because of the considerable social consequences they are capable of evoking, but also due to the fact that they are inevitably socio-technical instruments, embedded in relational webs of human and non-humans, that do not test for extra-worldly phenomena. Instead, they utilize always and inevitably socially mediated indicators, which have to be understood as defined by humans and stabilized by conventions (MacKenzie, 1989). Test procedures are therefore inescapably subject to epistemic fractures since they per se only indicate a representation of what is the target information of the test procedure – which applies to the testing of people (Hanson, 1994; McNamara, 2003) as well as the

testing of technology (Pinch, 1993; Downer, 2007). Consequently, testing implies closing epistemic gaps between the test result and the actual target information. This closing of epistemic gaps in testing procedures, we aim to put forward in this panel, can be fruitfully conceptualized as a "chain of translation" (Latour, 1999), referring to "the work through which actors modify, displace, and translate their various and contradictory interests." (Latour, 1999: 311) This transformative journey is understood as a cascading, socio-technical process, in the course of which (scientific) reference is constantly being modified. Before this backdrop, testing can be understood as translation work as well, reformulating the argument of the necessity of closing epistemic gaps in testing procedure in a way that makes it sensitive to the heterogeneous web of human and non-human actors. Although tests and testing procedures are highly relevant in contemporary society, tests have hardly been researched systematically in STS. This panel will therefore attempt to conceptualize the role of tests in present-day society, with a special focus on the transdisciplinary perspectives required to analyse the application of tests in detail, which especially includes the knowledge of the scientific and (bio-)technical test instruments.

with

175 'Testing devices in identity management and credibility assessment: Exploring their conditions of possibility at the German Federal Office for Migration and Refugees (BAMF)' by Silvan Pollozek (European University Viadrina Frankfurt Oder) and Jasper van der Kist (European University Viadrina Frankfurt Oder)

Contribution abstract Asylum authorities use various tests to establish the identity and credibility of applicants. Increasingly, technological solutions are being sought and applied to prove asylum seekers' eligibility for legal protection. In this area, the German Federal Office for Migration and Refugees (BAMF) has proliferated itself as something of a vanguard in Europe. It has begun to plan, develop, and implement high-technological testing systems ranging from facial recognition scans, dialect and language recognition systems, automated name transcription and smartphone assessment tools. While research has started to elaborate on the technologies of migration management, this paper argues that not enough attention has been paid to the conditions of possibility which give them form and effect. Based on empirical analysis of the BAMF, we show how officials, experts, corporations, and critics have come to define the truth of asylum and give it a new testable form so that such that authorities can operate on it. We organise our findings into three logics that highlight the composite, contradicting and contested character of testing technology in the making. The first a logic of securitisation that problematises its target population as simultaneously vulnerable and criminalised. Second, a logic of innovation that supplies industry-

leading solutions to political-legal demands of efficiency and fairness. And finally, a logic of accountability that responds to the concerns of various stakeholders in these publicly funded programmes.

176 'Testing as Relating. Getting a 'Sense' of a Humanoid Robot' by Hannah Link (Johannes Gutenberg University Mainz) and Herbert Kalthoff (Johannes Gutenberg University Mainz)

Contribution abstract In recent decades, sociological studies have investigated the social relevance and performance of evaluation procedures in various societal fields e.g., consumer products (Heuts/Mol 2013) financial transition (MacKenzie et al. 2007), or – more recently – the performance of students (Kalthoff/Engert 2021). In this context, testing is understood as a profound feature of an e/valuation: as a mean to estimate the worth of an object or the performance of a subject. The aim is to close epistemic gaps by positioning the object or subject on a (small) scale. However, in the field of robotics, testing does not only enable participants to evaluate and rank a robot's performances or functionalities. Based on ethnographic observations, we understand testing as an informal way of relating to robots, before conducting elaborate and labor-intensive experiments. Through touching, mimicking, and seeing the robot's movements in the course of testing, roboticists aim at getting a feeling for a seemingly opaque machine. Therefore, testing is a tentative pre-experimental way of relating to a technological object of knowledge and allows to constitute a 'sense' of what it can and should be doing. We argue, that testing renders a way of 'getting into' (Alač 2009: 496) the machine's body and fashions in return the human body in terms of the machine. Testing, therefore, appears as a way of crossing the categorical boundaries between humans and non-humans. Using data sequences in which roboticists are involved in designing robotic movements, we will examine practices of testing as relating humans and non-humans.

177 'Testing to Circulate. Addressing the Epistemic Gaps of Software Testing' by Anja Klein (Humboldt University Berlin, Institute for European Ethnology) and Libuše Hannah Vepřek (LMU Munich, Institute for European Ethnology and Cultural Analysis) and Sarah Thanner (University of Regensburg, Institute for Information and Media, Language and Culture) and Mace Ojala (Ruhr University Bochum, Institute for Media Studies) and Rebecca Carlson (Toyo University, Japan) and Tamara Gupper (Goethe-Universität Frankfurt am Main)

Contribution abstract Although unevenly applied and experienced, testing computer code is a ubiquitous practice, fundamentally integrated into material infrastructures, hardware and other built environments. Testing variably precedes programming ("test-driven development"), is done as specific phases of

software development (verification and validation), or is distributed throughout the everyday processes of programming ("compiling" "syntax checking", "debugging"). Hence, testing practices continue to live alongside the code's development and maintenance over time, and eventually follow its convivial decay (Cohn 2016) or outright abandonment. Importantly, testing may be divergently imagined and practiced by the different actors involved, just as specific testing practices differ, e.g. in their degree of formalization, scalability, style and even coherence. For example, testing depends on conceptualizations of "good" code which are variously envisioned, yet systematically maintained. As we will show, a body of code does not simply pass or fail its tests, but is carefully navigated and negotiated. The breadth of testing practices roughly outlined above begs many questions, and in this contribution we want to focus on the epistemic gaps that such practices address and themselves create. What sociotechnical relations and epistemologies guide code testing and are conversely formed in the process? What imaginations, or leaps across epistemic gaps, are stabilized, distorted or discarded? Which chains of translation (Latour 1999) are successful, and when do these break? We consider these questions with regards to the purposes and circulations envisioned for the code our interlocutors work with. This contribution emerges from discussions of a working group focused on methodologies for studying code in ethnographic research. We draw our empirical evidence from our various field sites and research questions: scientific coding in implementing SES models, software maintainer meetups, robotics software development, automated software testing, testing in the development of interactive technologies, human computation systems and bioinformatics.

178 'Testing as 'chain of translation'. A conceptual proposal' by Simon Egbert (Bielefeld University)

Contribution abstract In my paper I will present a systematic definition of testing, with special recourse on the STS-literature on the testing of technologies and as well as publications on the testing of people. I argue that it is fruitful to combine selected insights of both strands in order to be able to reconstruct a genuine logic of testing. In this sense, testing is always connected to epistemic gaps, which are closed in testing procedures. Since there is always a difference between what is de facto tested (indicator) and what is the actual target information (indicandum) (Hanson 1994), I propose to understand testing as "chain of translation" (Latour 19969), highlighting the sociotechnical, iterative as well as productive character of testing procedures. I will also highlight that testing has in most cases a projective perspective, inferring from a current (or past) state to certain developments, behaviour etc. in the future (Pinch 1993). This is closely connected to the idea of the representativity of test results, although many tests performances are by definition dependent on factors determined by the testing

situation itself, making it in fact difficult to recognize the result as generally valid for the person concerned. Last but not least, I will discuss the idea of the world-making capacities of tests, referring to their powerful role in serving as gate-keeper as well as 'labeling machines'.

Circulating futures: On how to analyze, evaluate and shape the circulations of sociotechnical futures and their impacts for the demands of technology assessment (4/4)

Room H10

Panel organised by Jascha Bareis (Institute for Technology Assessment and Systems Analysis (ITAS)) and Christopher Coenen (Institute for Technology Assessment and Systems Analysis (ITAS)) and Torsten Fleischer (Institute for Technology Assessment and Systems Analysis (ITAS)) and Alexandros Gazos (Institute for Technology Assessment and Systems Analysis (ITAS)) and Janine Gondolf (Institute for Technology Assessment and Systems Analysis (ITAS)) and Alexandra Hausstein (Institute for Technology Assessment and Systems Analysis (ITAS)) and Peter Hocke (Institute for Technology Assessment and Systems Analysis (ITAS)) and Andreas Lösch (Institute for Technology Assessment and Systems Analysis (ITAS)) and Dirk Scheer (Institute for Technology Assessment and Systems Analysis (ITAS)) and Jens Schippl (Institute for Technology Assessment and Systems Analysis (ITAS)) and Ulrich Ufer (Institute for Technology Assessment and Systems Analysis (ITAS))

Panel abstract Technology Assessment (TA) is a research and advisory practice, that works with sociotechnical futures like visions, expectations, utopias, dystopias, and scenarios. These futures influence future-oriented decisions and actions by (co-)structuring and (pre-)determining socio-epistemic practices in the present. Because they circulate between different arenas of society involved in processes of innovation and transformation, they become effective means of transformation. Therefore, TA develops and applies a set of methods to (co-)analyze, to (co-)evaluate and to (co-)shape not only these futures, but also their circulations. In doing so, TA aims to contribute to a responsible generation, shaping and use of these futures by minimizing undesired and fostering desirable impact on decisions and actions. The circulating futures serve as essential mediators between different socio-epistemic practices. They are generated for different needs and applied for different reasons. While circulating they are interpreted, translated, and (co-)shaped by their use-cases. TA seeks to assess said transformations in

order to study their effects in and on the processes of innovation and the patterns of societal change accompanying them. When futures and their circulation are analyzed in practice, implications and presumptions come to the fore, that can transform traditional research practice. In that, TA is a driver of integrative, interventive or co-constructive research practices when and for interacting with society. The Institute of Technology Assessment and Systems Analysis (ITAS) is organizing this panel for the STS-Hub. The panel is divided in four slots, which will consist of presentations of ITAS researchers as well as from other contributors from the broad field of STS. The aim is to establish a mutual learning environment, so to engage in the circulation of approaches between the different research practices and research cultures in the communities of the STS-Hub. 1) Theories and methods applied in research and interactive practices on circulating futures (Slot organizers: Andreas Lösch & Jascha Barais (ITAS/KIT) 2) Heuristics (co)shaping the circulation of futures in knowledge productions processes (Slot organizers: Janine Gondolf & Christopher Coenen (ITAS/KIT). 3) Circulating futures in the co-evolution and co-shaping of sociotechnical systems (Slot organizers: Torsten Fleischer, Jens Schippel, Dirk Scheer & Peter Hocke) 4) Circulating Futures by Anticipation: Resilience, Innovation, Complexity and Crisis (Slot organizers: Ulrich Ufer, Alexandros Gazos (ITAS/KIT) & Alexandra Hausstein (ITZ/KIT)

with

179 'Critical infrastructure resilience and the anticipatory control of circulations' by Alexandros Gazos (Institute for Technology Assessment and Systems Analysis (ITAS) Karlsruhe Institute of Technology (KIT) Postfach 3640 76021 Karlsruhe)

Contribution abstract As information and communication technologies are increasingly permeating every critical infrastructure sector they become an essential factor in maintaining their system services. By proliferating and accelerating the circulation of information throughout these infrastructures they provide the basis for a fast-paced operation and enable the rapid circulation of essential services for societal needs. In this context, operators of critical information infrastructures are confronted with a virtually existential task: They need to safely navigate an increasingly complex system and secure the operation of their infrastructure against multiple threats (e.g. climate change, terrorism & cyberattacks). Despite all adversities, operators have so far managed to maintain a steady circulation of essential services. Yet, what social structures and capabilities do they need to enable those circulations? What kind of organising principle still does justice to such a difficult-to-predict field of challenges? For my dissertation I derived a sociologically informed resilience concept from organisational theories and assessed its adequacy as a coping strategy for operators and regulators at

the intersection of critical energy and information infrastructures. I conducted problem-centred interviews with representatives of organisations that enable the circulation of essential services. The collected expectations were evaluated using qualitative content analysis in order to review and revise the potential coping strategy. Preliminary results suggest that those organisations make use of several strategies that could be summarized under the umbrella term of resilience, if it is thought of as an organising principle. This principle is always accompanied by an anticipatory control of circulations in- and outside the respective sociotechnical system. In response to anticipated developments, threats and opportunities circulations are either enabled or constrained based on the event trajectories the organisations perceive as an imperative.

180 'University-driven Innovation Labs as platforms for circulating knowledge and integrating futurizing practices for sustainable development' by Alexandra Hausstein (Institute of Technology Futures (ITZ) Karlsruhe Institute of Technology (KIT) Douglasstr. 24, 3. OG 76133 Karlsruhe) and Tobias Held (Institute of Technology Futures (ITZ) Karlsruhe Institute of Technology (KIT) Douglasstr. 24, 3. OG 76133 Karlsruhe) and Sophie Kaiser (Institute of Technology Futures (ITZ) Karlsruhe Institute of Technology (KIT) Douglasstr. 24, 3. OG 76133 Karlsruhe)

Contribution abstract Being a main actor in regional innovation systems, academia has been confronted with drastically changed expectations in the recent past. The increased importance of societal relevant knowledge production for sustainable future development has brought university-driven transfer processes on the agenda of science policy and public interest. A need for sociotechnological innovation in the eye of contemporary societal challenges is contesting the role of academia urging for adaption in knowledge producing systems. Innovation Labs as platforms for integrative experimentation with societal stakeholders are a novel research instrument in German academia that can shape both transformative knowledge and institutional change. While gaining popularity as an expedient approach for knowledge coproduction and circulation, little is known about how conceptional approaches and methods are applied to (re-)shape sociotechnological futures. Likewise, in what way circulating futures and knowledge confronts as well as changes the status quo of institutional conditions for conducting research has remained a dark spot. Consequently, our presentation is guided by the following questions: Which conceptional approaches and methods are applied in university-driven innovation labs to (re-)shape socio-technological futures, and how can coproduced futures and knowledge be aligned with adapted practices for institutionalised research? The research conducted is part of the interdisciplinary research project "TRANSFORM – the Transformative Institute", which investigates pathways for implementation and institutional alignment of

(with) transformative science in the German academia. The conceptional model applied encompasses characteristics and interactions among the individual, institutional and systemic level linked to transfer processes. The research design of the study presented is based on a comparative case-study approach. A total of nine university-driven innovation labs are selected for in-depth investigation and comparison. The analysis is accomplished by collecting qualitative data by conducting semi-structured interviews with the managers in charge of each of the selected innovation lab.

181 'Governing futures of energy infrastructure – Understanding smart-grid futures and its experimental reshaping from a complexity-informed research perspective' by Tobias Held (Institute of Technology Futures (ITZ) Karlsruhe Institute of Technology (KIT) Douglasstr. 24, 3. OG 76133 Karlsruhe)

Contribution abstract Visions and expectations of urban smart grid technologies have contributed substantially to urban energy futures that are perceived to be both sustainable and desirable. In contrast to traditional centralized power grids, future electricity systems are supposed to integrate volatile renewable energy resources (e.g. wind and solar) while dealing with fluctuating local production sites and new increased loads (e.g. electric vehicles and heat pumps). As depicted in a widely held imaginary, a solution to the challenges outlined can be the introduction of smart grids that integrate information and communication technologies (ICT's) to electricity systems and are supposed to offer physical as well as economic benefits. Visions and expectations linked to smart grids are pivotal for policies of urban low-carbon transitions in various European countries. In the recent past, a considerable number of pilots for experimenting with smart grid technologies in diverse and dynamic stakeholder settings were set up across Europe. As a result, visions and expectations were shaped in local contexts according to both a discursive level leading to the conduction of smart grid experiments and a performative level manifesting visions and expectation along processes. Outcomes of smart grid experiments have been reshaping smart grid futures beyond context and time, as experiments conducted in a later point in time may refer to earlier outcomes. Consequently, visions and expectations are shape and reshaped by continuous repetition and diffusion linked to contextualized experimental practices. For governing smart grid experiments, it is important to understand how visions and expectations are emerging according to coevolutionary processes. By applying a complexity-informed research perspective that integrates context and time, understanding about trajectories of visions and expectations can be improved. Such a perspective would add analytical rigor to the assessment of futures and dynamics of its circulation. The presentation refers to empirical data gathered from concluded smart grid experiments in European

countries between 2008 and 2018.

182 'Urban 'resilience' and perpetuated crisis ' by Ulrich Ufer (Institute for Technology Assessment and Systems Analysis (ITAS) Karlsruhe Institute of Technology (KIT) Postfach 3640 76021 Karlsruhe)

Contribution abstract The concept of "resilience" has developed from the notion of bouncing back to single state equilibrium (predominantly in engineering and technical systems) over bouncing forward through adaptive cycles in multi-state equilibrium systems (predominantly in social-ecology). More recently, it has been tied in the contexts of policy and of impact oriented science to notions normatively laden notions of socio-technical progress, for example with regard to adaptation strategies for urban societies to local and global challenges, such as sustainability, or climate change. Across the concept's evolution the idea of negative system impact and ensuing crisis has remained central. Therefore, this paper enquires critically into how the concept changes currently, or could change in the future, under the influence of perpetuated crisis as the prevalent mode of governance and social perception.

Innovation Studies

Room S14

Panel organised by Jan-Felix Schrape (University of Stuttgart)

Panel hosted by Ingmar Lippert (Brandenburg University of Technology Cottbus-Senftenberg)

Panel abstract This open-topic panel brings together contributions that are concerned with the study of technological, cultural, economic, habitual, and social innovation processes as well as their linkages and entanglements. Along with this, the influence of contextual sociocultural developments on the diffusion of innovations, the circulation of visions and narratives in innovation dynamics over time, and the role of social negotiation and translation processes between divergent stakeholders will be reflected.

with

183 'Stabilizing posture: Infrastructurings of sedentary work in the office' by Joeri Bruyninckx (Maastricht University)

Contribution abstract Sedentary habits are now defined as a chronic health problem, and nowhere do we sit more than in the office. This paper examines how the office environment has been configured for seated work. Threading together material histories of the office, posture science and ergonomics with analytical

tools from infrastructure studies, it traces how body postures were turned into a matter of concern over the last century. Drawing on a longitudinal analysis of scientific publications, trade journals, patents, standards, and furniture catalogues, between 1915 and 1995 in the US, Britain and German-speaking countries, I examine how scientific concepts of good body posture circulated between the posture sciences, ergonomics, design and the furniture industry. I follow how technical drawings, advertisements, standards, and material artifacts circulated particular idealized body postures, and how these were appropriated, challenged, and subverted in turn. Doing so highlights the provisional and often shifting coalitions with which ergonomics, as a scientific and professional discipline, has sought to establish itself and postural care in office design and practice. But in turn, it also exposes the various path dependencies and obduracies that have constrained the kinds of postural knowledge that were articulated. This, I argue, has led to narrow the ergonomic problem of health and comfort at work to strategies for stabilizing and immobilizing laboring bodies. Ultimately, this not only serves to recover a forgotten 'infrastructure' and embodied practice of knowledge but also calls for STS to engage with the material politics of ergonomics and design as worldmaking fields.

184 'Circulating precision? The case of the connected football' by Marie Großmann (Johannes Gutenberg-University Mainz) and Benjamin Doubali (Johannes Gutenberg-University Mainz)

Contribution abstract Earlier this year, the sportswear manufacturer Adidas unveiled the official ball of the Football World Cup 2022 in Qatar. Inside, this ball hides a curious feature: It is equipped with a sensor unit that is able to constantly transmit data on position, speed, etc. during play and training. Such "connected footballs" produce data as teams move, engage in tactical manoeuvres, score goals. (1) The data provides referees and VAR teams (video assistant referee) with "real-time information", promising e.g. fast and accurate offside calls. (2) It is also usable for commercial media distribution and (live) coverage. (3) Professional teams rely on data analysis to optimise game tactics or to prevent injuries. As it circulates, "ball tracking data" informs and amplifies digital cultural techniques of nowadays hyper-commercialised sports. To enable, promote and legitimise these circulations actors emphasise the accuracy, validity and relevance of the data collected. Besides, a constant promise of precision is inscribed in sensor technology. In our contribution, we question how precision is communicatively, socially, and materially (re-)produced in the case of the connected football. Our empirical analysis draws on documents, public material as well as interviews conducted in the field. As the "connected ball" will literally be the centre of attention this winter (at least for millions of football fans) we see it as a case to clarify and critically reflect how precision is understood and publicly

communicated in a highly emotionalised and contested social field as professional sports and in digital societies that increasingly rely on sensor technology.

185 'The (non)circulation of sustainable mobility futures: Interrogating translation processes in urban demonstration zones' by Alexander Wentland (TU Munich) and Manuel Jung (TU Munich)

Contribution abstract Urban demonstration zones – sometimes referred to as living labs, test beds or real-world laboratories – have proliferated as an instrument to facilitate urban transformations towards sustainable living. For city governments, researchers, activists, and corporations alike such demonstration zones provide testing grounds for visions of alternative futures. More importantly, they function as large-scale public demonstrations of supposedly effective configurations of technical artifacts, citizens, and modes of interaction to enact these futures. Demonstration zones are spatially and temporally confined, yet they come with the explicit promise to open new avenues for urban development and generate knowledge that can be translated to other places. However, what makes a demonstration successful is rarely defined. Most demonstration zones take the form of fixed-term projects championed by local consortia, which frequently move on after the project funding runs out. The lack of understanding the translation processes that connect individual demonstration zones to other places and societal transformations writ large. Our presentation looks at three tensions within infrastructures and practices of translating, formalizing, measuring, and scaling in demonstration zones for new urban mobility in Europe. First, these initiatives must balance scientific testing with the politics of public demonstration, which favors a logic of "showcasing" rather than open-ended experimentation. Second, criteria for success often remain elusive becoming objects of constant modification. Third, scalability is often part of the presented narrative, while activities remain local and tied to the specific features of the demonstration zone. Conceptually, our paper brings into conversation diverse literatures in STS, urban studies, and sociology.

186 'Circulations of Narratives in Quantum Technology and their relation to democratic processes in Quantum Research' by Zeki Can Seskir

Contribution abstract As quantum technologies (QT) are becoming more and more realized, their potential impact on and relation with society has been developing into a pressing issue for exploration. In this work, we investigate the topic of democratization in the context of QT, particularly quantum computing. The paper contains three main sections. First, we briefly introduce different theories of democracy (participatory, representative, and deliberative) and how the concept of democratization can be formulated with respect to whether democracy is taken as an intrinsic or instrumental value. Second, we give an overview of how

the concept of democratization is utilized by the actors in the QT field. Democratization is mainly adopted by companies working on quantum computing and used in a very narrow understanding of the concept. Third, we explore various narratives and counter-narratives concerning democratization in QT. Finally, we explore the general efforts of democratization in QT such as different forms of access, the formation of grassroots communities and special interest groups, the emerging culture of manifesto writing, and how these can be located within the different theories of democracy. In conclusion, we argue that although the ongoing efforts in the democratization of QT are necessary steps towards the democratization, they should not be accepted as sufficient to argue that QT is a democratized field. We argue that more reflexivity and responsiveness regarding the narratives and actions adopted by the stakeholders, and making the underlying assumptions of ongoing efforts on the democratization of QT explicit, can result in better technology for society.

Cyborgs, Grenzobjekte, Diffractions & Co: Die feministischen Wurzeln der STS und ihre Zirkulierungen (2/2)

Room S06

Panel organised by Diana Lengersdorf (Universität Bielefeld) and Bianca Prietl (Johannes Kepler Universität Linz) and Jutta Weber (Universität Paderborn)

Panel abstract Feministische STS bilden mit ihren mannigfaltigen kritischen Interventionen einen der ersten und zentralen Pfeiler des internationalen Forschungsfeldes STS. Feministische Perspektiven tragen dabei ganz grundlegend zu einer kritischen Perspektive auf Technowissenschaft bei, indem sie konsequent Fragen von Macht, Herrschaft und Ungleichheit in und durch Technoscience adressieren sowie gleichzeitig nach ‚alternativen Welten' und Möglichkeiten des In-der-Welt-Seins suchen, die auf Solidarität und Gerechtigkeit gründen. In Zusammenhang damit haben feministische STS-Perspektiven wichtige Themen- und Gegenstandsfelder eröffnet – etwa: Militärtechnologien, Reproduktionstechnologien oder Natur/Umwelt-Verhältnisse; und sie haben Impulse für die Theorie- und Methodenentwicklung gesetzt – vom Ökofeminismus bis zum new materialism – und damit auch simplifizierende Fortschrittsnarrative in Frage gestellt. Zugleich halten Feministische STS ein kritisches Archiv von STS-Wissensbeständen vor, in dem Ein- und Ausschlüsse der eigenen Community ebenso dokumentiert sind wie die Entdeckungen der Vergangenheit. Feministische STS lassen sich so als fortwährende Praxis der begleitenden, durchkreuzenden und auch widerständigen

Zirkulierung zwischen Vorhandenem und Neuschaffungen verstehen. Vor diesem Hintergrund laden wir uns zu einem Panel ein, um in Form von Podiumsinput und Plenardiskussion gemeinsam über den Beitrag feministischer STS zur Entwicklung von STS im Allgemeinen sowie ihr Interventionspotential für technowissenschaftliche Entwicklungen zu sprechen.

with

187 'Feministische STS im intergenerationalen Dialog', by Bianca Prietl (Johannes Kepler Universität Linz) and Jutta Weber (Universität Paderborn)

188 'Resonanzen aus dem Podium', by Doris Allhutter (Österreichische Akademie der Wissenschaften) and Katrin M. Kämpf (Kunsthochschule für Medien Köln) and Eva Sänger (Universität zu Köln)

189 'Austausch und Diskussion zu Stand und Zukunft von Feministischer STS', by Plenardiskussion

Just do it... Stories of becoming an ethnographer

Room S05

Panel organised by Hannah Grün (Mikrosoziologie, Helmut-Schmidt-Universität/ Hamburger Forschungsverbund „Sorgetransformation") and Aurora A. Sauter (Institut für Soziologie, Johannes Gutenberg-Universität, Mainz) and Lisa Wiedemann (Mikrosoziologie, Helmut-Schmidt-Universität)

Panel abstract Many of the detailed stories and paths of becoming an ethnographer do not make it into books or papers. Stories of attempts, and failures or questions about personal experiences in practice, our emotions or (un)feasibility of the research tend to circulate more in tea kitchens, corridors or canteens. Especially the initial phase of becoming an ethnographer is accompanied by the guiding principle of "Just do it". However, what does "just do it" mean in a specific context? What happens in the in-between moments and in the process of doing? At conferences or in articles, it is often mainly the results that are presented and straight lines are drawn through one's own re-search process. What is missing are occasions for exchange about topics that are tricky or inti-mate, but concern everyone: How do I just do this? Some ask because they are just learning to become ethnographers; others because they are opening up a new and/or sensitive field. As a contribution to STS-hub.de 2023, we organize a space to circulate those ethno-graphic stories that we otherwise do not tell each other, or only in private. We work ethnographically at the intersections of body, care, materiality, (digital) technology, and infrastructures. In doing so, we are continually challenged by the fact that some ethnographic sites have difficult accessibility

(such as clinical, care, or laboratory sites), revolve around phenomena that are difficult to speak about (such as bodies, affects, or atmospheres), or reveal themselves to us as elu-sive materialities and interfaces escaping a straightforward view (for example digital infrastructures or human-technology interfaces). Along five thematic stations (preparation of an ethnography, research field, research data, process of analysis, writing practice to publication) we design a collaborative rally through the process of ethnographic practices and their embodiment. The stations will be led by Katrin Amelang, Lina Franken, Julie Sascia Mewes, Mareike Smolka, Ronja Trischler. At each station there will be a short input and plenty of time for exchanging experiences followed by playful approaches to come into conversation. The panel is organized in German but can be switched into English as required. Our aim is to jointly learn how complex and different the principle of "just do it" might be.

with

Katrin Amelang (Institut für Ethnologie und Kulturwissenschaften, Universität Bremen), Lina Franken (Kulturwissenschaften, Universität Vechta), Julie Sascia Mewes (Ruhr University Bochum), Mareike Smolka (Human Technology Center, RWTH Aachen University) as well as Ronja Trischler (Wissenschafts- und Techniksoziologie, Technische Universität Dortmund)

Integrating Ethics (2/2)

Room S02

Panel organised by Wenzel Mehnert (Societal Futures, AIT Vienna; Berlin Ethics Lab, TU Berlin) and Nele Fischer (TU Berlin) and Sabine Ammon (TU Berlin) and Dana Wasserbacher (Austrian Institute of Technology)

Panel abstract A major concern of the advances in emerging technologies, e.g. in Artificial Intelligence and Human-Machine-Interaction, is the risk of causing undesired effects in sensitive areas of our lives. Negative effects can result in discrimination, violation of data protection and privacy, lack of transparency of decisions as well as scaling effects and many more. As technologies are strongly connected to the implicit ethics of the developers and the conceptual framing of the development process, it leads to a normalization of value systems hidden in the applications as well as in the developer's design frameworks. To tackle these issues, academic fields from the humanities like STS, sociology, Technology Assessment, foresight or philosophy, reflect on the possible implications and create guidelines for emerging technologies to counteract negative effects already at the beginning of the development process. However, translating often abstract

principles into the specifics of a very concrete development process remains a challenge. Due to a lack in specific design tools or methods to cross the disciplinary gap between actual development and ethical reflection, developers seem to neither approach ethics systematically nor have the knowledge or training to reflect ethical questions (neither independently nor with guidance). In our panel we want to discuss this challenge and exchange experiences on how to integrate ethical reflection in the development process. It is an open call to present methods and tools, best practice examples and failures and to exchange praxeological knowledge within the wider STS-community. Guiding questions of the panel are – among others: What is the role of ethicists in technology development? What methods and approaches help to integrate ethics into development processes? What are best practices and best failures? What works, what doesn't and why? We invite practitioners as well as theoreticians to reflect on the methodological experiences on integrating ethics into the development process of emerging technologies. Examples can come from different fields of development, especially those that need ethical reflection processes (e.g. AI development).

The panel is a collaborative project by the Societal Futures research field at the Austrian Institute of Technology (Vienna) and the Berlin Ethics Lab at the TU Berlin (Berlin).

with

190 'Collective Ethical Responsibility for Robotic Systems Engineering with Safety and Security, CERSE' by Nicole Duller (AAU Klagenfurt)

Contribution abstract Collaboration between humans and robots in industrial settings is increasing (International Federation of Robotics, 2021, p. 1). As part of the interdisciplinary project Responsible Safe and Secure Robotic Systems Engineering (SEEROSE), the CERSE research program investigates which new ethical questions and what competencies and strategies of safe and secure robotics engineering emerge, and are required, especially in the realms of industrial engineering and collaborative robots (cobots). This research falls in line with calls for examining moral and legal responsibility, human-robot-interactions, and the future of robot ethics (Coeckelbergh, 2020; Lin et al., 2017; Vienna Manifesto on Digital Humanism – DIGHUM, 2019). A research design of Grounded Theory (GT) (Corbin & Strauss, 2014; Glaser & Strauss, 2000), Situational Analysis (SA) (Clarke, 2005) and Actor-Network Theory (ANT) (Latour, 2017) enables to identify and follow how (ethical) responsibilities are organized, and governed. Within this research design CERSE engages with the following research questions (RQ): RQ 1 Amongst whom and what is (ethical) responsibility distributed within robotic systems engineering? How is responsibility governed? RQ 2 How do engineers perceive and deal with responsibility? RQ 3 Which ethical challenges arise in robotic systems engineering? What competencies and strategies

do engineers come up with to handle the challenges? Based on an initial review of literature, three expert talks, 7 of approx. 12 expert interviews (Kaiser, 2014) with experts in robotics, technology assessment, and engineering education, and 9 of approx. up to 20 narrative interviews (Keunecke, 2005) with robotic engineers have been conducted, and analyzed in a circular manner. Additionally, engineering curricula will be incorporated into the analysis. The preliminary findings portray; 1., a complex mesh of currently 29 identified human and non-human actants within industrial robotics, 2., numerous challenges, e.g., 2.1., a void that emerges between the abstract top down corporate efforts of ethical guidelines, and concrete bottom up individual endeavors of ethical engineering, with the consequence of these efforts not being as effective as intended (Duller, 2022), 2.2., different levels of awareness in engineering ethics, ranging from high standards and intense efforts of individuals, to laissez-faire approaches, double standards, and conscious neglection. One approach for solution, as identified by the experts and engineers, is more governance of ethical awareness for and in robotics. The suggestions include; 1., ethics as part of both engineering and economic curricula, 2., education of all stakeholders involved, and the broad public, on the actual abilities, shortcomings, ethical and social impacts of robotics. These findings fall in line with recommendations of the United Nations Educational, Scientific and Cultural Organization for the increasing incorporation of ethics in the robotics industry and in engineering education, into the design of robots, and for intensified professional, governmental and public discourses on the implications of robotics (UNESCO, 2017, p. 8). The data of the CERSE program yet suggests, that the integration of ethics into robotic engineering still lacks; 1., clear formulations and communication of the urgency of reflecting and acting on the social and ethical implications of industrial robots, and 2., clear locations and applicable action strategies. Therefore, the following questions to the panel; 1. How can interdisciplinary research in engineering ethics be fostered and contribute? E.g. from within media and communication studies, where industrial robots so far have been, and still mostly are overlooked (Guzman, 2016, p. 2). 2. In which ways can the findings be best communicated and discussed with the robotics community?

191 'From Applied Ethics to Innovation Practice: An ethics-by-design approach for constructive consideration of ELSI in technological design decisions' by Jan Mehlich (Rheinische Friedrich-Wilhelms-Universität Bonn) and Christiane Woopen (Rheinische Friedrich-Wilhelms-Universität Bonn)

Contribution abstract The manifold ethical, legal, and societal implications (ELSI) of new and emerging technologies are often elicited and dealt with too late in the innovation process which creates severe challenges and risks for regulators, appliers, and users as well as society as a whole. Enactors of innov-

ation (scientists, researchers, engineers, designers, corporate innovation teams, etc.) are not sufficiently enabled or empowered to consider ELSI in their research and development choices. We suggest that applied-ethical challenges at the intersection of technological intervention and the socio-environmental lifeworld are best addressed by an ethics-by-design approach that allows innovators to incorporate normative reflections into their designs, manifest ethical commitments in plausible design choices, and operate in interdisciplinary discourse settings competently. This approach is validated by firm conceptual and methodological explication and elaboration. Based on well-accepted concepts of the sociology, philosophy and anthropology of technology and embedded in the framework of responsible research & innovation (RRI) practices, it is given the epistemic legitimacy of serving as a source of validated orientational knowledge. In practice, this idea of expert-enabled ethics-by-design may be realised in the form of P2P interactions, digital tools (as, for example, the ELSI-SAT tool), surveys, training (curricular education, workshops, consulting). If conceptualised well, it has the power to elicit, analyse, understand, and control the ethical implications of design choices at an early stage of the technology development process, channelling it from a wide range of possible future trajectories into a desirable and sustainable direction. Questions: 1. What is the role of applied ethics expertise in technology development and design, merely a moderator and discourse facilitator function, or the contribution of (and, perhaps, the epistemic authority concerning and decision-making power over) normative values, principles, and guidelines? 2. When people claim that ELSI is dead, or RRI is worn out, is that helpful for advancing the field of STS and contemporary tech ethics activities? 3. Beyond Collingridge: Is 'knowledge' in the early phase of a development really that sparse, or can we—nowadays—build on a sufficiently rich basis of collected experiences and methods so that normative knowledge on science, technology, and innovation impact enables co-shaping of desirable futures?

192 'Responsible Robotics: Reflections on a project of Embedded Ethics and Social Science in a healthcare robotics research initiative' by Svenja Breuer (Technical University Munich) and Maximilian Braun (Technical University Munich)

Contribution abstract Emerging technologies such as advanced robotics and Artificial Intelligence (AI) are presenting a large range of opportunities, challenges, and questions regarding how their new social and ethical implications can be adequately addressed. One of the approaches for tackling these questions is Embedded Ethics and Social Science (Braun et al. 2022). The approach has at its core the integration of social science, ethics, and engineering work, where the analysis and consideration of social and ethical issues is embedded into the entire innovation process through direct collaboration between social scientists

and technical researchers and developers (McLennan et al. 2020). The approach complements approaches to AI ethics that have often stayed on a generalized and abstract level, yielding a panoply of high-level ethical principles yet with unclear effects of these principles on actual innovation practice. Embedded Ethics and Social Science, in contrast, treats social, ethical, and political dimensions of innovation as empirical questions, identifying, investigating and tackling them where they first arise and manifest themselves: in actual practices involved in technology design and its integration into application contexts. Taking a practice-theoretical view, the approach focuses on the discursive and material practices of actors involved in the innovation process as a way to trace their social, ethical, and political implications. I share reflections on experiences of three years of Embedded Ethics and Social Science research in the Responsible Robotics project, where we, two researchers from Science and Technology Studies (STS), and one researcher from medical ethics have been embedded in a healthcare robotics research initiative called Geriatronics. We accompanied the development of applications such as a haptic robotic telemedicine station and a humanoid service robot for assistance to older adults and their care-givers and conducted interviews with 19 Geriatronics engineers. We reflect on experiences with methods for data collection as well as intervention into innovation processes. This includes reflections on the reflexive peer-to-peer interview (Felt et al. 2010; Müller & Kenney 2014) for reconstructing researcher's practices, their imaginaries of application contexts, embedded values, and their perspective on their work's wider societal implications, as well as on participatory workshop formats using the Lego© Serious Play© method (Saille et al. 2022) to facilitate dialog between users – in our case nurses – and robotics researchers. In sharing experiences from the Responsible Robotics project, we seek to contribute to an exchange about how STS and ethics can fruitfully be integrated with technological research and development to ensure ethically and socially responsible practices. Regarding the role of STSers and ethicists in technology development, we are curious about the relation between the descriptive and the normative dimensions in our integrative work.

1- When and how do we take the step from exploring, analyzing, understanding the development practices we are integrated with and identifying emergent ethical issues, to intervening into the process and/or giving normative guidance?

2- If we find diverging ideas and expectations from different relevant actors – e.g. engineers, funding bodies, and healthcare workers – how do we reconcile them to provide normative guidance?

3- On another challenge, how can we reconcile different disciplinary conventions and requirements in integrative work (e.g. when ethicists and engineering researchers try to publish their work together)?

193 'Taming Rogue Ethics: The Case for a Unified and Fair IRB Procedure' by Hendrik Erz (Linköping University), Sebastian Gießler (Medical School Berlin) and Alexandra Dirksen (TU Braunschweig)

Contribution abstract Increasing technological progress allows CS researchers to incorporate growing amounts of user data into their research.However, direct and indirect involvement of user data may negatively affect users, e.g. via privacy violations or by exposing them to security vulnerabilities.It is therefore important to assess the ethical and social risks of modern procedures in CS research like data collection and, if necessary, adjust them in advance before the research is conducted. The ethical oversight of such research projects is usually done by Institutional Review Boards (IRB), which are the cornerstone of ethically and socially responsible research. However, while this task works well in research domains where human involvement is obvious, it becomes more difficult for research projects where people are not the primary research interest, as it is often the case in CS. Recent examples of ethical misconduct, such as the "Hypocrite Commit" case [Wu, S&P'21], have shown that the procedures of IRB's do not provide sufficient oversight to prevent cases of scientific misconduct in relation to human subjects. Organisations who claim leadership in the discussion of technology ethics like the Association for Computing Machinery (ACM) and the Institute of Electrical and Electronics Engineers (IEEE) only tend to focus on non-binding voluntary guidelines without any enforcement mechanisms in case of scientific misconduct. We argue that current oversight and accountability mechanisms of the CS community didn't keep track with technological, and consequently, research developments in their domain. Therefore we want to investigate modern IRB procedures in the field of CS and discuss their limitations. Questions for discussion 1- Is performing ethical reviews before starting a research project or field-testing of a technology actually superior than doing it afterwards? 2- Is an institutionalisation, and with it perhaps centralisation, of ethical review procedures in the scientific community reasonable, or is the fragmented status quo superior (due to more flexibility, faster decision making and epistemic and methodological pluralism)? In other words, does it even make sense to centralise this process across disciplines, or is a certain amount of fragmentation (e.g., per discipline or per method) desirable? 3- Which parts of an ethical vetting procedure can be digitised in the first place? Where do we have to draw a line and have solely humans deciding on issues?

194 'Discussing the role of ethicist / social scientist; Towards a Code of conduct.', by all participants of this panel

Circulation Obsession – Following the Flows and Flaws of Big Tech's Urban Logistical Infrastructures

Room S13

Panel organised by Maja-Lee Voigt (Leuphana Universität Lüneburg) and Armin Beverungen (Leuphana Universität Lüneburg) and Ilia Antenucci (Leuphana Universität Lüneburg)

Panel abstract From city streets to screens, server farms to services, Amazon has – in recent years – woven a tight, invisible, but nevertheless ubiquitous web of technologies, circulating products – parcels –, knowledge, expertise in a seemingly never ending global flow dedicated to their "distribution fetishism" (West 2022). Through networked (urban) technologies like Ring or Sidewalk Pro or the limited algorithmic architectures of Amazon Alexa, offering – on the surface – limitless customer choices, it has not only turned the city into its extended (logistical) living room. On the (literal) back of a human pipeline of disposable bodies, Amazon has become infrastructural. Under the cloak of convenient connectivity and by gradually taking over logistical and postal operations; the provision of essential needs; as well as great parts of the global internet infrastructure through their Amazon Web Services it is already invisibly, but ubiquitously governmentally powerful, and often perceived as indispensable – a standard. Bodies and cities alike, here, become a warehouse of data, freely accessible and extractible at Amazon's fingertips. In this data-determined Amazon town, the city is a predefined playground for "consumer citizens" (Powell 2021) to be 'nudged' around, but not thought about. Big tech companies' techno-solutionism has, especially in times of crises, offered convenient services of all sorts (from cloud solutions, over urban governing tools, to home services) to preclude possible future frictions, speculating on a more homogenous, 'harmonized' networked city. In times of an uprising and shrinking (gig) workforce and increasingly unpredictable supply chains, however, the question arises how much further corporations like Amazon are able to expand their worldwide cycle of circulation in cities and their hinterlands. Already, (re-)occurring and fatal glitches, failures, and breakdowns of their system – preventable deaths in autonomous driving trials; implementing anti-union practices; unbearable physical and psychological pressure in hostile workplaces – have not only fueled collective workers organization, but the public expression of fighting for otherwise socio-technical imaginaries. How are these finely curated and controlled circulations by monopolized "infrastructural elites" (Tonkiss 2015) upheld and maintained – and by whom? What do alternative, resistive networks and decentralized drafts of anti-automated futures look like? In this closed panel discussion and together with our selected guests, our research project "Automating the Logistical City" wants to ethnographically follow the flows and flaws of big tech companies' imaginaries around future ideas of (urban-logistical) circulation. From test-beds over patents to counter-speculations we aim to analyze the disposition and propensities, affordances and agency that cor-

porate technologies carry with them. How are narratives of future circulation negotiated, translated to, and operationalized in the now? And what happens when the cycle of Big Tech's monopolized (municipal) power breaks?

Literature

Powell, Alison B. (2021): Undoing Optimization: Civic Action in Smart Cities. New Haven and London: Yale University Press. Tonkiss, Fran (2015): Afterword: Economies of infrastructure. In: City 19/2–3, pp. 384–391. West, Emily (2022): Buy now: How Amazon Branded Convenience and Normalized Monopoly. Cambridge: The MIT Press.

with

195 'Joint Forces? Coalition-Building against Tech Corporations' by Valentin Niebler (Humboldt University Berlin)

Contribution abstract Collective action in the tech industry has become widely recognized today. Although both low paid 'gig workers' and higher paid 'tech workers' have launched organizing efforts, their mobilizations often appear as separate causes. My presentation introduces a case where both groups join forces. Based on empirical data from Berlin, I analyze how gig workers and tech workers have generated 'coalitional power' vis-à-vis a delivery tech company. I argue that coalitions between gig workers and tech workers are possible, especially if both groups can refer to shared conflicts lines. I emphasize the role of migration as a conflict line and the role of the city as a site of cooperation for such coalitions.

196 'Work and Alienation in the Platform Economy: Amazon and the Power of Organization (research based on the book by the same title, published at Bristol University Press, 2023)' by Sarrah Kassem (Eberhard Karls Universität Tübingen)

Contribution abstract Once hidden behind the veils of entrepreneurship, it is now clear that platforms are reshaping the world of work, and Amazon has been a forerunner in setting the trend. This book examines two key and contrasting Amazon platforms that differ in how they organize workers: its e-commerce platform and digital labor platform (Mechanical Turk). With access to the people who are working at the heart of these platforms, it explores how different working conditions alienate workers, and how, despite these conditions, workers organize within their political-economic contexts to express their agency in traditional and alternative ways.

197 'Speculating on the Sidewalk - Interrogating Amazon's Infrastructures in the Logistical City' by Maja-Lee Voigt (Leuphana Universität Lüneburg) and Armin Beverungen (Leuphana Universität Lüneburg)

Contribution abstract Sidewalks and smart homes alike have long become an assembly line for tech giants like Amazon collecting consumer data and labor. Invisibly entangled in the most intimate spheres of our everyday life and feeding on the tech-induced insecurities of its users, Amazon is finely curating a web of preemptive choices, and thus, certainties to profit from. As Amazon promotes and implements its Sidewalk technology as an operational standard for convenient connectivity while it sells its smart gadgets which connect through it, Amazon gains infrastructural power. Our presentation asks which modes of governance and citizenship will emerge from the pervasive intermediation of proprietary and profit-driven algorithms. What will increasingly automated decisions about infrastructure usage, circulation, security, and sociality look like in the future? And how are they already influencing cities today?

14:00–15:00: Optional network meetings

stsing – STS in and through Germany

Room S02

Panel organised by Alexander Schniedermann (DZHW)

Panel abstract Open table and contact point of stsing (`stsing.org`). Come by and get in touch with members of the association!