6th STS Summer School

SEPTEMBER 27-OCTOBER 1, 2022 : University of Padova

Disentangling Futures: Promises, Scenarios, Experiments

The 6th STS Italia Summer School, "Disentangling Futures: Promises, Scenarios, Experiments" is organized in collaboration with the University of Padova, FISSPA Department and University of Lausanne (CH), and with the support of European Association for the Study of Science and Technology).

SYLLABUS & READING LIST

STS ITALIA SUMMER SCHOOL: "*Disentangling Futures: Promises, Scenarios, Experiments*"

Keynote Speakers

Marc Audétat (University of Lausanne – CH) | Political scientist by training, is sociologist of science and technology. He completed a MA of Arts in Society, Science and Technology (University of Maastricht) in 1996, and his doctoral thesis at EPFL in 2004 about theory of risk, public controversies, and socio technical change. Marc Audétat is member of the Laboratoire d'étude des sciences et des techniques (STS Lab), and associate member of Laboratoire des cultures et humanité digitales (Ladhul), Faculty of social and political sciences, University of Lausanne.

Silvia Casini (University of Aberdeen – UK) | She is the coordinator of the undergraduate medical humanities degree at the University of Aberdeen. She co-direct the George Washington Wilson Centre for Visual Culture, for which she curated a series of talks and seminars with international guest speakers. For 2018-2021 she was the Undergraduate Program Coordinator for Film and Visual Culture in the School of Language, Literature, Music and Visual Culture. At the University of Aberdeen, she conceived and coordinated the cross-disciplinary reading group Picturing Science. She teaches honors courses open to students from the medical humanities program. She has a PhD in Film and Visual Culture (AHRC-funded, Queen's University of Belfast, UK) and an MA in Philosophy (Ca' Foscari University, Venice, Italy).

Kornelia Konrad (University of Twente – NL) | She received a M.A. degree in sociology, physics and mathematics from the University of Freiburg i.Br., and a PhD from the University of Darmstadt. Before joining the UT in 2009, she worked at EAWAG, a research institute of the ETH domain, Zurich (CH). She is Associate Professor of Anticipation and Assessment of Emerging Technologies. She studies the role of anticipation in innovation, reaching from an analytical interest in the role of expectations and socio-technical futures in research, innovation and its governance, to intervention approaches, such as foresight and socio-technical scenarios.

Federico Neresini (University of Padova – IT) | He is Professor of Digital Sociology at the University of Padua, where he also teaches Sociology of Innovation. He is the Coordinator of the PhD Program in "Social Sciences" and of the PaSTIS research Unit (Padova Science, Technology and Innovation Studies) at the University of Padova. His main research interests are located in the field of science and technology studies, with a special focus on construction processes of scientific knowledge and on science in the media, mainly focusing on biomedical research, nanotechnology and other emerging technoscientific domains.

Barbara Prainsack (University of Vienna – AT) | She is a political scientist with expertise in the regulatory, social and ethical dimensions of bioscience, biomedicine and forensics. She is based in the Department of Political Science, University of Vienna. She is currently a member of the National Bioethics Council advising the Federal Government in Vienna, Austria, and a member of the European Group on Ethics and New Technologies, advising the European Commission. From 2011-2013, she chaired the European Science Foundation's (ESF) Forward Look on Personalised Medicine for the European Citizen (with Aarno Palotie and Stephen Holgate).

Philippe Sormani (University of Lausanne – CH) | He is Senior Researcher at the Institute of Social Sciences and Co-Director of the Science and Technology Studies Lab at the University of Lausanne. Drawing on and developing ethnomethodology, he has published on experimentation in and across different fields of activity, ranging from experimental physics (in Respecifying Lab Ethnography, 2014) to artistic experiments (in Practicing Art/Science, 2019). Currently, he is experimenting with 'DIY AI', mobile robots, and media studies.

Tutors

- Luca Chiapperino (University of Lausanne)
- Stefano Crabu (University of Padova)
- Paolo Giardullo (University of Padova)
- Paolo Magaudda (University of Padova)
- Sergio Minniti (University of Padova)
- Barbara Morsello (University of Padova)
- Letizia Zampino (La Sapienza - University of Rome)

Venue

Department of Philosophy, Sociology, Education and Applied Psychology (FISPPA) – University of Padova. Via Melchiorre Cesarotti, 10/12, Padova.

Scientific and Organizing Committee

- Marc Audétat (University of Lausanne)
- Simone Arnaldi (University of Trieste)
- Silvia Casini (Aberdeen University)
- Luca Chiapperino (University of Lausanne)
- Stefano Crabu (University of Padova)
- Paolo Giardullo (University of Padova)
- Paolo Magaudda (University of Padova)
- Sergio Minniti (University of Padova)
- Barbara Morsello (University of Padova)
- Federico Neresini (University of Padova)
- Francesco Panese (University of Lausanne)
- Annalisa Pelizza (University of Bologna)
- Philippe Sormani (University of Lausanne)

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PROGRAMME OF THE SUMMER SCHOOL

Tuesday, 27 September

- **14:00 – 14:30: Registration** at FISSPA Department, University of Padova (Via Melchiorre Cesarotti, 10/12)

- **14:30 – 15:00: Introduction and icebreakers** | *STS in Italy and STS Italia Summer Schools*.
    Simone Arnaldi (University of Trieste - President of STS Italia)
    Federico Neresini (University of Padova & PaSTIS Research Unit Coordinator)
    Marc Audétat (University of Lausanne | STS Lab Coordinator)
    Room: Aula Magna

- **15:00 – 16:30: Opening lecture** | *Anticipatory practices as loci for modulating the governance of innovation and socio-technical futures,* by Kornelia Konrad (University of Twente). **Room:** Aula Magna

- **16:30 – 17:00:** Coffee / Tea Break

- **17:00 – 18:30**: Kick-off working groups

- **18.30:** Welcome Aperitif

Wednesday, September 28

- **9:30 – 11:00: Keynote Lecture** | *The roots of neglect. Towards a sociology of non-expectation*, by Barbara Prainsack (University of Vienna). **Room:** Aula Magna

- **11:00 – 11:30:** Coffee / Tea Break

- **11:30 – 13.00:** Working Groups

- **13:00 – 15:00:** Lunch

- **15.00 –17.00:** Working Groups

Thursday, September 29

- **9:15 – 11:00: Keynote Lectures** | *Promising technosciences in the economy of attention,* by Marc Audetat (University of Lausanne); *Remaking Intelligence? Of Machines, Media, and Montage,* by Philippe Sormani (University of Lausanne). **Room:** Aula Magna

- **11:00 – 11:30:** Coffee / Tea Break

- **11:30 – 13:30: Keynote Lecture** | *Introduction to TIPS project – Technoscientific Issues in the Public Sphere,* by Federico Neresini (University of Padova). **Room:** Aula Magna

- **13:30 – 15:00:** Lunch

- **15.00 – 16.30:** Working groups

- **16:30 – 17.00:** Coffee / Tea Break

- **17:00 – 18:30:** Working Groups

Friday, September 30

- **9:15 – 11.00:** Working Groups

- **11:00 – 11:30:** Coffee / Tea Break

- **11:30 – 12:00: Introductory Lecture to the Educational visit to the "La Biennale di Venezia"** | *Art, technoscience & socio-technical imaginaries*, by Silvia Casini (University of Aberdeen). **Room:** Aula Magna

EDUCATIONAL VISIT TO THE "La Biennale di Venezia"

- **13.30:** Meeting at the Padova train station. **Train to Venezia departure time H. 13.53**.
- **16:00 – 18:00:** Educational visit to "La Biennale di Venezia"
- **18:00 – 19:30:** Venice city sightseeing (self-organized)
- **19:30 – 22:00:** Aperitif and Social Dinner at "Ristorante San Trovaso". **Train to Padova departure time H. 22.34.**

Saturday, October 1

- **10:00 – 12:30:** Working groups presentations. **Room:** Aula Magna
- **12:30 – 13:00:** Closing remarks, student feedback. **Room:** Aula Magna

KEYNOTE LECTURES ABSTRACTS

Anticipatory practices as loci for modulating the governance of innovation and socio-technical futures,
by Kornelia Konrad (University of Twente)

Science and technology studies (STS) have shown multiple ways how socio-technical futures feature in the governance of innovation at different levels (Konrad & Böhle 2019). The sociology of expectations has studied promissory statements and discourses related to particular research and innovation fields and their performative roles in research, innovation and policy processes. A further line of research is concerned with (macro)structural phenomena, such as how modes of future-orientation are culturally and historically dependent (Andersson & Keizer 2014), how socio-technical imaginaries are rooted in collective understandings of social life and social order (Jasanoff 2015) or have pointed to particular regimes of future-orientation closely related to modes of innovation, such as (a) regime(s) of promising (Robinson et al. 2021). In parallel, many STS scholars have followed an engaged approach by designing and conducting participatory forms of future deliberation or STS-inspired scenario processes, typically applied and experimented with in various 'local' projects (Konrad et al. 2017). In between work that is concerned with rather persistent structures and specific, often local cases, I would position meso-level work that addresses the underlying anticipatory practices that, either intended or as a side effect, shape socio-technical futures and their very roles in the governance of innovation (Alvial Palavicino 2016), some of those established in particular domains or supported by institutional frameworks. An emblematic example is the ITRS roadmapping process in the semiconductors industry (Meyer et al. 2018); more recently we see a proliferation of 'roadmapping'-related processes and practices at the nexus of science, policy and industry; further examples are market forecasts and hype cycle assessments (Alvial & Konrad 2019). Another important form are various modelling practices common in particular sectors, e.g. in fields like energy and climate change modelling (Aykut 2015).
 In this paper, I firstly reflect on the usefulness of regime concepts for capturing the specific role of anticipatory practices in the governance of innovation, suggesting that this perspective appears quite fruitful to capture the role of anticipatory practices as embedded in particular, partly sector-specific forms of governing innovation. However, in contrast to a somewhat idealtypical use of the concept (Joly 2010; Robinson et al. 2021), I suggest that taking inspiration from the perspectives of regimes as part of a multi-level perspective (Geels & Kemp 2007) that draws attention to diversity in regimes, change processes and the relations between meso-level regimes, local and niche-like phenomena and wider influential developments could be quite productive for not only understanding how such regimes 'work' and distinguishing idealtypical regimes, but for considering how such anticipatory regimes may differ in more nuanced ways, how they change, and potentially could be modulated. Furthermore, I suggest that the meso-level of practices, embedded in institutional settings, may actually be particularly interesting 'loci' (Rip & Schot 2002) for ambitions to not only study socio-technical futures, but to modulate common promissory 'routines' and dynamics.

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The roots of neglect: Towards a sociology of non-expectation, by Barbara Prainsack (University of Vienna)

The sociology of expectations has helped academics and policy analysts to understand how socio-technical imaginaries are not only hypothetical and "in the future", but how they create realities in the present. They do so by shaping what gets funded, who gets hired, and even how people lead their lives as they consider particular futures more likely than others. While this focus on the performative power of specific visions and expectations has been hugely important, in my talk I will foreground another situation that has arguably been at least equally impactful on the present: The absence of expectations from the

future. I will argue that it is the absence of visions of the future that people deem desirable that helps to understand why, despite being fully aware of political and economic practices and arrangements that are detrimental for human and planetary health, our societies have not changed these arrangements. After giving specific examples from different fields of technological practice and policy, I will end with sketching the elements that a positive vision of the future should have that could get us to act in the present.

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Promising technosciences in the economy of attention, by Marc Audétat (University of Lausanne)

The sociology of expectations is occupied with promises and future visions that play the various functions of stimulating, orienting, coordinating research and innovation. It is giving an explanation for why promises are emitted, and how they perform and influence stakeholders of science policy, researchers, venture capitalists, industry analysts, managers. However, as "Artificial Intelligence" showed recently, promises perform far beyond stakeholders they aim to influence in the first place, overflow into society and circulate widely. Not only are they filling in the media, but they are also found in advertisement, as well as in cultural works and popular entertainment. They are appreciated, rewritten, sometimes contested, by many more actors than those of the nexus of stakeholders. These extensions of promising are less studied by the STS. Many questions remain unaddressed and unanswered, like the popularity of some technoscientific promises, or the societal and cultural dimensions of future visions. The working hypothesis is here that, in order to analyze, and to discuss the implications of promising technosciences, neither STS, nor cultural studies, or media studies, can do it alone. Therefore, the present contribution intends first to give an account of the sociology of expectations, then to formulate a critique, and to propose some extension of its scope with help of other approaches.

In a form of essay, I will first discuss the word promise and the notion of regime of promising. Part of the explanation of the regime of promising comes from an increase of competition. Visions and promises of emerging science and technology are in competition with one another, for the capture of research funds, and they compete to attract attention at the level of sociotechnical imaginary. I will argue that technoscientific promises have been submitted to this ever-harsher competition for attention, like any other cultural or informational good, and may have been shaped by it. In account of the exhaustion of the flat discourse of economic growth and competitiveness, the struggle for attention explains for instance the increasing utilization of fiction, the importance taken by storytelling, as well as the tone and popularity of some narratives.

With author Yves Citton, coming from literature and sociology of media, I intend to show how the theory of narration is of critical help. Promises do not deal really with beliefs, rather with stories and affects. Beyond performativity, Citton's further concept of scenarisation is crafted to explain how promising and visioneering do influence behaviors. Bridging the concept of sociotechnical imaginary with the theory of narration and scenarisation may allow to model the role of stories, and to trace the massive circulation of promises and visions. Therefore, STS, media and cultural studies should come together, in order to investigate the regime of promising and its implications, and to bring into public discussion emerging science and technology.

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Remaking Intelligence? Of Machines, Media, and Montage, by Philippe Sormani (University of Lausanne)

Over the last decade, there has been a renewed interest in "artificial intelligence" (AI), notably in the form of "machine learning" (ML). This renewed interest may seem paradoxical, insofar as J. McCarthy introduced the term "AI" in the mid-1950s to mark a distinction with ML, championing deductive reasoning over automated induction (e.g., Cardon et al. 2018). By contrast, the current reversal, towards ML-based forms of "AI", marks the statistical, if not spectacular, revival of automated induction. Incidentally, the automation of induction, for the purpose and as part of the quantitative analysis of digital data (e.g., via "deep learning", DL), is sometimes diagnosed as a "no less than an epistemic shock" (Roberge & Castelle 2021:2). However, both the terms used – revival, renewal, reversal – and their incidental qualification – from epistemic "shock" to alleged "trauma" (Pasquinelli 2015) for the social sciences and humanities – beg the question of the common ground of the involved alternatives, their respective technicalities, as well as their contingent qualification. The same point holds with respect to received narratives of "AI" as a controversial field, be it with respect to its conceptual assumptions, computational infrastructures or societal implications.

Taking its cue from recent historical (e.g., Penn 2020), prior critical (e.g., Agre 1997), and relevant conceptual (e.g., Shanker 1998) inquiries, this lecture outlines an ethnomethodological answer to the raised question, explicating the situated production of "machine intelligence" in and as contrasting settings. First, the lecture explicates the complicated a priori of historical, conceptual, and critical aspects that constitutes "machine intelligence" as the common ground of competing versions of "AI", "ML", and "DL" – in short: their paradigm, past and present, if not prospective. Second, the lecture respecifies that complicated a priori, paradigm and/or prospect, in the light of contrasting settings, settings in and as of which an "intelligent machine" is demonstrated, experimented with, or both. Cases range from promotional videos of highly publicized programs (e.g., AlphaGo) to pedagogical experiments with "edubots" (educational robots), preassembled (e.g., ed) or to-be-assembled (e.g., AIY Vision Kit). Each of them will be investigated via practice-based video analysis (e.g., Sormani 2016, 2019, 2020).

As its title indicates, the lecture will reflect on the techno-scientific promise of "remaking intelligence", as that promise has been articulated, questioned, and discussed, in current "AI" research (e.g., Lake et al. 2016) and through "critical making" initiatives (e.g., Bogers & Chiappini 2019), respectively. As its subtitle indicates, the lecture shall revisit some of the tricky connections between science, technology and media studies (e.g., Badouard et al. 2016) in the light of the case at hand. What can be learned from the ethnomethodological study of "intelligent machines", as they happen to be demonstrated and/or experimented with? How might critical inquiry be shaped up and grounded in practical engagement? And why take a closer look at "media" and "montage" in the process? In articulating its ethnomethodological interest as material deliberation and critical inquiry in situ, the lecture not only relocates video analysis, but also offers a practice-based critique of "machine intelligence" as a cultural artefact.

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Art, technoscience & socio-technical imaginaries: Intersection of inquiries, by Silvia Casini (University of Aberdeen)

The talk aims at offering participants to the Summer School a general framework in preparation to the guided visit to the Venice Art Biennial 2022. The talk introduces students to the now burgeoning field of Art, Science and Technology Studies (ASTS), a field of interdisciplinary inquiry and practice that draws on the methods and concepts derived from science and technology studies (STS). As such, moving beyond the limitations of the "two cultures" metaphor it posits a new vernacular in enabling new ways of seeing, understanding, and thinking critically about the world and its future scenarios. On the one hand, ASTS

seeks to broaden the scope of STS to other forms of knowledge production such as artistic practice and art-science collaborations. On the other, artworks can be productively studied with the tools of STS, particularly when those artworks are placed within a lineage of technoscientific interests, practices, and critiques. The following questions will be considered: when artworks are knowledge products, how do we think, work with, and write about them? How are curation and facilitation in ASTS working in tension and in tandem with the observation and participation of STS scholars in these areas?

READING LIST

- Alvial-Palavicino, C. and K. Konrad, 2019. "The rise of graphene expectations: Anticipatory practices in emergent nanotechnologies." *Futures* 109: 192-202.

- Wagenaar, H. and Prainsack, B. 2021. The Pandemic Within Policy Making for a Better World (chapters 1-3), Policy Press.

- Star Rogers, H. 2021, *Constructing borders and borders at the intersections of art and science*, in Routledge Handbook of Art, Science, and Technology Studies (eds) Routledge.

- Sormani, P. 2019. *Dialogues Between Artistic Research and Science and Technology Studies*, in "From Performance Art to Video Analysis and Back Again" (eds), Routledge.

- Douglas, K.R., Audétat, M., Joly, P.B. & Van Lente, H. 2021. "Enemies of the future? Questioning the regimes of promising in emerging science and technology", *Science and Public Policy*, 48: 814–817.

The reading list is available here:

https://www.dropbox.com/sh/ktl4ibwu86e09ru/AACLEhmgJVtVlFPDrEI5DVZIa?dl=0

WORKING GROUPS

To make the summer school more responsive, the participants will be engaged in working groups in which they will investigate –through peer-to-peer discussions– the main themes elaborated by the keynote speakers.

- The participants we'll be split into 6 different groups (see below) working together for the duration of the Summer School according to the overall schedule.

- Each working group, mobilizing the theoretical, conceptual, and analytical tenets discussed by the keynote speakers, will have shape a short presentation (e.g., power point). Each working group will be supported by a tutor in developing the presentation.

- Presentations are supposed to engage with an STS-oriented critical reflection over the topics of the summer school, such as:

  - The foregrounding of language and semantics in making technoscientific futures, imaginaries and expectations.
  - The role of media technologies for making technoscientific futures in research cultures and in the public sphere.
  - The role of the senses, body and affect in making technoscientific futures and their politics.
  - The visual arts and politics of technoscientific futures.
  - Role of expectations, visions, and promises in the constitution of emerging technologies.

- The presentation (15 min.) will be pitch in the closing morning of the Summer School. A slot of time will be allocated for a collective discussion of each presentation.

SCHEDULE OF THE WORKING GROUPS

	Group "**BLADE RUNNER**"	Group "**FAHRENHEIT 451**"	Group 3 "**MATRIX**"	Group "**DISTRICT 9**"	Group 5 "**METROPOLIS**"	Group 6 "**BRAZIL**"
27.09.2022 H. 17:30 – 18:30	**Room**: Aula Magna **Tutor:** Chiapperino L.	**Room:** Regeni **Tutor:** Crabu S.	**Room:** Solesin **Tutor:** Magaudda P.	**Room:** Aula n. 3 **Tutor:** Chiapperino L.	**Room:** Seminari **Tutor:** Crabu S.	**Room:** Consiglio **Tutor:** Magaudda P.
28.09.2022 H. 11:30 – 13:30	**Room:** Aula Magna **Tutor:** Zampino L.	**Room:** Regeni **Tutor:** Chiapperino L.	**Room:** Solesin **Tutor:** Chiapperino L.	**Room:** Aula n. 3 **Tutor:** Zampino L.	**Room:** Seminari **Tutor:** Morsello B.	**Room:** Consiglio **Tutor:** Morsello B.
28.09.2022 H. 15:00 – 17:00	**Room:** Aula Magna **Tutor:** Morsello B.	**Room:** Regeni **Tutor:** Zampino L.	**Room:** Solesin **Tutor:** Zampino L.	**Room:** Aula n. 3 **Tutor:** Chiapperino L.	**Room:** Seminari **Tutor:** Chiapperino L.	**Room:** Consiglio **Tutor:** Morsello B.
29.09.2022 H. 15:00 – 16:30	**Room:** Aula Magna **Tutor:** Giardullo P.	**Room:** Regeni **Tutor:** Giardullo P.	**Room:** Solesin **Tutor:** Zampino L.	**Room:** Aula n. 3 **Tutor:** Zampino L.	**Room:** Seminari **Tutor:** Chiapperino L.	**Room:** Consiglio **Tutor:** Chiapperino L.
29.09.2022 H. 17:00 – 18:30	**Room:** Aula Magna **Tutor:** Chiapperino L.	**Room:** Regeni **Tutor:** Chiapperino L.	**Room:** Solesin **Tutor:** Zampino L.	**Room:** Aula n. 3 **Tutor:** Zampino L.	**Room:** Seminari **Tutor:** Minniti S.	**Room:** Consiglio **Tutor:** Minniti S.
30.09.2022 H. 9:15 – 11:00	**Room:** Aula Magna **Tutor:** Minniti S.	**Room:** Regeni **Tutor:** Minniti S.	**Room:** Solesin **Tutor:** Chiapperino L.	**Room:** Aula n. 3 **Tutor:** Chiapperino L.	**Room:** Seminari **Tutor:** Zampino L.	**Room:** Consiglio **Tutor:** Zampino L.
01.10.2022 H. 10:00 – 12:30	**WORKING GROUPS PRESENTATIONS | Room:** Aula Magna					

WORKING GROUPS COMPOSITION
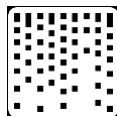
Group "**BLADE RUNNER**"	Group "**FAHRENHEIT 451**"	Group 3 "**MATRIX**"	Group "**DISTRICT 9**"	Group 5 "**METROPOLIS**"	Group 6 "**BRAZIL**"
Angel Maria	Brombach Lisa	Papageorgiou Vasilis	Christley Emily	Mikami Koichi	Kannelonning Mari
Bonifacio Francesco	Spada Roberta	Podlesnigg Clara	van Dis Renée	Rumore Bianca	Lunevich Iryna
Unger Lena	von Arx Martina	Fasel Cécile	Smirnova Tatiana	Usachova Olga	Jaakola Joni
Bellesteros Figueroa Jose	Fonseca Sasian Rocio	Rennes Aleksi	Pizzul Dario	van der Veld Daniel	Veneziano Michele
Favalli Roberto	Giacometti Alessio	Oricchio Stefano	Saha Dipanjan	Carta Lorenzo	Rossi Arianna