

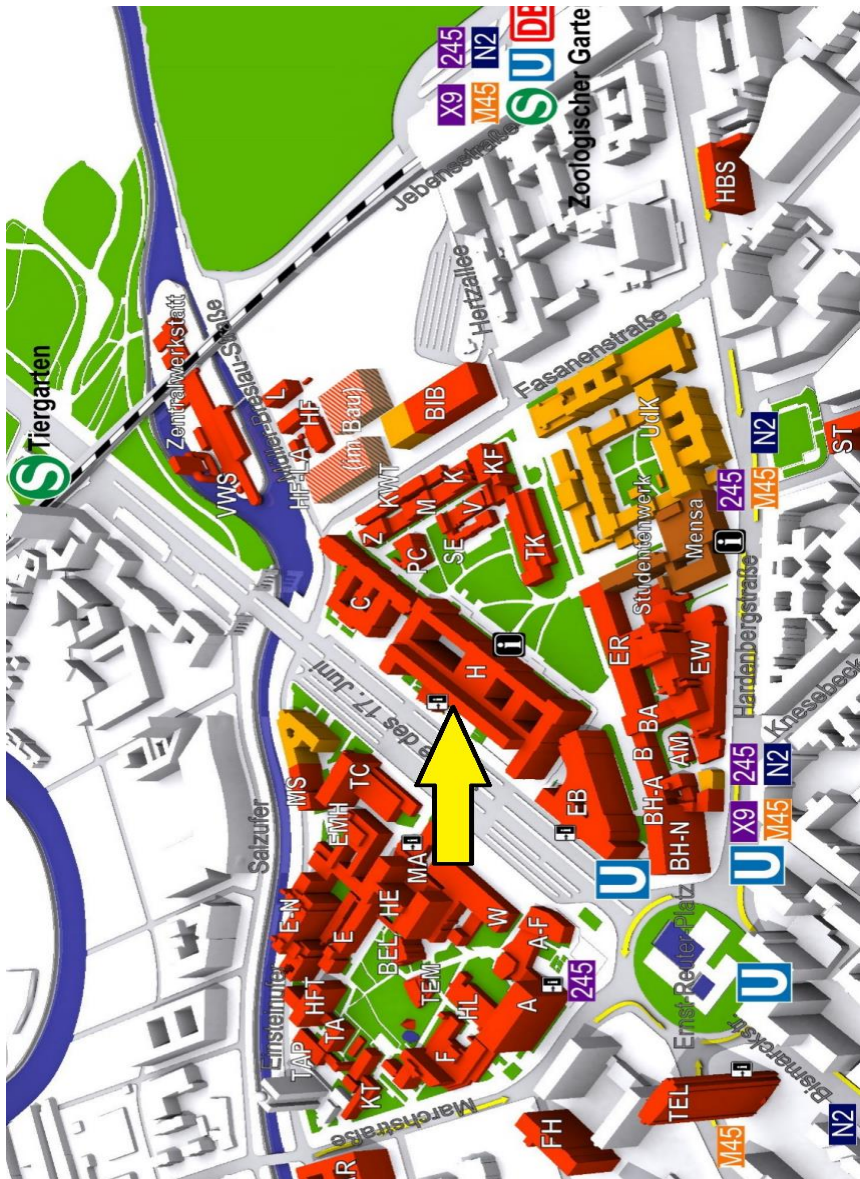
GWP.2022

Fourth International Conference of the
German Society for
Philosophy of Science

15.-17. August 2022

Technische Universität Berlin

TU Campus Map



All talks take place at the Main Building (*Hauptgebäude* / H, see arrow), Campus Charlottenburg.

Contents

Preface by the GWP President	4
Preface by the Local Organizer	7
Practical Information	8
General Programme Overview	13
Parallel Sessions and Symposia	16
Abstracts of Plenary Talks	32
List of Symposia	37
About GWP.2022	40

Please note that abstracts of contributed papers are available online only. Please refer to the GWP.2022 website for the corresponding pdf file (ca. 80 pages): <http://gwp2022.wissphil.de/abstracts> Papers are listed alphabetically by first author (with cross-references for all co-authors).

Preface by the GWP President Gerhard Schurz



Dear Colleagues,

After the conference-abstinent period due to the Corona pandemic, the GWP has the pleasure to celebrate its fourth triennial conference in the beautiful environment at the TU Berlin. The GWP was founded in 2011 and its previous conferences took place 2013 in Hannover under the founding presidency of Holger Lyre and under my presidency 2016 in Düsseldorf, 2019 in Cologne, and 2022 in Berlin, where the president and other members of the steering committee will be newly elected.

The number of GWP members has increased from around 130 in 2016 to 223 before this conference, and the number of newsletter recipients is more than 310. Since the last GWP conference in 2019, the GWP was engaged in several activities despite the Corona pandemic. We continued the cooperation with related scientific organizations; at the GWP.2022, the GAP supported a GWP-symposium, and at the GAP.11 in September 2022, the GWP will support a GAP Symposium; also, the cooperation with the DGPhil will be continued.

The GWP is a society-member of two umbrella societies: of the European Society for Philosophy of Science (EPSA) since 2013, and of the Division of Logic, Methodology and Philosophy of Science and Technology (DLMPST) since 2019; at the DLMPST conference in Prague, August 2019, the DLMPST committee voted unanimously for the admission of the GWP as society member of the DLMPST. Moreover, since 2021 the GWP has been supporting partner of the Fachinformationsdienst (FID) Philosophie (<https://philportal.de>), an information service for philosophical literature. Because of this, all GWP members will have cost-free access to the premium service of the FID, which includes free access to *Philosopher's Index*, 500 Journals and 1000 book titles of the publishing houses Brill, Schöningh, Fink and Mentis.

Since 2019, the GWP has brought out two publications: (i) a report by Rose Grace Trappes about the Third Conference of the German Society for Philosophy of Science (GWP 2019) that appeared in *Kriterion – Journal of Philosophy* 33(1) 2019, and (ii) a special issue of the JGPS presenting selected papers of the Third Conference of the GWP 2019, in the JGPS 53/1, 2022, edited by Michael T. Hicks, Andreas Hüttemann, and Martin Voggenauer. Furthermore, the cooperation of the GWP with the JGPS is as active and good as ever; our contact person to the publishing house and the journal is Thomas Reydon, who is one of the JGPS editors and coopted as a steering committee member. All GWP members have free electronic access to the JGPS via the member area of our website and can obtain the print version for a reduced price of 50 EUR per year.

The GWP has continued to fund young academics by reimbursing travel expenses for conference visits to GWP-related workshops. Due to the Corona pandemic there were no workshop fundings in the years 2020 and 2021, but this year our funding activities went up steeply. Moreover, the GWP is promoting

women in philosophy of science, for example by our website entitled *Women in Philosophy of Science* that includes a list of all female members of the GWP; this list is accessible to all members of the GWP. Last but not least, let me recall that since 2018 the discipline of Philosophy of Science (Wissenschaftstheorie und -philosophie) is included in the list of disciplines at the Arbeitsstelle *Kleine Fächer* supported by the Federal Ministry of Education and Research (<https://www.kleinefaecher.de/beiträge>).

Compared to the last conference, the number of submissions to the fourth GWP conference has increased to 164 paper submissions and 8 symposia submissions. Since we wanted to avoid a significant increase of the rejection rate or the duration of the conference, it was necessary to increase the number of parallel sessions on two days to 7. In this way, we were able to hold the acceptance rate at almost 70%. As always, we have six invited talks, including a JGPS lecture and a de Gruyter lecture. More details about the present conference are found in this book of abstracts. Let me conclude my preface by expressing my heartfelt thanks to Axel Gelfert and his team as well as to the managing director Christian Feldbacher-Escamilla and the other steering committee members for their great work in the organization of this exciting event.

Gerhard Schurz

President of the GWP

Professor, DCLPS (Düsseldorf Center of Philosophy of Science),
HHU Düsseldorf

Preface by the Local Organizer

Axel Gelfert



Dear GWP.2022 participants,

It gives me great pleasure to welcome you to TU Berlin for the GWP.2022 / Fourth International Conference of the German Society for Philosophy of Science.

Organizing a conference is always an arduous, but ultimately rewarding task, especially so in times of global turmoil and on the heels of a global pandemic. Scholarly discourse and scientific collaboration, while not always without flaws, still provide one of the best models for bridging differences and promoting mutual understanding.

The GWP.2022 was originally supposed to be held in March. Due to the pandemic, it had to be postponed at relatively short notice. In spite of this, hardly anyone cancelled their participation. I am very grateful to all contributors, reviewers and chairs for their patience and tolerance in dealing with multiple rounds of emails in connection with the postponement. A special thanks to Giulia Fammartino, who joined TU Berlin at a time when the conference organization was entering a crucial stage and who has expertly taken care of numerous organizational and administrative tasks.

I wish us all fruitful discussions and productive interactions.

Axel Gelfert

Professor of Theoretical Philosophy, TU Berlin

Practical Information

ATM / Cash machine

The nearest ATM / cash machine is located at U-Bahn station Ernst-Reuter-Platz, on the platform opposite from the TU main building (U-Bahn in the direction of Pankow). The bank is Berliner Sparkasse; transaction from outside the German Sparkasse system may incur a small fee.

Book exhibit

Books and publications may be displayed at a table located in room H3005, which is the room also used for coffee breaks and light refreshments. A small number of publishers have shown an interest in displaying recent books and may be sending editors for informal discussions, depending on availability.

Coffee and lunch

Coffee and light refreshments are available throughout the duration of the conference in room H3005 (on the third floor).

A number of small cafés and eateries are located along Knesebeckstraße (just off U-Bahn station Ernst-Reuter-Platz).

Conference dinner

The conference dinner is available only to those who have registered and paid in advance; sadly, no on-the-spot registration is possible. Please have your dinner ticket available for inspection; the ticket also includes printed directions (ca. 12min walking distance).

Covid-19 regulations

While Germany has suspended entry and testing requirements for the summer months (June/July/August) and TU has also relaxed its rules for academic gatherings, we kindly ask you to take a rapid antigen self-test ahead of the conference.

Please note that wearing an FFP-2 mask is mandatory when using public transport in Berlin.

Within TU premises, mask-wearing is optional; however, the University continues to “strongly recommend” wearing a medical (preferably FFP-2) mask within the building and during in-door gatherings.

If you have forgotten, or lost, your FFP-2 mask, feel free to contact the registration / information desk in room H1035, where a limited number of FFP-2 masks are available for free.

We also ask you to keep an informal log of which sessions you have attended (e.g., by marking them on the printed programme), so that, in the event of an infection cluster, other participants can be notified.

Detailed abstracts of contributed talks & symposia

A separate booklet containing detailed abstracts of contributed papers and individual symposium contributions is available for download at <http://gwp2022.wissphil.de/abstracts>

Emergency numbers

Police: 110

Emergency services: 112

Berlin Crisis Service (offering emergency psychological counselling): (030) 39063-20 (Berlin-Charlottenburg)

Federal anti-discrimination hotline (Mo-Thu, 9am-3pm):
(0800) 546 546 5

The nearest pharmacy is located at Knesebeckstraße 93 (open until 6:30pm).

GWP membership / General assembly

The General Assembly on Tuesday evening is open only to current GWP members. Current members will find a blue badge/sticker on their name tag. If in doubt, please check when you pick up your conference folder at the registration desk.

Internet

Throughout the TU campus, you can use the university's wifi network by logging in via your Eduroam account; please use

eduroam as the WLAN network and log on with your account information from your home university.

In addition, Berlin is offering free wifi in a number of locations, including the TU campus; please use ***_Free_Wifi_Berlin*** as the WLAN network and follow the instructions on the screen. Please note that Free Wifi Berlin is a public network.

Lockers

Coin-operated lockers are available in the cloakroom area on the ground floor between H0105 (Audimax) and the back entrance of the main building.

Registration / Help desk

The registration desk is located on the first floor of the main building (room H1035). After entering the main building using the main entrance, please go up the concrete staircase to the right, which will take you to the first floor. Follow the signs to H1035; the room is overlooking the indoor *Lichthof* area.

Taxi / Cabs

Taxis are available at short notice from a number of companies, among them the following:

TaxiFunk Berlin: (030) 4433 22

Funk Taxi Berlin (030) 26 10 26

Würfelfunk (030 21 01 01

A taxi stand is located at the corner of Knesebeckstraße and Hardenbergstraße (see map on p. 2).

Telephone

The local area code for Berlin is (030). When calling from an international mobile phone, you may need to add the country code +49 (and drop the first '0' from the area code).

Toilets

Toilets are located on the ground floor, halfway between the main entrance and the Audimax lecture theatre (H0105). Additional toilets are located on the second and third floor, as well as along the staircases on the sides of the TU main building.

Twitter

While there is no official GWP.2022 Twitter account, feel free to refer to the conference using #gwp2022 as the hashtag. When posting images or media, please be mindful of other participants' right to privacy and to unimpeded scholarly discourse.

Vending machines

Vending machines for (hot/cold) drinks and snacks are located on the ground floor, in the passageway between the main entrance / lobby and the back entrance. Vending machines are coin-operated and certain bottled drinks include a small deposit.

General Programme Overview

Monday, 15th August 2022

08:00-09:00	Registration (H1035)
09:00-09:15	H0105 (Audimax) Opening remarks: Gerhard Schurz, GWP President Axel Gelfert, Chair, Local Organizing Committee Welcome address: Stephan Völker, Erster Vizepräsident, TU Berlin
09:15-10:45	H0105 (Audimax) Plenary lecture: Hans Rott: “Relevance and Conditionals” Chair: Gerhard Schurz
10:45-11:00	Coffee break – H3005
11:00-13:00	Parallel sessions: Contributed papers & symposia
13:00-14:00	Lunch break – light refreshments provided in H3005
14:00-16:40	Parallel sessions: Contributed papers
16:40-17:00	Break
17:00-18:30 Plenary	H0104 Plenary – De Gruyter Lecture: Mazviita Chirimuuta: “Formal Idealism/Haptic Realism” Chair: Holger Lyre
18:30-19:00	Break
19:00-...	Conference dinner

Tuesday, 16th August 2022

09:00-10:30	H0104 Plenary lecture: Jutta Schickore: “Causation, Observation, and Experiment: Reflections on Practical Inquiry in the German Lands Around 1800” Chair: Alexander Gebharter
10:30-11:00	Coffee break – H3005
11:00-13:00	Parallel sessions: Contributed papers & symposia
13:00-14:30	Lunch break – light refreshments provided in H3005
14:30-17:10	Parallel sessions: Contributed papers
17:10-17:30	Break
17:30-19:00 Plenary	H0105 (Audimax) Plenary lecture: Anjan Chakravartty: “The Role of Epistemic Stances in Interpreting Science: Naturalistic Challenges” Chair: Axel Gelfert
19:00-19:15	Break
19:15-...	H0104 General Assembly <i>(GWP members only)</i>

Wednesday, 17th August 2022

09:00-10:30	H0105 (Audimax) Plenary lecture: Branden Fitelson: “Bayesianism & Explanationism” Chair: Christian Feldbacher-Escamilla
10:30-11:00	Coffee break – H3005
11:00-13:00	Parallel sessions: Contributed papers & symposia
13:00-14:30	Lunch break – light refreshments provided in H3005
14:30-16:30	Parallel sessions: Contributed papers
16:30-17:00	Break
17:00-18:30 Plenary	H0104 Plenary – Springer JGPS Lecture: Brigitte Falkenburg: “Data, Theories and Probability in Physics” Chair: Vera Hoffmann-Kolss
18:30-18:45	Closing remarks

Parallel Sessions and Symposia

Monday, 15 th August 2022	11:00 – 13:00
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H1012

Observation, Idealization, Induction: Case Studies

Chair: Sahra Styger

Matthew Lund. *Bessel and the Epistemology of Observational Relativity*

Edoardo Peruzzi and Gustavo Cevolani. *Defending (de-) idealization in economic modelling: a case study*

Idit Chikurel. *Maimon as a Baconian: Induction, Empirical Objects and Natural Histories*

H1058

Models and Representations

Chair: Axel Gelfert

David Hommen. *Poetry and Truth – Scientific Models as Perspicuous Representations*

Julia Sánchez-Dorado. *Judgments of similarity and a pragmatic account of representation*

William D'Alessandro. *Unrealistic Models in Mathematics*

H2013

SYMPOSIUM: Mechanisms in the Cognitive and Social Sciences

Beate Krickel. *What mechanisms can do for (the philosophy of) cognitive science and psychology other than explaining*

Yafeng Shan. *Is evidence of mechanisms sufficient for making within-case causal claims?*

Jon Williamson. *Applying Evidential Pluralism to the Social Sciences*

H2038

Historical Perspectives

Chair: Birgit Beck

Stephan Fischer. *Zur Konzeption der Globalgeschichte*

Filip Buyse. *The Physiologist Johannes Peter Müller and the Philosopher Spinoza: An Underestimated Relation*

Yuval Eytan. *Hobbes on Scientific Happiness*

H3010

SYMPOSIUM:

The Replication Crisis and Philosophy of Science

Johanna Sarisoy. *A failure to replicate - a failure of what?*

Sam Fletcher. *Replication is for meta-analysis*

Sophia Crüwell. *Reframing the replication crisis as a crisis of inference*

H1012

Philosophy of Physics (1)

Chair: Karim Baraghith

Niels Martens. *Comparing the explanatory power of Λ CDM & modified gravity*

Frida Trotter. *Breaking underdetermination with norms*

Iulian Toader. *Einstein Completeness as Categoricity*

Tina Wachter. *Does Referencing in QM Require Free Logic?*

H1058

Scientific Realism and the Practices of Science

Chair: Sam Fletcher

Raimund Pils. *Scientific Realism and Epistemic Risk*

Matthias Egg. *Quantum Fundamentalism vs. Scientific Realism*

Sébastien Rivat. *How Theoretical Terms Effectively Refer*

Enno Fischer. *Naturalness: a Constitutive Principle*

H2013

Epistemology of Science

Chair: Christian Feldbacher-Escamilla

Lara Huber. *Epistemic Significance: Broadening the Perspective*

Daniel Minkin. *Conspiracy Theories: Some Teachings from Philosophy of Science*

Lorenzo Spagnesi. *Idealization and Knowledge of Nature: A Kantian Approach*

Noelia Iranzo Ribera. *Counternomic Reasoning as Make-Believe*

H2038

Laws of Nature

Chair: Andreas Hüttemann

Mousa Mohammadian. *An Armstrongian Defense of Dispositional Monist Accounts of Laws*

Markus Schrenk. *Which Predicates, which Properties for Better Best Systems?*

Vassilis Livanios. *Thin Powers and the Governing Problem*

H3010

Science in its Social Context

Chair: Vlasta Sikimić

Anna Leuschner and Manuela Fernández Pinto. *Research on Shooting Bias: Social and Epistemic Problems*

Olivier Ouzilou. *Social sciences and conspiracy theorizing: the problem of collective entities*

Simon Bleszenohl and Deniz Sarikaya. *A Norm for Science Advice: Making Beliefs Accurate*

Luca Malatesti, Marko Jurjako and Inti Brazil. *Integrating legal categories with biocognitive data: the case of the insanity defence*

Tuesday, 16 th August 2022	11:00 – 13:00
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H0105 (Audimax)

SYMPOSIUM:

The Cybernetic Renaissance

Hajo Greif. *Analogue Models and Universal Machines: The Separation and Realignment of Cybernetic Paradigms*

Wiktor Rorot. *Counting on the Cilia: Cybernetics, Morphological Computation, and Computational Enactivism*

Krzysztof Dolega. *What can Free Energy Modelers Learn from Cybernetics?*

H1012

Science and Values (1)

Chair: Michael Poznic

Jacob Stegenga and Tarun Menon. *A New Defence of the Value-Free Ideal*

Jitka Paitlova. *The value of value neutrality*

Torsten Wilholt. *Symmetries and Asymmetries in Epistemic Risk Management*

H1058

Psychology and Psychiatry

Chair: Beate Krickel

Lena Kästner. *Multiplexes: New Directions for Computational Psychiatry?*

Mario Santos-Sousa. *Progress in Psychiatry*

Antonella Tramacere. *Has the evolutionary study of the mind reached an impasse?*

H2013

Mind, Method, Mechanism

Chair: Anne Sophie Meincke

Daniel Kostic and Willem Halffman. *Explanatory imperialism: empirical evidence for the claims about pervasiveness of “mechanisms” in life sciences*

Barnaby Crook. *The Compact Core - Emergent Structure Distinction in Artificial and Biological Neural Networks*

Lukas J. Meier. *Thought Experimentation as a Scientific Method*

H2038

Organisms and Superorganisms

Chair: Filip Buyse

Spyridon Koutroufinis. *The Phenomenon of Organism – Three Different Levels of Analysis*

Antonio Danese. *Flowers and Teleology*

Ana Katic. *The Dynamical Biological Explanation: A New Perspective for the Concept of Superorganism*

H3006

SYMPOSIUM

The Legitimacy of Generalizing Darwinism

Martin Valkovic. *Cultural evolution of human cooperation*

Agathe du Crest. *Objectivity at stake in mathematical models: the study case of evolutionary history*

Hugh Desmond, Andre Ariew, Philippe Huneman, Thomas Reydon. *The varieties of Darwinism: An integrated dynamic account*

H3010

Method Transfer Across Disciplines and Scales

Chair: Alexander Gebharder

Christian J. Feldbacher-Escamilla and Philipp Haueis. *Patchwork Approaches to Concepts and Different Scales*

Aznavur Dustmamatov. *Geography as Science: The Limits of the Geo-Ontological Approach*

H0105 (Audimax)

Engineering, Technology, Simulation

Chair: Matej Kohár

Christopher Pincock and Michael Poznic. *What do engineers understand? The case of biological methanation*

Céline Gressel. *The Usage of Extended Reality Technologies in the Contexts of a healthy Life and their Impact on Well-being*

Dawid Kasprowicz, Daniel Wenz and Gabriele Gramelsberger. *How to Explore Scientific Code? (in Philosophy of Science)*

Marianne van Panhuys and Rafaela Hillerbrand. *Epistemic risks and computer simulation: a case study from particle physics*

H1012

Causal Methods

Chair: Vera Hoffmann-Kolss

Samuel Fletcher. *Causal Modeling as Counterfactual Semantics*

Paul M. Näger. *Evidence for interactive common causes. Resuming the Cartwright-Hausman-Woodward debate*

Donal Khosrowi. *Extrapolating Causal Effects - Where Is Our Theory of Confidence?*

Jan Borner. *Causal Power Quantified - A Generalisation and Defense of Cheng's Causal Power Measure*

H1058

The Social Organization of Science

Chair: Axel Gelfert

Vlasta Sikimić. *Efficient Team Structures in Biology*

K. Brad Wray. *The Epistemic Significance of the Size of Research Teams*

Li-An Yu. *Epistemic injustice of climate change: the coherence problem of specific and general information*

Sacha Ferrari. *Uberized science is the new black*

H2013

Philosophy of Physics (2)

Chair: Cord Friebe

Ryan Miller. *Mereological Atomism's Quantum Problems*

David Schroeren. *State-Space-First Ontology: An Escape from the Pessimistic Meta-Induction?*

H3006

Philosophy of Biology

Chair: Marcel Weber

Rose Trappes. *The Pervasiveness of Sex in Behavioural Ecology*

Franziska Reinhard. *Re-Construction or Re-Invention?*

Experimental Research into the Origins of Life

Vito Balorda and Predrag Šustar. *Natural Selection: Pathway or Mechanism? Insights from Cancer Research*

Aleksandar V. Božić. *Explaining the vagueness of life: „individuals thinking“ vs. natural kinds approach*

H3010

General Philosophy of Science (1)

Chair: Sébastien Rivat

Ludwig Fahrbach. *The abundance of scientific evidence for our best theories: Too much of a good thing?*

Jens Harbecke. *Mechanistic Constitution as a Natural Law*

Anne Sophie Meincke. *Free Will and the Metaphysics of Agency*

Qiu Lin. *Du Châtelet on Mechanical Explanation vs. Physical Explanation*

Wednesday, 17 th August 2022	11:00 – 13:00
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H0105 (Audimax)

Explanation (1)

Chair: David Schroeren

Stefan Roski. *In Defence of Explanatory Realism*

Alexander Gebharder and Christian J. Feldbacher-Escamilla.
Unification and Explanation: A causal perspective

Martina Blečić and Predrag Šustar. *Biological Metaphors as Vehicles for Explanation?*

H1012

Evolution

Chair: Jacob Stegenga

Marcel Weber. *Modeling Modality: The Case of Evolvability in Evo-Devo*

Leon de Bruin and Daniel Kostic. *How evolutionary and environmental factors shape the relationship between structural functional connectivity*

Inigo Ongay de Felipe. *What is the role of Philosophy of Biology with regard to the Extended Evolutionary Synthesis and why should it matter*

H1058

GAP-SYMPOSIUM

Learning from Data: The Secret to Success

Konstantin Genin. *Causal Discovery and the Randomized Controlled Trial*

Tom Sterkenburg. *The No-Free-Lunch Theorems of Supervised Learning*

Francesca Zaffora Blando. *Merging of Opinions for Computable Bayesian Agents and Algorithmic Randomness*

H2013

Mathematics

Chair: Markus Schrenk

Daniel Koenig. *The Objectivity of Mathematics. On the Reception of 19th-Century Mathematics in Ernst Cassirer's Philosophy of Culture.*

Deborah Kant. *Deep peer disagreement in set theory*

H2038

Logic and Language

Chair: Oliver Buchholz

Ivan Nenchev and Benjamin Wilck. *Linguistic versus Metalinguistic Testing in Schizophrenia Research*

Sebastian Sunday Grève. *Turing's Philosophy of Intelligence*

Benjamin Wilck. *Logic and Language in Euclid's "Elements"*

H3006

SYMPOSIUM

Are all Laws of Physics Created Equal?

Salim Hirèche, Niels Linnemann, Robert Michels, Lisa Vogt.
Scrutinising non-absolutist law accounts on physics: The case for a non-absolutist DTA account

Andreas Bartels: *Kinematical constraints: No support for non-absolutism about laws of nature*

Salim Hirèche, Niels Linnemann, Robert Michels: *On the relationship between meta- and non-absolutist laws*

H3010

Bayesian Approaches

Chair: Hajo Greif

Thomas Blanchard and Andreas Hüttemann. *Causal Bayes Nets, Causal Exclusion, and Symmetric Dependence*

Christoph Merdes. *Learning Source Reliability on Multiple Propositions*

Jonas Raab. *Too Many Dutch Book Arguments?*

H0105 (Audimax)

Explanation (2)

Chair: Stefan Roski

Philipp Haueis. *Patchwork concepts and the norms of explanation*

Gregor Hörzer. *Constitutive Relevance First: Mechanistic Explanations without Mechanisms?*

H1012

Biomedical Science

Chair: Julia Sánchez-Dorado

Mariusz Maziarz. *A Perspectival View on Inconsistent Results of Clinical Trials*

Julia Mirkin. *Trust in Research on Human Germline Genome Editing*

Saana Jukola. *Bodies of Evidence – Determining the Cause of Death and the Problem of Underdetermination*

H1058

Machine Learning and Game Theory

Chair: Tom Sterkenburg

Luis Lopez. *Machine Learning Models and Understanding of Phenomena*

Oliver Buchholz. *The Curve-Fitting Problem Revisited*

Jules Salomone-Sehr and Sacha Bourgeois-Gironde. *What Might We Learn About Shared Agency Thanks to Game Theory?*

H2013

General Philosophy of Science (2)

Chair: Li-an Yu

Radin Dardashti. *On the theory-ladenness of theorizing*

Anna Elisabeth Höhl. *Grasping and Explaining – The GE-Account of Scientific Understanding*

Niki Pfeifer. *The probabilistic turn in the psychology of reasoning: a necessary paradigm shift?*

H2038

Mind and Cognition

Chair: Dirk Koppelberg

Karim Baraghith and Christian Johann Feldbacher-Escamilla. *From Reduction to Unification: The Case of Cultural Evolutionary Psychology*

Maria Sekatskaya. *Reductionism in the Philosophy of Science and the Problem of Mental Properties*

Matej Kohar. *The Scaling-up Problem from a Mechanistic Point of View*

H3006

Philosophy of Physics (3)

Chair: Iulian Toader

Andrea Oldofredi. *Relational Quantum Mechanics and the PBR Theorem: A Peaceful Coexistence*

Markus Fremps and Frida Trotter. *Categorically classical: Lessons from no-go theorems in quantum foundations*

Michael te Vrugt, Gyula I. Tóth and Raphael Wittkowski.
Irreversibility in statistical mechanics: from quantum mechanics to soft matter theory

H3010

Science and Values (2)

Chair: Anna Leuschner

Paul Hoyningen-Huene. *Objectivity, the Ideal of Value-Free Science, and Rudner's Objection*

Michele Luchetti and Matteo De Benedetto. *A dynamic model of theory choice: epistemic values as environmental niches*

Eoin Perry. *Representational Risk and the Representation of Statistical Evidence*

Abstracts of Plenary Talks

Monday, 15th August 2022, 09:15-10:45

Hans Rott (Regensburg):

Relevance and Conditionals

In natural language, conditionals are not only used for deduction, but also for giving explanations. Thus the antecedent of a conditional is typically understood as being connected to, being relevant for, or providing evidential support for the conditional's consequent. This aspect is not adequately mirrored in the logics that are usually offered for the reasoning with conditionals: neither in the logic of the material conditional or the strict conditional, nor in the plethora of logics for “suppositional” conditionals that were produced over the past 50 years. In this talk I survey some recent logical and probabilistic attempts to come to terms with the problem of encoding relevance in the logic of conditionals.

**Monday, 15th August 2022,
17:00-18:30 (de Gruyter Lecture)**

DE GRUYTER

Mazviita Chirimuuta (Edinburgh):

Formal Idealism/Haptic Realism

I propose that we redirect the realism debate away from the question of the reality of unobservable posits of scientific theories and models, and towards the question of whether those theories and

models should be interpreted realistically. This makes it easier to include within the realism debate sciences of relatively large and observable items, as are many branches of biology. In computational neuroscience, models are normally interpreted as representing computations actually performed by parts of the brain. Semantically, this interpretation is literal and realistic. Ontologically, it supposes that the structure represented mathematically as a computation (i.e. a series of state transitions) is there in the brain processes. I call this supposition of a structural similarity (homomorphism) between model and target, formal realism. This stands in contrast to an alternative way to interpret the model which I call formal idealism. The view here is that whatever processes exist in the brain are vastly more complicated than the structures represented in the computational models, and that the aim of modelling is to achieve an acceptable simplification of those processes. Thus, the success of the research is more a matter of structuring than of discovering pre-existing structures. – Ultimately, the realism debate is motivated by curiosity about what it is that the best scientific representations have to tell us about the world: is this thing really as presented in the model? Thus, I argue that the contrast between formal realism vs. idealism is a good template for framing the realism debate when discussing the implications of sciences of extremely complex macro and mesoscopic systems, such as the nervous system. Formal idealism does not suppose that the structures given in scientific models are fully constructed or mind-dependent, but that there is an eliminable human component in all scientific representations, due to the fact that they can never depict the full complexity of their target systems and as such are the result of human decisions about how to simplify. Another way to describe the ineliminable human component is to say that models and other scientific representations are the product of the interaction between the human investigator

and the target system. I use the sensory metaphor of touching (haptics) to describe this investigative process. Formal idealism is complemented by a haptic realism (Chirimuuta 2016) which acknowledges that models are the products both of constraints imposed by nature, and the constructive activity of scientists.

Tuesday, 16th August 2022, 09:00-10:30

Jutta Schickore (Indiana):
**Causation, Observation, and Experiment:
Reflections on Practical Inquiry in the German
Lands Around 1800**

This paper examines reflections on the nature of causation in the German lands in the late 18th and early 19th centuries. Kant's and other prominent philosophers' views on causation are well studied, of course. It is less well known, however, that around 1800, many German academic philosopher-educators and scientific practitioners discussed causation in the context of empirical inquiry. Their goals were practical, their interests were methodological, and their understanding of "cause" was pragmatic. They developed heuristics as well as evaluative criteria for finding and assessing hypotheses about cause-effect relations and considered how experiments and observations could assist in this endeavor. They discussed consequential tests; simplicity, and explanatory power as criteria for good hypotheses; the method of difference; discussions of proximate causes and conditions; and effective strategies of intervention. The paper argues that these works are not just "forerunners" of modern philosophy of science. Rather, they compel us to rethink the long-term history of methodological discussions in science and philosophy.

Tuesday, 16th August 2022, 17:30-19:00

Anjan Chakravartty (Miami):
**The Role of Epistemic Stances in Interpreting
Science: Naturalistic Challenges**

Many would agree that the sciences are privileged with respect to learning about the natural and social worlds in which we live. And yet, interpreting the content of our best science (theories, models, etc.) is generally subject to disagreement among scientists and philosophers. How are we to make sense of this – what may seem an incoherent combination of epistemic privilege and controversy – and thereby respond to the naturalistic challenge of understanding how science licenses belief? I suggest that some disagreements, regarding scientific ontology, stem from differences concerning how to interpret empirical evidence which arise from different ‘epistemic stances’. The very notion of a stance, however, elicits a further challenge, concerning whether, in order to be plausible, this sort of theorizing should itself be supported by scientific evidence, thus (in effect) naturalizing scientific epistemology. I offer some reflections on how best to think about these challenges.

Wednesday, 17th August 2022, 09:00-10:30

Branden Fitelson (Northeastern):
Bayesianism & Explanationism

In the recent literature, two opposing ways of thinking about the relationship between Explanationism and Bayesianism have emerged. On one side are authors including van Fraassen and Douven who have tried to accommodate Explanationist intuitions

via revisions of the fundamental structural Bayesian requirements of rationality. On the other side are authors including Roche & Sober and Lange who have proposed that Bayesians should accommodate Explanationist intuitions via substantive confirmation-theoretic postulates. I will begin by explaining the difference between structural vs substantive Bayesian rationality. Then, using this distinction, I will discuss the two opposing ways of reconciling Explanationism & Bayesianism. In the end, I will side with those who take Explanationism to be a substantive – rather than a structural – Bayesian constraint. Time permitting, I will also explain why I disagree with the skeptical arguments of Roche & Sober regarding the prospects of incorporating Explanationism into an account of substantive Bayesian rationality.

**Wednesday, 17th August 2022,
17:00-18:30 (Springer JGPS Lecture)**



**Brigitte Falkenburg (Dortmund/Berlin):
Data, Theories and Probability in Physics**

After recapitulating the theory-data relation and the meaning of probability in physics, I give an outline of the role of computer simulations in the experiments of particle and astroparticle physics. In the probabilistic analysis of the big data processed there, computer simulations enter an iterative process of data correction that is optimized by machine learning. I argue that here computer simulation is not a third kind of scientific method compared to theory and experiment but corresponds to “models as mediators” (Morgan and Morrison) or ideal-type explanations (Max Weber). Its opacity can be countered by detailed case studies, which show that the empirical underdetermination of theory is reduced by machine learning without increasing the theory dependence of the data.

List of Symposia

Monday, 15th August 2022, 11:00-13:00, H2013

Mechanisms in the Cognitive and Social Sciences

Symposiasts: Beate Krickel, Yafeng Shan, Jon Williamson

Monday, 15th August 2022, 11:00-13:00, H3010

The Replication Crisis and Philosophy of Science

Symposiasts: Johanna Sarisoy, Sam Fletcher (replacement speaker for Adrian Erasmus), Sophia Crüwell

Tuesday, 16th August 2022, 11:00-13:00, H0105
(Audimax)

The Cybernetic Renaissance

Symposiasts: Hajo Greif, Wiktor Rorot, Krzysztof Dolega

Tuesday, 15th August 2022, 11:00-13:00. H3006

The Legitimacy of Generalizing Darwinism

Symposiasts: Martin Valkovic, Agathe du Crest, Hugh Desmond (joint work with Andre Ariew, Philippe Huneman, Thomas Reydon)

Wednesday, 17th August 2022, 11:00-13:00, H1058

GAP-Symposium:

Learning from Data: The Secret to Success

*Symposiasts: Konstantin Genin, Tom Sterkenburg,
Francesca Zaffora Blando*

Wednesday, 17th August 2022, 11:00-13:00, H3006

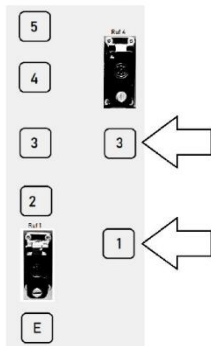
Are all Laws of Physics Created Equal?

*Symposiasts: Salim Hirèche, Niels Linnemann, Lisa Vogt,
Andreas Bartels*

Please refer to pp. 16-31 above for the detailed list of talks within each Symposium; abstracts for symposium talks (and all contributed papers) are included in the book of abstracts which can be downloaded at <http://gwp2022.wissphil.de/abstracts>

Floor Plan

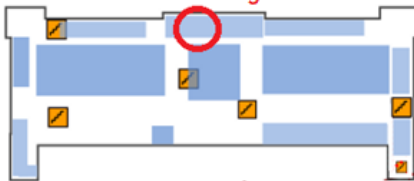
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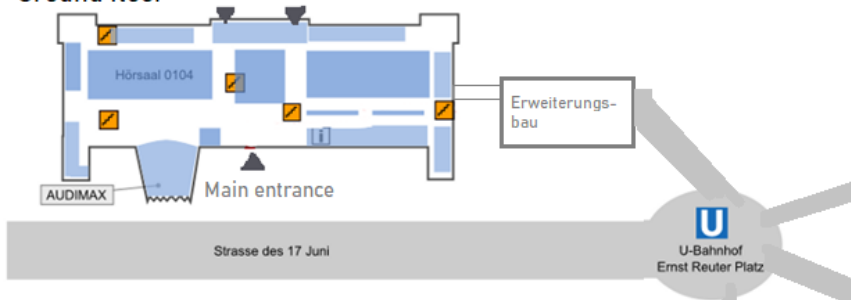
Important: In order to access the 1st and 3rd floor by lift from the entrance area (Foyer), please use the lift all the way to the left ("Aufzug Foyer") and use the buttons "1"+"3" which are set off from the main panel of buttons.

1st floor

H1035 registration



Ground floor



GWP.2022

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