

CLMPST2019: 16TH INTERNATIONAL CONGRESS OF LOGIC, METHODOLOGY AND PHILOSOPHY OF SCIENCE AND TECHNOLOGY

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PROGRAM

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Monday, August 5th

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09:00-10:30 Session 1: Opening ceremony

10:30-11:00 Coffee Break

11:00-12:30 Session 2: Plenary 1

15:15-16:15 Session 3A: JC3-1

It is often said that science is “messy” and, because of this messiness, abstract philosophical thinking is only of limited use in analysing science. But in what ways is science messy, and how and why does this messiness surface? Is it an accidental or an integral feature of scientific practice? In this symposium, we try to understand some of the ways in which science is messy and draw out some of the philosophical consequences of taking seriously the notion that science is messy.

The first presenter discusses what scientists themselves say about messy science, and whether they see its messiness as a problem for its functioning. Examining scientists’ reflections about “messy science” can fulfill two complementary purposes. Such an analysis helps to clarify in what ways science can be considered “messy” and thus improves philosophical understanding of everyday research practice. The analysis also points to specific pragmatic challenges in current research that philosophers of science can help address.

The second presenter discusses the implications of “messy science” for scientific epistemology, specifically for scientific justification. They show how this messiness plays itself out in a particular episode in nineteenth century medicine: the transition from mid-nineteenth-century miasma views to late nineteenth-century early germ views by examining different senses in which scientific epistemology may be said to be messy and lay out in what ways such messy scenarios differ from the idealized circumstances of traditional accounts of justification. They conclude by discussing some limits that taking these differences into account will impose on developing practice-based views of scientific justification, explaining how it is still possible for such views to retain epistemic normativity.

The third presenter explores how the messiness of eighteenth-century botanical practice, resulting from a constant lack of information, generated a culture of collaborative publishing. Given the amount of information required for an accurate plant description let alone a taxonomic attribution, eighteenth-century botanists and their readers were fully aware of the preliminary nature of their publications. They openly acknowledged the necessity of updating and correcting them, and developed collaborative strategies for doing so efficiently. Authors updated their own writings in cycles of iterative publishing, most famously Carl Linnaeus, but this could also be done by others, such as the consecutive editors of the unpublished manuscripts of the German botanist Paul Hermann (1646-1695), who became his co-authors in the process.

The fourth presenter investigates how biological classification can sometimes rely on messy metaphysics. Focusing on the lichen symbiont, they explore what grounds we might have for relying on overlapping and conflicting ontologies. Lichens have long been studied and defined as two-part systems composed of a fungus (mycobiont) and a photosynthetic partner (photobiont). This bipartite metaphysics underpins classificatory practices and determines the criteria for stability that rely on the fungus to name lichens despite the fact that some lichens are composed of three or more parts. The presenter investigates how reliable taxonomic information can be gleaned from metaphysics that makes it problematic to even count biological individuals or track lineages.

15:15 [Jutta Schickore](#) (Indiana University Bloomington, United States)

JC3 Scientists’ reflections on messy science ([abstract](#))

15:45 [Jordi Cat](#) (Indiana University Bloomington, United States)

JC3: Blur science through blurred images. What the diversity of fuzzy pictures can do for epistemic, methodological and clinical goals ([abstract](#))

15:15-16:15 Session 3B: O2C-1

Over the past few years, the Causal Bayes net framework --- developed by Spirtes et. al. (2000) and Pearl (2000), and given philosophical expression in Woodward (2004) -- has been successfully spun off into the sciences. From medicine to neuro- and climate-science, there is a resurgence of interest in the methods of causal discovery. The framework offers a perspicuous representation of causal relations, and enables development of methods for inferring causal relations from observational data. These methods are reliable so long as one accepts background assumptions about how underlying causal structure is expressed in observational data. The exact nature and justification of these background assumptions has been a matter of debate from the outset. For example, the causal Markov condition is widely seen as more than a convenient assumption, and rather as encapsulating something essential about causation. In contrast, the causal faithfulness assumption is seen as more akin to a simplicity assumption, saying roughly that the causal world is, in a sense, not too complex. There are other assumptions that have been treated as annoying necessities to get methods of causal discovery off the ground, such as the causal sufficiency assumption (which says roughly that every common cause is measured) and the acyclicity (which implies, for example, that there is no case in which X causes Y, Y causes Z, and Z causes X, forming a cycle). Each of these assumptions has been subject to analysis and methods have been developed to enable causal discovery even when these assumptions are not satisfied. But controversies remain, and we are confronted with some long standing questions: What exactly is the nature of each of those assumptions? Can any of those assumptions be justified? If so, which? How do the question of justification and the question of nature relate to each other?

This symposium aims to address those questions. It brings together a group of researchers all trained in the causal Bayes nets framework, but who have each taken different routes to exploring how we can address the connection between the underlying causal system and the observational data that we use as basis to infer something about that system. In particular, we will discuss a variety of different approaches that go beyond the traditional causal Bayes net framework, such as the discovery of dynamical systems, and the connection between causal and constitutive relations. While the approaches are largely driven by methodological considerations, we expect these contributions to have implications for several other philosophical debates in the foundations of epistemology, the metaphysics of causation, and on natural kinds.

15:15 [Hanti Lin](#) (University of California, Davis, United States)

O2C: Convergence to the Causal Truth and Our Death in the Long Run
([abstract](#))

15:45 [Jiji Zhang](#) (Lingnan University, Hong Kong)

[Kun Zhang](#) (Carnegie Mellon University, United States)

O2C: Causal Minimality in the Boolean Approach to Causal Inference ([abstract](#))

15:15-16:15 Session 3C: Grünbaum 1

Adolf Grünbaum, former president of DLMPST and IUHPS, had an extraordinary impact on philosophy of science in the 20th century. He died November, 15, 2018 at the age of 95. This symposium honors Grünbaum by considering ideas he addressed in his work, spanning philosophy of physics, logic of scientific reasoning, Freud and psychiatry's status as a science and religion.

15:15 [Clark Glymour](#) (CMU, United States)

Grünbaum: Adolf and natural religion ([abstract](#))

15:45 [Brian Skyrms](#) (University of California, Irvine, United States)

Grünbaum: Adolf Grünbaum on "Zeno's Metrical Paradox of Extension"
([abstract](#))

15:15-16:15 Session 3D: GG-1

A Symposium at CLMPST XVI coordinated by DLMPST/IUHPS and the Gender Gap Project

The project "A Global Approach to the Gender Gap in Mathematical, Computing, and Natural Sciences: How to Measure It, How to Reduce It?" is an international and interdisciplinary effort to better understand the manifestation of the Gender Gap in the named scientific fields, and to help overcome barriers for women in their education and career. The collaboration between eleven partners including various scientific unions allows for a comprehensive consideration of gender-related effects in these fields, yielding the opportunity to elaborate common grounds as well as discipline-specific differences.

Currently, existing data on participation of women in the mathematical and natural sciences is scattered, outdated, and inconsistent across regions and research fields. The project approaches this issue mainly from two different perspectives. Through a survey, scientists and mathematicians worldwide have the opportunity to confidentially share information about their own experiences and views on various aspects of education and work in their disciplines and countries. At the same time, we statistically analyze large data collections on scientific publications in order to understand effects of gender and geographical region on publication and collaboration practices. Moreover, the project aims to provide easy access to materials proven to be useful in encouraging girls and young women to study and pursue education in mathematics and natural sciences.

In this symposium, methods and findings of the Gender Gap project will be presented by

Helena Mihaljevic, connected to and contrasted with similar issues in philosophy of science. After three presentations, there will be a panel discussion.

15:15 [Helen Longino](#) (Stanford University, United States)

GG: How science loses by failing to address the gender (and other) gaps
([abstract](#))

15:45 [Helena Mihaljevic](#) (HTW Berlin, Germany)

GG: What can publication records tell about the gender gap in STEM?
([abstract](#))

15:15-16:15 Session 3E: IS B2 Formal Dietrich

15:15-16:15 Session 3F: Studies on the mathematical practice 1

15:15 [Oscar Perez](#) (Universidad Nacional de Colombia, Colombia)

Paths of abstraction: between ontology and epistemology in mathematical practice. The Zilber's trichotomy through the lens of Lautman and Cavailles
([abstract](#))

15:15-16:15 Session 3G: Empirical and experimental philosophy of science

15:15 [Vladimir Vinokurov](#) (Lomonosov Moscow State University, Russia)

[Marina Vorontsova](#) (Lomonosov Moscow State University, Rwanda)

Geometry, psychology, myth as aspects of the astrological paradigm ([abstract](#))

15:45 [Fanglei Zheng](#) (Tsinghua University, China)

When Arabic Algebraic Problems met Euclidean Norms in the 13th Century – A Case Study on the Scientific Innovation by the Transformation in Cross-cultural Transmission ([abstract](#))

15:15-16:15 Session 3H: Metaphysical issues: Naturalism

15:15 [Vera Matarese](#) (Institute of Philosophy, Czech Academy of Sciences, Czechia)

Super-Humeanism: a naturalized metaphysical theory? ([abstract](#))

15:45 [Igor Nevvazhay](#) (Saratov State Law Academy, Russia)

Transcendental in physical theory ([abstract](#))

15:15-16:15 Session 3I: Evidence and testing 1

15:15 [Linton Wang](#) (Department of Philosophy, National Chung Cheng University, Taiwan)

[Ming-Yuan Hsiao](#) (Department of Philosophy, Soochow University, Taiwan)

[Jhih-Hao Jhang](#) (Department of Philosophy, National Chung Cheng University, Taiwan)

Unfalsifiability and Defeasibility ([abstract](#))

15:45 [Klodian Coko](#) (University of Western Ontario, Canada)

Robustness, Invariance, and Multiple Determination ([abstract](#))

15:15-16:15 Session 3J: Abstraction

15:15 [Henning Heller](#) (University of Vienna, Austria)

Structuralist Abstraction and Group-Theoretic Practice ([abstract](#))

15:45 [Concha Martínez-Vidal](#) (University of Santiago de Compostela, Spain)

[Ismael Ordóñez](#) (University of Santiago de Compostela, Spain)

Thin Objects and Dynamic Abstraction versus Possible Structures ([abstract](#))

15:15-16:15 Session 3K: History and development of modern logic 1

15:15 [Gabriela Besler](#) (University of Silesia in Katowice, Poland)

Transcriptions of Gottlob Frege's Logical Formulas into Boole's algebra and Language of Modern Logic. Similarities and Differences ([abstract](#))

15:45 [Priyedarshi Jetli](#) (University of Mumbai, India)

Hilbert and the Quantum Leap from Modern Logic to Mathematical Logic ([abstract](#))

15:15-16:15 Session 3L: Logic and ontology 1

15:15 [Hsing-Chien Tsai](#) (Department of Philosophy, National Chung-Cheng University, Taiwan)

Classifying First-order Mereological Structures ([abstract](#))

15:45 [Antonio Piccolomini d'Aragona](#) (Aix-Marseille University, France)

A class of languages for Prawitz's epistemic grounding ([abstract](#))

15:15-16:15 Session 3M: Discovery and thought experiments

15:15 [Irina Starikova](#) (Higher School of Economics, Moscow, Russia)

"Thought Experiments" in Mathematics? ([abstract](#))

15:45 [Cruz Davis](#) (UMass Amherst, United States)

[Benjamin Jantzen](#) (Virginia Tech, United States)

Do Heuristics Exhaust the Methods of Discovery? ([abstract](#))

16:15-16:45 Coffee Break

16:45-17:45 Session 4A: JC3-2

16:45 [Catherine Kendig](#) (Michigan State University, United States)

JC3: Messy metaphysics: the individuation of parts in lichenology ([abstract](#))

17:15 [Bettina Dietz](#) (Hong Kong Baptist University, Hong Kong)

JC3: Tinkering with nomenclature. Textual engineering, co-authorship, and collaborative publishing in eighteenth-century botany ([abstract](#))

16:45-18:15 Session 4B: O2C-2 (ends 18.15)

16:45 [Konstantin Genin](#) (University of Toronto, Dept. of Philosophy, Canada)

[Kevin Kelly](#) (Carnegie Mellon University, United States)

Symposium O2C: Progressive Methods for Causal Discovery ([abstract](#))

17:15 [Frederick Eberhardt](#) (Caltech, United States)

O2C: Proportional Causes and Specific Effects ([abstract](#))

17:45 [Benjamin Jantzen](#) (Virginia Tech, United States)

O2C: Finding causation in time: background assumptions for dynamical systems ([abstract](#))

16:45-17:45 Session 4C: Grünbaum-2

16:45 [Ken Gemes](#) (Birkbeck University of London, UK)

Grünbaum: Adolf Grünbaum on Freud ([abstract](#))

17:15 [Dominic Murphy](#) (The University of Sydney, Australia)

Psychology, anthropology and delusions ([abstract](#))

16:45-17:45 Session 4D: GG-2

16:45 [Phyllis Illari](#) (UCL, UK)

[Federica Russo](#) (University of Amsterdam, Netherlands)

GG: Women in philosophy of science: why we are underrepresented and how to make us more visible ([abstract](#))

16:45-17:45 Session 4E: IS C1 Formal Heinzmann

16:45 [Gerhard Heinzmann](#) (Université de Lorraine, France)

Mathematical Understanding by Thought Experiments ([abstract](#))

16:45-17:45 Session 4F: Studies on the mathematical practice 2

16:45 [Paul Hasselkuß](#) (Heinrich-Heine Universität Düsseldorf, Germany)

Computers and the King's New Clothes. Remarks on Two Objections against Computer Assisted Proofs in Mathematics ([abstract](#))

17:15 [Andrei Rodin](#) (Russian Academy of Sciences, Institute of Philosophy, Russia)

Formal Proof-Verification and Mathematical Intuition: the Case of Univalent Foundations ([abstract](#))

16:45-18:15 Session 4G: Science and values 2

16:45 [Hiroyuki Kano](#) (Osaka University, Japan)

Updating scientific adviser models from policy-maker perspectives: a limit of debate of 'science and value' and norms of public policy ([abstract](#))

17:15 [Alexander Linsbichler](#) (University of Vienna, Austria)

In defense of a thought-stopper: Relativizing the fact/value dichotomy ([abstract](#))

17:45 [Eveli Neemre](#) (University of Tartu, Estonia)

Values in Science and Value Conflicts ([abstract](#))

16:45-17:45 Session 4H: Metaphysical issues: Patterns, processes and mechanisms

16:45 [Paul Teller](#) (University of California, Davis, United States)

Processes and Mechanisms ([abstract](#))

17:15 [Nikita Golovko](#) (Novosibirsk State University, Russia)

Second pattern existence and truth-making ([abstract](#))

16:45-17:45 Session 4I: Evidence and testing 2

16:45 [Abhishek Kashyap](#) (IIT, India)

Underdetermination of theories, theories of gravity, and the gravity of underdetermination ([abstract](#))

17:15 [Pekka Syrjänen](#) (University of Helsinki, Finland)

Some problems in the prediction vs accommodation debate ([abstract](#))

16:45-18:15 Session 4J: Thermodynamics and statistical physics

16:45 [Márton Gömöri](#) (Institute of Philosophy, Hungarian Academy of Sciences, Hungary)

Why do outcomes in a long series of rolling a fair dice approximately follow the uniform distribution? ([abstract](#))

17:15 [Marco Corgini](#) (Universidad, Chile)

Anomalous averages, Bose-Einstein condensation and spontaneous symmetry breaking of continuous symmetries, revisited ([abstract](#))

17:45 [Ivan Karpenko](#) (NSU Higher School of Economics, Russia)
Interpretation of the Several Corollaries of the Second Law of Thermodynamics in the Context of Relevant Physical Research ([abstract](#))

16:45-17:45 Session 4K: History and development of modern logic 2

16:45 [Joan Bertran-San Millán](#) (Czech Academy of Sciences, Czechia)
Frege and Peano on axiomatisation and formalisation ([abstract](#))

17:15 [Başak Aray](#) (Istanbul Gelisim University, Turkey)
Sources of Peano's Linguistics ([abstract](#))

16:45-17:45 Session 4L: Methodology

16:45 [Adam Grobler](#) (Opole University, Poland)
How science is knowledge ([abstract](#))

17:15 [Vladimir Kuznetsov](#) (Skovoroda Institute of Philosophy of NASU, Ukraine)
[Alexander Gabovich](#) (Institute of Physics of NASU, Ukraine)
COMMUTATIVE TRANSFORMATIONS OF THEORY STRUCTURES ([abstract](#))

16:45-18:15 Session 4M: Logic and ontology 2

16:45 [Don Faust](#) (Northern Michigan University, United States)
PREDICATION ELABORATION: PROVIDING FURTHER EXPLICATION OF THE CONCEPT OF NEGATION ([abstract](#))

17:15 [Constantin C. Brîncuș](#) (University of Bucharest, Romania)
Open-ended Quantification and Categoricity ([abstract](#))

17:45 [İskender Taşdelen](#) (Anadolu University, Turkey)
Free Logic and Unique Existence Proofs ([abstract](#))

19:00-21:00 Welcome reception

Tuesday, August 6th

View this program: [with abstracts](#) [session overview](#) [talk overview](#)

09:00-10:30 Session 5A: JC4-1

In this proposed symposium we make a historical–philosophical examination of chemical ontology. Philosophers thinking about the metaphysics of science would do well to scrutinize the history of the concepts involved carefully. The idea of “cutting nature at its joints” does not

offer much practical help to the scientists, who have to seek and craft the taxonomic and ontological notions according to the usual messy procedures of scientific investigation. And we philosophers of science need to understand the nature of such procedures. In this session we showcase various attempts to do such historical–philosophical work, with a focus on chemistry.

Robin Hendry will provide a general framing of the issue. The International Union of Pure and Applied Chemistry (IUPAC) has developed different systems of nomenclature for inorganic and organic substances. These systems reflect both chemistry's historical development and particular metaphysical views about the reality of chemical substances. Looking back into the history, we recognize the contingent decisions taken by past chemists that led to our present conceptions, and the possible paths-not-taken that might have led to different ontological conceptions. Such decisions were, and will continue to be, influenced by various types of forces that shape science. If the history of chemistry is a garden of forking paths, then so is the metaphysics of chemistry.

This presentation will be followed by three concrete studies. Marina Paola Banchetti-Robino will discuss the shift from vitalism to mechanicism that took place in early modern investigations of matter. This was a gradual and complex process, with corpuscularianism as an important commonality shared by the competing perspectives. She argues that aspects of vitalism and mechanicism co-existed in interesting ways in the chemical ontology of the early modern period, and that the gradual demise of vitalism resulted not from reductionism but from a physicalistic and naturalistic rationalization of chemical qualities.

Sarah Hijmans will address the history of the concept of chemical element. She starts by noting that there are two IUPAC definitions that loosely correspond to Lavoisier's operational concept and Mendeleev's more metaphysical concept. Little has been said about the evolution of the concept of element between the times of these two great chemists. She argues that the change in the conception of the element was part of a broader evolution of chemical practice. A view very similar to Mendeleev's was already present in early 19th-century chemical atomism, and developed in a rather continuous way through the century.

Karoliina Pulkkinen will examine the history of the late 19th-century attempts to find periodic regularities among the chemical elements. While Meyer saw it likely that all elements were comprised of the same primordial matter, Mendeleev saw each element as a distinct, individual, autonomous entity and refrained from making representations of periodicity that suggested otherwise. Following Andrea Woody's discussion of the law of periodicity as a theoretical practice, this paper explores how Meyer's and Mendeleev's ontological views on primordial matter shaped their ideas on how to represent periodicity.

09:00 [Robin Hendry](#) (Durham University, UK)

JC4: The history of science and the metaphysics of chemistry ([abstract](#))

09:30 [Marina Paola Banchetti-Robino](#) (Florida Atlantic University, United States)

JC4: Early Modern Chemical Ontologies and the Shift from Vitalism to Mechanicism ([abstract](#))

09:00-10:30 Session 5B: ISC denial of facts 1

For scientists and rational thinkers, the increasing acceptance of positions that constitute outright denial of established scientific consensus is disconcerting. In recent years, science denial movements have become more vocal and widespread, from climate change deniers via vaccination opponents to politicians whose statements are directly and openly in contradiction with established facts. The phenomenon of denial of (scientific) facts used to be confined to the fringes of our societies, but now transformed to have relevant policy effects with long-term consequences for all people and the entire globe. Both logic and philosophy of science can contribute to our understanding of this phenomenon and possibly show paths to react to it and deal with it.

In this symposium, representatives of the International Science Council, the global umbrella organisation for all of the natural and social sciences, will engage with logicians and philosophers of science and discuss both the philosophical theories underlying the phenomenon of denial of facts and their potential consequences for science policy makers and other stakeholders.

09:00 [Peter Gluckman](#) (The University of Auckland, New Zealand)

ISC: The value of knowledge brokerage in a post-truth age: taking it to scale ([abstract](#))

09:30 [Axel Gelfert](#) (TU Berlin, Germany)

ISC: Unwitting Complicity: When Science Communication Breeds Science Denialism ([abstract](#))

10:00 [Sven Ove Hansson](#) (KTH, Sweden)

ISC: The philosophical roots of science denialism ([abstract](#))

09:00-10:30 Session 5C: APMP 1

This Symposium is invited by PC

The philosophy of mathematics has experienced a very significant resurgence of activity during the last 20 years, much of it falling under the widely used label “philosophy of mathematical practice.” This is a general term for a gamut of approaches which can also

include interdisciplinary work. APMP members promote a broad, outward-looking approach to the philosophy of mathematics, which engages with mathematics in practice, including issues in history of mathematics, the applications of mathematics, and cognitive science. In 2009 the Association for the Philosophy of Mathematical Practice (APMP) was founded — for more information, see: <http://philmathpractice.org/>.

In this symposium, we aim at grouping twelve submission falling under the scope of APMP. The different contributions will put into focus different aspects of the philosophy of mathematical practice—both in term of topics and of methods—and with grouping them together we aim at promoting dialogue between them. We include studies of a wide variety of issues concerned with the way mathematics is done, evaluated, and applied, and in connection therewith, with historical episodes or traditions, applications, educational problems, cognitive questions, etc.

APMP aims to become a common forum that will stimulate research in philosophy of mathematics related to mathematical activity, past and present. It also aims to reach out to the wider community of philosophers of science and stimulate renewed attention to the very significant, and philosophically challenging, interactions between mathematics and science. Therefore, it is just natural that a symposium is being submitted to this Congress on behalf of APMP. We asked the members of APMP to submit a proposal for taking part in this meeting and we made an appropriate selection of submission so as to shape a one-day program. The aim of the meeting is to manifest the presence and activity of APMP within the larger community of philosophers of science and logicians. In order to reach this aim we have opted for the format of twelve presentations that showcase the diversity of philosophical work done under the umbrella of APMP.

09:00 [Michael Friedman](#) (Humboldt University Berlin, Germany)

APMP: Heterogeneous mathematical practices: complementing or translation?
([abstract](#))

09:30 [Bernd Buldt](#) (Purdue University Fort Wayne, United States)

APMP. Abstraction by Parametrization and Emdedding. A contribution to concept formation in modern and contemporary mathematics ([abstract](#))

10:00 [Andrew Aberdein](#) (Florida Institute of Technology, United States)

APMP: Virtues, arguments, and mathematical practice ([abstract](#))

09:00-10:30 Session 5D: APT-1 Probabilistic truth

It is a widespread view among more-or-less realist philosophers of science that scientific progress consists in approach towards truth or increasing verisimilitude. This position has been elaborated within the fallibilist program of Karl Popper, who emphasized that scientific

theories are always conjectural and corrigible, but still later theories may be “closer to the truth” than earlier ones. After the debunking of Popper’s own definition of truthlikeness by David Miller and Pavel Tichý, a number of approaches have been developed in order to solve or to circumvent this problem (an early overview is found in Kuipers 1987). The logical problem of verisimilitude consists in finding an optimal definition of closer to the truth or the distance to the truth. The epistemic problem of verisimilitude consists in evaluating claims of truth approximation in the light of empirical evidence and non-empirical characteristics.

So far, post-Popperian theories of truth approximation have usually assumed, like Popper’s own failing attempt, some kind of deterministic truth to be approached. This target could be descriptive or factual truth about some domain of reality, as expressed by universal laws, or the nomic truth about what is physically or biologically possible. These approaches, including most of the recent ones, are in agreement about the assumption that ‘the truth’ concerns a deterministic truth. However, they are deviating from each other in some other essential respects, especially concerning questions of logical reconstruction (qualitative vs. quantitative, syntactic vs. semantic, disjunction- vs. conjunction-based, content- vs. likeness-based) or concerning adequacy conditions for verisimilitude. Some useful overviews have been published about the state of the art (cf. Niiniluoto 1998, Oddie 2014).

In the symposium, adherents of such theories will now direct their attention to designing extensions to approaching probabilistic truths. Here the truth concerns a collection of statistical facts or the objective probabilities of some process, or probabilistic laws. Again the task is to find appropriate measures for the distance to such probabilistic truths and to evaluate claims about such distances on the basis of empirical evidence. Moreover, various well-known probabilistic enterprises can be (re-)construed as also dealing with truth approximation, if applied in such probabilistic contexts. For example, Carnapian inductive logic can be seen in this light (Festa, 1993). Similarly for straightforward Bayesian approaches, if applied in such contexts. Such reconstructions will also be addressed, including the interesting question whether these reconstructions can be seen as concretizations of deterministic truth approximation. In other words, one may ask whether deterministic measures of truthlikeness are special or limiting cases of probabilistic ones.

The main aim of this symposium is to bring together the search for such extensions and reconstructions. The significance is of course that the unified perspective on deterministic and probabilistic truth approximation will be illuminating and will stimulate further separate and comparative research. The probabilistic approaches that will be presented at the symposium are listed below (full abstracts are separately submitted, with the acronym APT).

09:00 [Ilkka Niiniluoto](#) (University of Helsinki, Finland)

APT: Approaching Probabilistic Laws ([abstract](#))

09:30 [Gustavo Cevolani](#) (IMT, Italy)

[Roberto Festa](#) (University of Trieste, Italy)

APT: Approaching deterministic and probabilistic truth: a unified account
([abstract](#))

10:00 [Gerhard Schurz](#) (Department of Philosophy, Heinrich Heine University Duesseldorf, Germany)

APT: Approaching objective probabilities by meta-inductive probability aggregation ([abstract](#))

09:00-10:30 Session 5E: Technology

09:00 [Sabine Thuermel](#) (Munich Center of Technology in Society, TU Muenchen, Germany)

Smart Systems: The Power of Technology ([abstract](#))

09:30 [Shalom Chalson](#) (National University of Singapore, Singapore)

Freely Talking Technologies: Epistemic Oppression in the Rhetorical Public Sphere and the Ethics of Emerging Technologies ([abstract](#))

10:00 [Augustė Dementavičienė](#) (Vilnius University, IIRPS, Lithuania)

Challenges of New Technologies: The Case of Digital Vigilantism ([abstract](#))

09:00-10:30 Session 5F: Philosophy of the cognitive and behavioral sciences

09:00 [Juraj Hvorecky](#) (Institute of Philosophy, Czech Academy of Sciences, Czechia)

Disputing unconscious phenomenality ([abstract](#))

09:30 [Tomasz Schubart](#) (Jagiellonian University, Poland)

Neuroscience: science without disguise. A critique of Manzotti's and Moderato's dualistic account of neuroscience ([abstract](#))

10:00 [Olivier Ouzilou](#) (Université de Lorraine, France)

Social Sciences and Moral Biases ([abstract](#))

09:00-10:30 Session 5G: Popper, Lakatos, Feyerabend 1

09:00 [Gabor Kutrovatz](#) (Eotvos University of Budapest, Department of Astronomy, Hungary)

What mature Lakatos learnt from young Lakatos ([abstract](#))

09:30 [Nathan Oseroff](#) (King's College London, United States)

Don't be a Demarc-hater: Correcting Popular Misconceptions Surrounding Popper's Solution to the Demarcation Problem ([abstract](#))

10:00 [Sina Badiei](#) (University of Toulouse - Jean Jaurès, France)

Karl Popper's Three Interpretations of the Epistemological Peculiarities of the Social Sciences ([abstract](#))

09:00-10:30 Session 5H: Empirical and experimental philosophy of science 1

09:00 [Jitka Paitlová](#) (University of West Bohemia, Department of Philosophy, Czechia)

[Petr Jedlička](#) (University of West Bohemia, Department of Philosophy, Czechia)

Objectivity of science from the perspective of x-phi ([abstract](#))

09:30 [Nataliia Reva](#) (Taras Shevchenko National University of Kyiv., Ukraine)

Does Analogical reasoning imply Anthropomorphism? ([abstract](#))

10:00 [Konrad Rudnicki](#) (University of Antwerp, Belgium)

[Piotr Łukowski](#) (University of Lodz, Poland)

Empirical investigation of the Liar Paradox. Human brain perceives the Liar sentence to be false. ([abstract](#))

09:00-10:30 Session 5I: Evidence 1

09:00 [Menashe Schwed](#) (Ashkelon Academic College, Israel)

Truth Lies: Taking Yet Another Look at the Theory-Laden Problem ([abstract](#))

09:30 [Nora Boyd](#) (Siena College, United States)

Constraining the Unknown ([abstract](#))

10:00 [Aki Lehtinen](#) (Nankai University, China)

[Jani Raerinne](#) (University of Helsinki, Finland)

Simulated data ([abstract](#))

09:00-10:30 Session 5J: Pluralism and the unity of science

09:00 [Dan Gabriel Simbotin](#) ("Gheorghe Zane" Institute of Economic and Social Research, Romanian Academy, Iasi Branch, Romania)

The Unity of Science: From Epistemic Inertia to Internal Need ([abstract](#))

09:30 [James Finley](#) (Columbia University, United States)

Medieval Debates over the Infinite as Motivation for Pluralism ([abstract](#))

10:00 [K. Brad Wray](#) (Centre for Science Studies, Denmark)

Setting Limits to Chang's Pluralism ([abstract](#))

09:00-10:30 Session 5K: History and development of modern logic 3

09:00 [Víctor Aranda Utrero](#) (Universidad Autónoma de Madrid, Spain)

The Universalism of Logic and the Theory of Types ([abstract](#))

09:30 [Kati Kish Bar-On](#) (Tel Aviv University, Israel)

Towards a New Philosophical Perspective on Hermann Weyl's Turn to Intuitionism ([abstract](#))

10:00 [Jean-Yves Beziau](#) (Universidade Federal do Rio de Janeiro, Brazil)

Tarski's two notions of consequence ([abstract](#))

09:00-10:30 Session 5L: Logics of knowledge and beliefs 1

09:00 [Haocheng Fu](#) (Department of Philosophy, Chinese Culture University, Taiwan)

Iterated belief revision and DP postulates ([abstract](#))

09:30 [Nadiia Kozachenko](#) (Kryvyi Rih State Pedagogical University, Ukraine)

Critical thinking and doxastic commitments ([abstract](#))

10:00 [Margarita Vázquez](#) (UNIVERSITY OF LA LAGUNA, Spain)

Reasoning about Perspectives. New Advances ([abstract](#))

09:00-10:30 Session 5M: Arabic logic

10:30-11:00 Coffee Break

11:00-12:30 Session 6A: JC4-2

11:00 [Karoliina Pulkkinen](#) (Miss, UK)

JC4. Some Sixty or More Primordial Matters: Chemical Ontology and the Periodicity of the Chemical Elements ([abstract](#))

11:30 [Sarah Hijmans](#) (Université Paris Diderot, France)

JC4. The building blocks of matter: The chemical element in 18th and 19th - century views of composition ([abstract](#))

11:00-12:30 Session 6B: ISC Denial of facts 2

11:00 [Daya Reddy](#) (International Science Council, South Africa)

ISC: Fake news, pseudoscience, and public engagement ([abstract](#))

11:30 [Romy Jaster](#) (Humboldt-Universität, Germany)

[David Lanius](#) (KIT, Germany)

ISC: Truth and Truthfulness, Part I: What Fake News Is and What It's Not ([abstract](#))

12:00

[Romy Jaster](#) (Humboldt-Universität, Germany)

[David Lanius](#) (KIT, Germany)

ISC: Truth and Truthfulness, Part II: Why They Matter ([abstract](#))

11:00-12:30 Session 6C: APMP 2

11:00 [Brendan Larvor](#) (University of Hertfordshire, UK)

[Gila Hanna](#) (University of Toronto, Canada)

APMP: As Thurston Says ([abstract](#))

11:30 [Markus Pantsar](#) (University of Helsinki, Finland)

APMP: Complexity of mathematical cognitive tasks ([abstract](#))

12:00 [Henrik Kragh Sørensen](#) (University of Copenhagen, Denmark)

[Mikkel Willum Johansen](#) (University of Copenhagen, Denmark)

APMP: Employing Computers in Posing and Attacking Mathematical Problems: Human Mathematical Practice, Experimental Mathematics, and Proof Assistants ([abstract](#))

11:00-12:30 Session 6D: APT-2

11:00 [Theo Kuipers](#) (University of Groningen, Netherlands)

APT: Inductively approaching a probabilistic truth and a deterministic truth, the latter in comparison with approaching it in a qualitative sense. ([abstract](#))

11:30 [Igor Douven](#) (Paris-Sorbonne University, Belgium)

APT: Optimizing group learning of probabilistic truths ([abstract](#))

12:00 [Graham Oddie](#) (University of Colorado Boulder, United States)

APT: Credal accuracy in an indeterministic universe ([abstract](#))

11:00-12:30 Session 6E: IS A3 Krajíček (from 11.30)

11:00 [Jan Krajíček](#) (Charles University, Czechia)

What is proof complexity? ([abstract](#))

11:00-12:30 Session 6F: Philosophy of social science

11:00 [Wei Wang](#) (Tsinghua University, China)

Methodological individualism and holism in the social sciences ([abstract](#))

11:30 [Germán Hevia Martínez](#) (University of Oviedo, Spain)

Can we apply the science/technology distinction to the Social Sciences? A brief analysis of the question ([abstract](#))

12:00 [Andrey Orekhov](#) (Peoples' Friendship University of Russia, Russia)

CMW-revolution in Social Sciences as a Type of “Scientific Revolution”
([abstract](#))

11:00-12:30 Session 6G: Popper, Lakatos, Feyerabend 2

11:00 [Matteo Collodel](#) (Independent scholar, Italy)

Feyerabend and the Reception and Development of Logical Empiricism
([abstract](#))

11:30 [Jamie Shaw](#) (Ryerson University, Canada)

Feyerabend's Well-Ordered Science: How an Anarchist Distributes Funds
([abstract](#))

11:00-12:30 Session 6H: Empirical and experimental philosophy of science 2

11:00 [Vitaly Pronskikh](#) (Fermi National Accelerator Laboratory, United States)

[Kaja Damjanović](#) (Laboratory for Experimental Psychology, Faculty of Philosophy,
University of Belgrade, Serbia)

[Polina Petruhina](#) (Faculty of Philosophy, Lomonosov Moscow State University,
Russia)

[Arpita Roy](#) (Max Planck Institute for the Study of Religious and Ethnic Diversity,
Göttingen, Germany)

[Vlasta Sikimić](#) (Institute for Philosophy, Faculty of Philosophy, University of
Belgrade, Serbia)

Are in-depth interviews a must for ethnography of HEP labs? ([abstract](#))

11:30 [Romain Sauzet](#) (Archives Poincaré - Nancy (Université de Lorraine)., France)

Cognitive and epistemic features: a tool to identify technological knowledge
([abstract](#))

12:00 [Maria Makhova](#) (Saratov State University, Russia)

[Anastasia Arinushkina](#) (Yuri Gagarin State Technical University of Saratov, Russia)

**Scientific communication in the problematic field of epistemology: inside and /
or outside** ([abstract](#))

11:00-12:30 Session 6I: Evidence 2

11:00 [Zili Dong](#) (Simon Fraser University, Canada)

Discovering unfaithful causal structures from observations and interventions
([abstract](#))

11:30 [Shinod N.K.](#) (IIT Delhi, India)

Evidential Relations in a Trading Zone ([abstract](#))

12:00 [Elisángela Ramírez-Cámara](#) (Instituto de Investigaciones Filosóficas, Universidad Nacional Autónoma de México, Mexico)
Is biased information ever useful (in the philosophy of science)? ([abstract](#))

11:00-12:30 Session 6J: Pluralism and relativism

11:00 [Mark Fischer](#) (Ruprecht-Karls-University Heidelberg, Germany)
Pluralism and relativism from the perspective of significance in epistemic practice ([abstract](#))

11:30 [Ave Mets](#) (University of Tartu, Estonia)
The pluralist chemistry and the constructionist philosophy of science ([abstract](#))

11:00-12:30 Session 6K: History and development of modern logic 4

11:00 [Zuzana Haniková](#) (Institute of Computer Science, Czech Academy of Sciences, Czechia)
On Vopěnka's ultrafinitism ([abstract](#))

11:30 [Hidenori Kurokawa](#) (Kanazawa University, Japan)
On Takeuti's view of the concept of set ([abstract](#))

11:00-12:30 Session 6L: Logics of knowledge and beliefs 2

11:00 [José Rafael Herrera González](#) (Universidad de La Laguna, Spain)
Combining Temporal and Epistemic Logic: A matter of points of view ([abstract](#))

11:30 [Ayse Sena Bozdog](#) (Munich Center for Mathematical Philosophy (Ludwig Maximilian University of Munich), Germany)
Modeling Belief Base Dynamics Using HYPE Semantics ([abstract](#))

12:00 [Libor Behounek](#) (Institute for Research and Applications of Fuzzy Modeling, University of Ostrava, NSC IT4Innovations, Czechia)
A formalism for resource-sensitive epistemic logic ([abstract](#))

11:00-12:30 Session 6M: Logical analysis of paradoxes 2

11:00 [Edoardo Rivello](#) (Universita degli Studi di Torino, Italy)
Definite truth ([abstract](#))

11:30 [Wen-Fang Wang](#) (Institute of Philosophy of Mind and Cognition at National Yang Ming University, Taiwan)
A Three-Valued Pluralist Solution to the Sorites Paradox ([abstract](#))

12:00 [Vladimir Svoboda](#) (Institute of Philosophy, Czechia)
Language games and paradoxes of deontic logic(s) ([abstract](#))

12:30-14:00 Lunch Break

14:00-15:00 Session 7A: JC2-1

This symposium examines the evidential relations between history and philosophy from various angles. Can the history of science show evidential support and falsifications for the philosophical theories about science? Or is it always a case of stalemate in which each reconstruction of history is only one possible reconstruction amongst several others? One suggestion has naturally been that the whole approach aimed at testing and comparing alternative philosophical models by recourse to historical data is misguided at worst, or in need of serious reformulation at best.

The tradition that looms large over this discussion is the attempt to turn philosophy of science into an empirically testable discipline. History and philosophy of science is then understood as a science of science in a close analogy to the natural sciences. One view is that philosophers provide theories to test and historians produce data by which these theories are tested. The most vocal and well-known representative of this approach is the VPI (Virginia Polytechnic Institute) project. The two most notable publications of this endeavour are “Scientific Change: Philosophical Models and Historical Research” and *Scrutinizing Science: Empirical Studies of Scientific Change*. A conference organised in 1986 preceded the latter publication. The key idea is testability; that historical case studies perform the role of empirical validation or falsification of the philosophical models of science. In this way, case studies were meant to provide ‘a reality check for philosophy of science.’

It is the role and status of case studies, and the rationale using case studies, that is brought back to the table and in the locus of this symposium. More generally, the authors are probing the appropriate evidential relationship between history and philosophy. The symposium makes evident a new sticking point in the debate regarding the empirical accountability of philosophical theories: Should very recent science rather than the history of science function as a source of empirical information? Or should we rather focus on finding more sophisticated evidential modes for the history of science?

14:00 [Raphael Scholl](#) (Department of History and Philosophy of Science, University of Cambridge, UK)

JC2: Scenes from a Marriage: On the confrontation model of history and philosophy of science ([abstract](#))

14:30 [Luca Tambolo](#) (University of Trieste, Italy)

JC2: The problem of rule-choice redux ([abstract](#))

14:00-15:00 Session 7B: IDTC-1 Climate change

The study of Climate Change as a philosophic subject was until recent times at very early stages (Winsberg 2018). The first entry related to 'Climate Science' in the Stanford Encyclopedia of Philosophy appear as late as 2018 (Parker, 2018). This is more awkward if we recall several of the main issues related to Climate Change and the scientific practice associated: epistemic trust, models, risk, uncertainty, probability, values, data, instruments, and complexity among many others.

Also, the bridge between research on Climate Change and policy and social spheres create problems that are not settled such as the epistemic trust or, in some other communities the relation between science and non-science.

At the same time, the development of the philosophical study of Climate Change can convey new educational insights to teach a diversity of philosophical topics. This is particularly relevant to the philosopher of science engaged in 'social relevant philosophy' but also to all the other philosophers of science.

This Symposium aims to bring together philosophers of science prone to shed light upon the above issues and correlated ones.

References:

Winsberg, Eric (2018) Philosophy and Climate Change. Cambridge, MA; Cambridge University Press

Katzav, Joel & Parker, Wendy S. (2018). Issues in the Theoretical Foundations of Climate Science. Studies in History and Philosophy of Modern Physics 63: 141-149.

Parker, Wendy, "Climate Science", The Stanford Encyclopedia of Philosophy (Summer 2018 Edition), Edward N. Zalta (ed.), URL = <<https://plato.stanford.edu/archives/sum2018/entries/climate-science/>>.

14:00 [Ludovic Touze-Peiffer](#) (Laboratoire de Météorologie Dynamique, France)
IDTCSymp: History and Epistemology of Climate Model Intercomparison Projects ([abstract](#))

14:30 [Yuting Yao](#) (The University of Manchester, China)
IDTCSymp: Fragmented authoritarian environmentalism, nationalism, ecological civilisation and climate change in China ([abstract](#))

14:00-15:00 Session 7C: APMP 3

14:00 [Gisele Secco](#) (Universidade Federal de Santa Maria, Brazil)
APMP: The interaction between diagrams and computers in the first proof of the Four-Color Theorem ([abstract](#))

14:30 [John Mumma](#) (California State University San Bernardino, United States)
APMP: The Computational Effectiveness of Geometric Diagrams ([abstract](#))

14:00-15:00 Session 7D: Metaphysical issues in philosophy of science

14:00 [C. D. McCoy](#) (Stockholm University, Sweden)

Counterfeit Chance ([abstract](#))

14:30 [Paul Weingartner](#) (University of Salzburg, Austria)

A Defence of Pluralism of Causality ([abstract](#))

14:00-15:00 Session 7E: IS A4 Brozek

14:00-15:00 Session 7F: Dispositions

14:00 [Nelida Gentile](#) (Universidad, Argentina)

[Susana Lucero](#) (Universidad, Argentina)

On the unifying character of dispositional realism ([abstract](#))

14:30 [Vassilis Livanios](#) (Department of Classics and Philosophy, University of Cyprus, Cyprus)

Can categorical properties confer dispositions? ([abstract](#))

14:00-15:00 Session 7G: Politics, science and society 1

14:00 [Andrew Schroeder](#) (Claremont McKenna College, United States)

Values in Science: Ethical vs. Political Approaches ([abstract](#))

14:30 [Victor Hugo Pinto](#) (Posgraduation program in education of Federal Fluminense University, Brazil)

THE PROBLEM OF SCIENTIFIC-EPISTEMOLOGICAL RACISM AND THE CONTRIBUTIONS OF SOUTHERN GLOBAL EPISTEMOLOGIES IN THE CONSTRUCTION OF PARADIGMATIC TRANSFORMATIONS OF THE PHILOSOPHY OF SCIENCE. ([abstract](#))

14:00-15:00 Session 7H

14:00 [Chia-Hua Lin](#) (University of South Carolina, Taiwan)

The Increasing Power of Chomsky Hierarchy: A Case Study of Formal Language Theory Used in Cognitive Biology ([abstract](#))

14:30 [Alexander Krauss](#) (London School of Economics, UK)

How early humans made the sciences possible ([abstract](#))

14:00-15:00 Session 7I: Explanation in the biomedical and health sciences

14:00 [Tuomas Vesterinen](#) (University of Helsinki, Finland)

An Explanatory View of Individuating Natural Kinds ([abstract](#))

14:30 [Leen De Vreese](#) (Centre for Logic and Philosophy of Science, Ghent University (UGent), Belgium)

Risk factors, explanation and scientific understanding ([abstract](#))

14:00-15:00 Session 7J: Pluralism and division of labor

14:00 [Filip Tvrđý](#) (Palacký University, Czechia)

Mysterianism and the Division of Cognitive Labour ([abstract](#))

14:30 [Sophie Juliane Veigl](#) (University of Vienna, Austria)

An empirical challenge for Scientific Pluralism – Alternatives or Integration? ([abstract](#))

14:00-15:00 Session 7K: Social ontology 1

14:00 [Max Weaver](#) (London South Bank University, UK)

Pegging Levels ([abstract](#))

14:30 [Nan Wang](#) (University of Chinese Academy of Sciences, China)

[Bo Cong Li](#) (University of Chinese Academy of Sciences, China)

On Social Reality: Taking the Enterprise as an Example ([abstract](#))

14:00-15:00 Session 7L: Philosophy of chemistry

14:00 [Alfio Zambon](#) (Universidad, Argentina)

[Mariana Córdoba](#) (CONICET-UBA, Argentina)

Chemical reactivity: Causality or reciprocal action? ([abstract](#))

14:30 [Myron A Penner](#) (Trinity Western University, Canada)

[Amanda Nichols](#) (Oklahoma Christian University, United States)

Realism About Molecular Structures ([abstract](#))

14:00-15:00 Session 7M: Logical analysis of paradoxes 3

14:00 [Doroteya Angelova](#) (Bulgarian Academy of Sciences, Bulgaria)

Logical Approaches to Vagueness and Sorites Paradoxes ([abstract](#))

14:30 [David Liggins](#) (The University of Manchester, UK)

Semantic paradoxes of underdetermination ([abstract](#))

15:15-16:15 Session 8A: JC2-2

15:15 [Jouni-Matti Kuukkanen](#) (University of Oulu, Finland)

JC2: Truth, incoherence and the evolution of science ([abstract](#))

15:45 [Veli Virmajoki](#) (University of Turku, Finland)

JC2 The Science We Never Had ([abstract](#))

15:15-16:15 Session 8B: IDTC-2 Climate change

15:15 [Jeroen Hopster](#) (Utrecht University, Netherlands)

IDTCSymp: Real Climate Possibilities: Proximate vs. Remote ([abstract](#))

15:15-16:15 Session 8C: APMP 4

15:15 [Ladislav Kvasz](#) (Czech Academy of Sciences, Czechia)

APMP: On the relations between visual thinking and instrumental practice in mathematics ([abstract](#))

15:45 [Arezoo Islami](#) (San Fransisco State University, United States)

APMP: Who discovered imaginaries? On the Historical Nature of Mathematical Discovery ([abstract](#))

15:15-16:15 Session 8D: AMEK-1

The difference between Theoretical and Practical reason has a long history in philosophy. Modern discussions concentrate on the relation between know-how and knowing-that, and ask whether one of two reduces to the other, or, if not, what the nature is of know-how. During the last decades, practical scientists in the information and social sciences (management, psychology, and law) have recognized the need to discern ‘procedural or action means-end knowledge,’ which may often be paraphrased as follows: ‘if one wants to achieve goal G in (technical, medical, etc.) context C, perform action A.’ This type of explicit (intersubjective—not tacit), or normative action knowledge seems hardly to be directly deducible from declarative scientific knowledge. Nevertheless, it prominently precipitates in countless patents and valuable academic research projects aiming at means-end or intervention knowledge. Despite its fundamental importance it has escaped the attention of most epistemologists. The purpose of this Symposium is to draw attention to, discuss and foster further interest in the production and results of academic (explicit, action) means-end knowledge in engineering, medicine, management or any other branch of practical science.

15:15 [Henri Salha](#) (IHPST, France)

AMEK : Declarative and procedural knowledge: a recent mutation of the theory/practice duality and its significance in the era of computational science ([abstract](#))

15:45 [Sjoerd Zwart](#) (University of Technology Delft, Netherlands)

AMEK Interlocking Models validating Engineering Means-End knowledge ([abstract](#))

15:15-16:15 Session 8E: IS B3 Empirical and experimental philosophy of science

15:15 [Dunja Šešelja](#) (Ludwig Maximilian University of Munich, Germany)

Understanding scientific inquiry via agent-based modeling ([abstract](#))

15:15-16:15 Session 8F: Interdisciplinarity in the cognitive sciences

15:15 [Ståle Gundersen](#) (University of Stavanger, Norway)

Can neuropsychanalysis save the life of psychoanalysis? ([abstract](#))

15:45 [Przemysław Nowakowski](#) (Polish Academy of Sciences, Poland)

Problematic interdisciplinarity of the Cognitive Science ([abstract](#))

15:15-16:15 Session 8G: Politics, science and society 2

15:15 [Tereza Křepelová](#) (Masaryk University, Faculty of Social Studies, Czechia)

Positivation of Political Philosophy and Its Impact on The Whole Discipline
([abstract](#))

15:45 [Zhicong Shang](#) (University of Chinese Academy of Sciences; China Society for Dialectic of Nature (Philosophy of Science & Technology), China)

The Competition of Interests in Public Scientific Knowledge Production-----An Analysis of Chinese Case ([abstract](#))

15:15-16:15 Session 8H: Social ontology 2

15:15 [Tomoyuki Yamada](#) (Hokkaido University, Japan)

Count-as Conditionals, Background Conditions and Hierarchy of Constitutive Rules ([abstract](#))

15:15-16:15 Session 8I: Ethical issues in genomic technologies

15:15 [Renzhong Qiu](#) (Institute of Philosophy, Chinese Academy of Social Sciences, China)

[Ruipeng Lei](#) (Center for Bioethics, Huazhong University of Science and Technology, China)

Intergenerational Justice Issues in Germline Genome Editing ([abstract](#))

15:45 [Xiaoju Dong](#) (Department of the History of Science, Tsinghua University., China)

How Should We Treat Human Enhancement Technology: Acceptance or Rejection? ([abstract](#))

15:15-16:15 Session 8J: Pluralism and metaphysical aspects of science 1

15:15 [Ruey-Lin Chen](#) (National Chung Cheng University, Taiwan)

[Jonathon Hricko](#) (National Yang-Ming University, Taiwan)

Pluralism About Criteria of Reality ([abstract](#))

15:45 [Giuseppina D'Oro](#) (Keele University, UK)

Why epistemic pluralism does not entail relativism ([abstract](#))

15:15-16:15 Session 8K: Construction of scientific knowledge

15:15 [Guillermo Samuel Tovar-Sánchez](#) (Centro de Investigaciones Económicas, Administrativas y Sociales del Instituto Politécnico Nacional de México, Mexico)

[Luis Mauricio Rodríguez-Salazar](#) (Centro de Investigaciones Económicas, Administrativas y Sociales del Instituto Politécnico Nacional de México, Mexico)

From Subject natural logic to scientist logic in natural science: an epistemological reflexion ([abstract](#))

15:15-16:15 Session 8L: Normative reasoning 1

15:15 [Alice Roberts](#) (University of Cambridge, UK)

A Bridge for Reasoning: logical consequence as normative ([abstract](#))

15:45 [Manidipa Sanyal](#) (University of Calcutta, India)

[Debirupa Basu](#) (Shri Shikshayatan College, India)

Attack at Dawn if the Weather is Fine ([abstract](#))

15:15-16:15 Session 8M: Logical analysis of paradoxes 4

15:15 [Meha Mishra](#) (Indian Institute of Technology Kanpur, India, India)

[Dr A.V. Ravishankar Sarma](#) (Indian Institute of Technology Kanpur, India, India)

An Attempt to Highlight Ambiguities in Approaches to Resolve Chisholm Paradox ([abstract](#))

15:45 [Jiří Raclavský](#) (Department of Philosophy, Masaryk University, Czechia)

Type Theory, Reducibility and Epistemic Paradoxes ([abstract](#))

16:15-16:45 Coffee Break

16:45-17:45 Session 9A: JC4-1

16:45-17:45 Session 9B: IDTC-3 Climate change

16:45 [Dragana Bozin](#) (University of Oslo, Norway)

[Anna Smajdor](#) (University of Oslo, Norway)

IDTCSymp: Bridging the gap between science and public through engineering environmental concepts ([abstract](#))

16:45-17:45 Session 9C: APMP 5

16:45 [Janet Folina](#) (Macalester College, United States)
APMP: The philosophy and mathematical practice of Colin Maclaurin ([abstract](#))

17:15 [Marlena Fila](#) (Pedagogical University of Cracow, Poland)
APMP: On continuity in Bolzano's 1817 Rein analytischer Beweis ([abstract](#))

16:45-17:45 Session 9D: AMEK-2

16:45 [Juan M Durán](#) (Delft University of Technology, Netherlands)
[Nico Formanek](#) (HLRS - University of Stuttgart, Germany)
AMEK - Computational reliabilism: building trust in medical simulations
([abstract](#))

17:15 [Maarten Franssen](#) (Delft University of Technology, Netherlands)
AMEK Truth-values for technical norms and evaluative judgements: a comparative analysis ([abstract](#))

16:45-17:45 Session 9E: IS B6 Irzik

16:45 [Gurol Irzik](#) (Sabanci University, Turkey)
[Sibel Irzik](#) (Sabanci University, Turkey)
Kuhn's wide-ranging influence on the social sciences, literary theory, and the politics of interpretation ([abstract](#))

16:45-17:45 Session 9F: Bunge-1

As Mario Bunge celebrates his 100th birthday, this symposium will appraise four different aspects of his life-long contribution to philosophy. The five individual presentations are: Mario Bunge: A Pioneer of the New Philosophy of Science; Mario Bunge's Scientific Approach to Realism; Is Simplicity a Myth? Mach and Bunge on the Principle of Parsimony; Quantifiers and Conceptual Existence; Bunge and the Enlightenment Tradition in Education.

Bunge was born in Argentina on 21st September 1919. He has held chairs in physics and in philosophy at universities in Argentina, the USA, and since 1966 a philosophy chair at McGill University. He has published 70 books (many with revised editions) and 540 articles; with many translated into one or other of twelve languages.

Bunge has made substantial research contributions to an unequalled range of fields: physics, philosophy of physics, metaphysics, methodology and philosophy of science, philosophy of mathematics, logic, philosophy of psychology, philosophy of social science, philosophy of biology, philosophy of technology, moral philosophy, social and political philosophy, management theory, medical philosophy, linguistics, criminology, legal philosophy, and

education.

Bunge's remarkable corpus of scientific and philosophical writing is not inert; it has had significant disciplinary, cultural and social impact. In 1989 the American Journal of Physics asked its readers to vote for their favourite papers from the journal in the sixty years since its founding in 1933. Bunge's 1956 'Survey of the Interpretations of Quantum Mechanics' was among the 20 top voted papers. In 1993, the journal repeated the exercise this time Bunge's 1966 paper 'Mach's Critique of Newtonian Mechanics' – joined his first paper in the top 20.

Beyond breadth, Bunge's work is noteworthy for its coherence and systemicity. Through to the mid twentieth-century most significant Western philosophers were systematic philosophers. But in the past half-century and more, the pursuit of systemic philosophy, 'big pictures', 'grand narratives' or even cross-disciplinary understanding has considerably waned. Bunge has defied this trend. His philosophical system was laid out in detail in his monumental eight-volume Treatise on Basic Philosophy (1974-1989). Individual volumes were devoted to Semantics, Ontology, Epistemology, Systemism, Philosophy of Science, and Ethics. His Political Philosophy: Fact, Fiction and Vision (2009) was originally planned as its ninth volume.

Bunge has applied his systems approach to issues in logic, mathematics, physics, biology, psychology, social science, technology, medicine, legal studies, economics, and science policy.

Bunge's life-long commitment to Enlightenment-informed, socially-engaged, systemic philosophy is manifest in his being asked by the Academia Argentina de Ciencias Exactas, Físicas y Naturales to draft its response to the contemporary crisis of anthropogenic global warming. Bunge authored the Manifesto which was signed by numerous international associations. Guided by his own systematism he wrote: since climate is not regional but global, all the measures envisaged to control it should be systemic rather than sectoral, and they should alter the causes at play – mechanisms and inputs – rather than their effects. ...

Clearly Bunge is one of the most accomplished, informed, wide-ranging philosophers of the modern age. This symposium, held in the year that he, hopefully, celebrates his 100th birthday, is an opportunity for the international philosophical community to appraise his contribution to the discipline.

(MBA) Four Realist Theses of Mario Bunge ([abstract](#))

17:15 [Rodolfo Gaeta](#) (Universidad, Argentina)

(MBA) Mario Bunge: A Pioneer of the New Philosophy of Science ([abstract](#))

16:45-17:45 Session 9G: Multi-agents and teams

16:45 [Vlasta Sikimic](#) (University of Belgrade, Serbia)

Optimal Team Structures in Science ([abstract](#))

17:15 [Petros Stefanias](#) (National Technical University of Athens, Greece)

[Ioannis Vandoulakis](#) (Hellenic Open University, Greece)

Mathematical Proving as Spatio-Temporal Activity of Multi-Agent Systems ([abstract](#))

16:45-17:45 Session 9H: Computation

16:45 [Javier Anta](#) (Universidad de Barcelona, Spain)

Symplectic Battlefronts. Phase Space Arguments for (and against) the Physics of Computation ([abstract](#))

17:15 [Tatiana Leshkevich](#) (Southern Federal University, Russia)

Digital determination and the search for common ground ([abstract](#))

16:45-17:45 Session 9I: Understanding psychotherapy

16:45 [Giulia Battilotti](#) (Department of Mathematics University of Padua, Italy)

[Milos Borozan](#) (Department of Health Sciences University of Florence, Montenegro)

[Rosapia Lauro Grotto](#) (Department of Health Sciences University of Florence, Italy)

A DISCUSSION OF BI-LOGIC AND FREUD'S REPRESENTATION THEORY IN FORMAL LOGIC ([abstract](#))

17:15 [Chi-Hsiang Chen](#) (Institute of Philosophy of Mind and Cognition, National Yang Ming University, Taiwan)

Using Repertoire to Understand Psychotherapy ([abstract](#))

16:45-17:45 Session 9J: Pluralism and metaphysical aspects of science 2

16:45 [Mariana Córdoba](#) (CONICET, Argentina)

[Cristian López](#) (CONICET, Argentina)

[Hernán Accorinti](#) (FONCyT / UBA, Argentina)

Metaphysical pluralism: between skepticism and trivialization? ([abstract](#))

17:15 [Manuel Liz](#) (University of La Laguna, Spain)

[Margarita Vázquez](#) (UNIVERSITY OF LA LAGUNA, Spain)

Scientific Perspectivism. Metaphysical Aspects ([abstract](#))

16:45-17:45 Session 9K

16:45-17:45 Session 9L: Normative reasoning 2

16:45 [Stef Frijters](#) (Ghent University, Belgium)

[Thijs De Coninck](#) (Ghent University, Belgium)

If killing is forbidden, do I have to ensure that no one is killed? ([abstract](#))

17:15 [Francisco Diaz Montilla](#) (Universidad, Panama)

FUZZY LOGIC AND QUASI-LEGALITY ([abstract](#))

16:45-17:45 Session 9M: Logical analysis of paradoxes 5

16:45 [Ren-June Wang](#) (Department of Philosophy, National Chung-Cheng University, Taiwan)

Knowledge, Reasoning Time, and Moore's Paradox ([abstract](#))

17:15 [Jordi Valor Abad](#) (University of Valencia, Spain)

Is the Liar Sentence Meaningless? ([abstract](#))

18:00-19:30 Session 10A: JC1

This special session is devoted to the presentation of the 2009 IUHPST Essay Prize in History and Philosophy of Science. The prize question for this round of competition was: "What is the value of history of science for philosophy of science?" This question was intended as a counterpart to the question for the inaugural run of the prize in 2017, which asked about the value of philosophy of science for history of science. The session will include the presentation of the prize, a lecture by the prize-winner (60 minutes), and a period of discussion with members of the audience.

This session is offered as part of the set of symposia organized by the Joint Commission, which serves as a link between the historical and the philosophical Divisions of the IUHPST.

18:00 [Agnes Bolinska](#) (University of Cambridge, UK)

[Joseph D. Martin](#) (University of Cambridge, UK)

JC1: Negotiating History: Contingency, Canonicity, and Case Studies ([abstract](#))

18:30 [Max Dresow](#) (University of Minnesota, Department of Philosophy, United States)

JC1: History and Philosophy of Science After the Practice-Turn: From Inherent Tension to Local Integration ([abstract](#))

18:00-19:30 Session 10B: Pluralism and philosophy of the formal sciences

18:00 [Maria Paola Sforza Fogliani](#) (Scuola Universitaria Superiore IUSS Pavia – NEtS Center, Italy)

Revising Logic: Anti-Exceptionalism and Circularity ([abstract](#))

18:30 [Zeynep Soysal](#) (University of Rochester, United States)

Independence and Metasemantics ([abstract](#))

18:00-19:30 Session 10C: Experiments

18:00 [Matej Kohar](#) (Ruhr-Universität Bochum, Germany)

Top-down inhibitory experiments: the neglected option ([abstract](#))

18:30 [Rebecca Jackson](#) (Indiana University - Bloomington, United States)

Sending Knowns into the Unknown: Towards an Account of Positive Controls in Experimentation ([abstract](#))

18:00-19:30 Session 10D: AMEK-3

18:00-19:30 Session 10E: IS C6 Philosophy of computing and computation

18:00 [Raymond Turner](#) (University of Essex, UK)

Computational abstraction ([abstract](#))

18:00-19:30 Session 10F: Bunge-2

18:00 [Maria Manzano](#) (Universidad, Spain)

[Manuel Crescencio Moreno Gomez](#) (Universidad, Spain)

(MBA) Quantifiers and Conceptual existence ([abstract](#))

18:30 [Michael Matthews](#) (The University of New South Wales, Australia)

(MBA) Mario Bunge and the Enlightenment Project in Science Education ([abstract](#))

18:00-19:30 Session 10G: Democracy and the structure of science 2

18:00 [Jeroen Van Bouwel](#) (Ghent University, Belgium)

Are transparency and representativeness of values hampering scientific pluralism? ([abstract](#))

18:30 [Karim Bschir](#) (University of St. Gallen, Switzerland)

Corporate Funding of Public Research: A Feyerabendian Perspective ([abstract](#))

19:00 [Laura García](#) (University of La Laguna, Spain)

[Abraham Hernández](#) (University of La Laguna, Spain)

The role of TV series in the democratization of science ([abstract](#))

18:00-19:30 Session 10H: Metaphysical aspects: Sellars and Quine

18:00 [Pablo Vera Vega](#) (University of La Laguna, Spain)
Rethinking the given. Sellars on the first principles. ([abstract](#))

18:30 [Ivory Pribram-Day](#) (Paris 1 Panthéon-Sorbonne, France)
The Problem of the Variable in Quine's Lingua Franca of the Sciences ([abstract](#))

18:00-19:30 Session 10I: Deduction

18:00 [Ranjan Mukhopadhyay](#) (Associate Professor in Philosophy, Visva-Bharati, Santiniketan, India)
Natural Deduction Rules as Means of Knowing ([abstract](#))

18:00-19:30 Session 10J: Relativity: Ontology 3

18:00 [Kevin Coffey](#) (New York University, United States)
The Ontology of Mass and Energy in Special Relativistic Particle Dynamics
([abstract](#))

18:30 [Anguel Stefanov](#) (Bulgarian Academy of Sciences, Bulgaria)
SPACETIME: SUBSTANTIVE OR RELATIONAL? ([abstract](#))

19:00 [Thomas Benda](#) (National Yang Ming University, Taiwan)
Change, temporal anticipation, and relativistic spacetime ([abstract](#))

18:00-19:30 Session 10K: Metaphysical issues in philosophy of science

18:00 [Enrico Brugnami](#) (University of La Laguna, Italy)
Scientific ways of worldmaking. Considerations on philosophy of Biology from Goodman's theory of worlds ([abstract](#))

18:30 [Leon-Philip Schäfer](#) (Leibniz Universität Hannover, Germany)
Objectivity as Mind-Independence – Integrating Scientific and Moral Realism
([abstract](#))

19:00 [Souichiro Honma](#) (Hokkaido University, Japan)
Free Will and the Ability to Change Laws of Nature ([abstract](#))

18:00-19:30 Session 10L: Normative reasoning 3

18:00 [María D. García](#) (University CEU-San Pablo (Madrid), Spain)
Justification of Basic Inferences and Normative Freedom ([abstract](#))

18:30 [Nathan Wood](#) (Ghent University, Belgium)
[Thijs De Coninck](#) (Ghent University, Belgium)

Probabilistic Agent-Dependent Oughts ([abstract](#))

18:00-19:30 Session 10M: Logical analysis of paradoxes 6

18:00 [Berta Grimau](#) (Czech Academy of Sciences (Institute of Information Theory and Automation), Czechia)

Fuzzy Semantics for Graded Adjectives ([abstract](#))

18:30 [Petr Cintula](#) (Institute of Computer Science, Czech Academy of Sciences, Czechia)
[Carles Noguera](#) (Institute of Information Theory and Automation, Academy of Sciences of the Czech Republic, Czechia)

[Nicholas Smith](#) (Department of Philosophy, The University of Sydney, Australia)

Formalizing the Sorites Paradox in Mathematical Fuzzy Logic ([abstract](#))

19:00 [Michał Tomasz Godziszewski](#) (University of Warsaw, Poland)

[Rafał Urbaniak](#) (Gdansk University (Poland) / Ghent University (Belgium), Belgium)

Modal Quantifiers, Potential Infinity, and Yablo sequences ([abstract](#))

Wednesday, August 7th

View this program: [with abstracts](#) [session overview](#) [talk overview](#)

09:00-10:30 Session 11A: PHS-1

Philosophers have attempted to distinguish the Historical Sciences at least since the Neo-Kantians. The Historical Sciences attempt to infer rigorously descriptions of past events, processes, and their relations from their information preserving effects. Historical sciences infer token common causes or origins: phylogeny and evolutionary biology infer the origins of species from information preserving similarities between species, DNAs and fossils; comparative historical linguistics infers the origins of languages from information preserving aspects of exiting languages and theories about the mutation and preservation of languages in time; archaeology infers the common causes of present material remains; Critical Historiography infers the human past from testimonies from the past and materials remains, and Cosmology infers the origins of the universe. By contrast, the Theoretical Sciences are not interested in any particular token event, but in types of events: Physics is interested in the atom, not in this or that atom at a particular space and time; Biology is interested in the cell, or in types of cells, not in this or that token cell; Economics is interested in modeling recessions, not in this recession; and Generative Linguistics studies “Language” not any particular language that existed in a particular time and was spoken by a particular group of people. The distinctions between realms of nature and academic disciplines may be epistemically and methodologically arbitrary. If from an epistemic and methodological perspectives,

historiography, the study of the human past, has more in common with Geology than with the Social Sciences that have more in common with Agronomy than with historiography, we need to redraw the boundaries of philosophies of the special disciplines. This is of course highly controversial and runs counter to attempts to distinguish the historical sciences by the use of narrative explanations, reenactment or emphatic understanding.

The Historical Sciences may be distinguished from the Theoretical Sciences according to their objects of study, tokens vs. types; from Experimental Sciences according to their methodologies, inference from evidence vs. experimenting with it; and from natural sciences according to the realm of nature they occupy. The criteria philosophers proposed for these distinctions were related to larger issues in epistemology: Do the Historical Sciences and offer different kinds of knowledge? Do the Historical and Theoretical sciences support each other's claims for knowledge, and if so, how?; metaphysics and ontology: Do the types of objects the Historical and Theoretical Sciences attempt to study, represent, describe, or explain differ, and if so, how does it affect their methodologies?; and the philosophy of science: What is science and how do the Historical and Theoretical Sciences relate to this ideal?

09:00 [Stephen Boulter](#) (Oxford Brookes University, UK)

PHS: On the possibility and meaning of truth in the historical sciences
([abstract](#))

09:30 [Aviezer Tucker](#) (Harvard University, United States)

PHS: Origins ([abstract](#))

09:00-10:30 Session 11B: LoARa-1

The concept of rational agency is broadly interdisciplinary, bringing together philosophy, social psychology, sociology, decision and game theory. The scope and impact of the area of rational agency has been steadily expanding in the past decades, also involving technical disciplines such as computer science and AI, where multi-agent systems of different kinds (e.g. robotic teams, computer and social networks, institutions, etc.) have become a focal point for modelling and analysis.

Rational agency relates to a range of key concepts: knowledge, beliefs, knowledge and communication, norms, action and interaction, strategic ability, cooperation and competition, social choice etc. The use of formal models and logic-based methods for analysing these and other aspects of rational agency has become an increasingly popular and successful approach to dealing with their complex diversity and interaction.

This symposium will bring together different perspectives and approaches to the study of rational agency and rational interaction in the context of philosophical logic.

The symposium talks are divided into three thematic clusters, each representing a session and consisting of 4-5 presentations, as follows.

I. Logic, Rationality, and Game-theoretic Semantics. Applying logic-based methods and formal logical systems to reasoning in decision and game theory is a major and increasingly popular approach to agency and rationality. Formal logical languages allow us to specify principles of strategic behaviour and interaction between agents, and essential game-theoretic notions, including solution concepts and rationality principles. Formal logical systems provide precise and unambiguous semantics and enable correct and reliable reasoning about these, while involving the concepts of knowledge, beliefs, intentions, ability, etc.

II. Deontic Logic, Agency, and Action. Logics of agency and interaction such as STIT and deontic logics have been very influential and generally appreciated approaches to normative reasoning and theory of actions. Active directions of research in this area include the normative status of actions vs. propositions, causality and responsibility, collective and group oughts and permissions, and further refinements of the STIT framework stemming from the works of Belnap, Horty and others.

III. Logic, Social Epistemology, and Collective Decision-making. Rational agency and interaction also presuppose an epistemological dimension, while intentional group agency is inextricably linked to social choice theory. In this thematic cluster, various logical and formal models are discussed that allow shedding light on these factors and processes.

09:00 [Karl Nygren](#) (Stockholm University, Sweden)

LoARa: Varieties of permission for complex actions ([abstract](#))

09:30 [Alessandra Marra](#) (Bayreuth University, Germany)

[Dominik Klein](#) (University of Bamberg, Bayreuth University, Germany)

LoARa: From Oughts to Goals ([abstract](#))

10:00 [Thijs De Coninck](#) (Ghent University, Belgium)

[Frederik Van De Putte](#) (Ghent University, Belgium)

LoARa: Reciprocal Group Oughts ([abstract](#))

09:00-10:30 Session 11C: KRP-1

Of all philosophers of the 20th century, few built more bridges between academic disciplines than did Karl Popper. For most of his life, Karl Popper made contributions to a wide variety of fields in addition to the epistemology and the theory of scientific method for which he is best known. Problems in quantum mechanics, and in the theory of probability, dominate the

second half of Popper's *Logik der Forschung* (1934), and several of the earliest items recorded in §2 ('Speeches and Articles') of Volume 1 of *The Writings of Karl Popper*, such as item 2-5 on the quantum-mechanical uncertainty relations, item 2-14 on nebular red-shifts, and item 2-43 (and other articles) on the arrow of time, show his enthusiasm for substantive problems in modern physics and cosmology. Interspersed with these were a number of articles in the 1940s on mathematical logic, and in the 1950s on the axiomatization of the theory of probability (and on other technical problems in this area). Later he made significant contributions to discussions in evolutionary biology and on the problem of consciousness. All these interests (except perhaps his interest in formal logic) continued unabated throughout his life.

The aim of this symposium is to illustrate, and to evaluate, some of the interventions, both substantive and methodological, that Karl Popper made in the natural and mathematical sciences. An attempt will be made to pinpoint the connections between these contributions and his more centrally philosophical concerns, especially his scepticism, his realism, his opposition to subjectivism, and his indeterminism.

The fields that have been chosen for the symposium are quantum mechanics, evolutionary biology, cosmology, mathematical logic, statistics, and the brain-mind liaison.

09:00 [Olival Freire Junior](#) (Universidade Federal da Bahia, Brazil)

KRP Symposium: Popper and the Quantum Controversy ([abstract](#))

09:30 [Flavio Del Santo](#) (University of Vienna, Austria)

KRP Symposium: Comment on “Popper and the Quantum Controversy”
([abstract](#))

10:00 [Peter Århem](#) (Karolinska Institutet, Sweden)

KRP: Popper on the mind-brain problem ([abstract](#))

09:00-10:30 Session 11D: New perspectives on education: Writing, literature, and out-of-school contexts

09:00 [Caroline E. Murr](#) (Universidade Federal de Santa Catarina - UFSC, Brazil)

Defamiliarization in science fiction: new perspectives on scientific concepts
([abstract](#))

09:30 [Judith Puncochar](#) (Northern Michigan University, United States)

Reducing Vagueness in Linguistic Expression ([abstract](#))

10:00 [Zhengshan Jiao](#) (Institute for the History of Natural Science, Chinese Academy of Sciences, China)

The History of Science-related Museums: A Comparative and Cultural Study
([abstract](#))

09:00-10:30 Session 11E: Reduction and emergence

09:00 [Veli-Pekka Parkkinen](#) (University of Bergen, Norway)
Robustness in configurational causal modelling ([abstract](#))

09:30 [Erica Onnis](#) (University of Turin, Italy)
Discontinuity and Robustness as Hallmarks of Emergence ([abstract](#))

10:00 [Gualtiero Piccinini](#) (University of Missouri - St. Louis, United States)
Levels of Being: An Egalitarian Ontology ([abstract](#))

09:00-10:30 Session 11F: Societal, ethical and epistemological issues of AI 1

09:00 [Jean-Michel Kantor](#) (universite Paris Diderot, France)
Machine learning: a new technoscience . ([abstract](#))

09:30 [Maël Pégny](#) (IHPST, France)
[Mohamed Issam Ibnouhsein](#) (Quantmetry, France)
Can machine learning extend bureaucratic decisions? ([abstract](#))

10:00 [Ken Archer](#) (Survata, United States)
The Historical Basis for Algorithmic Transparency as Central to AI Ethics
([abstract](#))

09:00-10:30 Session 11G: Metaphysical aspects: Laws

09:00 [Alfonso García Lapeña](#) (UB University of Barcelona, LOGOS Research Group in Analytic Philosophy, Spain)
Scientific Laws and Closeness to the Truth ([abstract](#))

09:30 [Eduardo Castro](#) (University of Beira Interior, Portugal)
Laws of Nature and Explanatory Circularity ([abstract](#))

09:00-10:30 Session 11H: Historical and social epistemology

09:00 [Natalia Kozlova](#) (MOSCOW STATE PEDAGOGICAL UNIVERSITY, Russia)
THE PROBLEM OF FIGURATIVENESS IN SCIENCE: FROM COMMUNICATION TO THE ARTICULATION OF SCIENTIFIC KNOWLEDGE ([abstract](#))

09:30 [Denis Artamonov](#) (Saratov State University, Russia)
Media memory as the object of historical epistemology ([abstract](#))

10:00 [Sophia Tikhonova](#) (Saratov State University N G Chernyshevsky, Russia)

Knowledge production in social networks as the problem of communicative epistemology ([abstract](#))

09:00-10:30 Session 11I: Epistemology and reasoning in biomedical practice

09:00 [Daniel Auker-Howlett](#) (University of Kent, UK)

In Defence of the Evidential Role of Mechanistic Reasoning ([abstract](#))

09:30 [Luciana Garbayo](#) (University of Central Florida, United States)

[Wlodek Zadrozny](#) (UNC Charlotte, United States)

[Hossein Hematialam](#) (UNC Charlotte, United States)

Measurable Epistemological Computational Distances in Medical Guidelines Peer Disagreement ([abstract](#))

09:00-10:30 Session 11J: Epistemology, philosophy of physics and chemistry

09:00 [Amaia Corral-Villate](#) (University of the Basque Country, Spain)

On the Infinite Gods paradox via representation in Classical Mechanics ([abstract](#))

09:30 [Dimitra Kountaki](#) (University of Crete, Greece)

Anthropocentrism in Science ([abstract](#))

10:00 [Chrysovalantis Stergiou](#) (The American College of Greece-Deree, Greece)

Empirical Underdetermination for Physical Theories in C* Algebraic Setting: Comments to an Arageorgis's Argument ([abstract](#))

09:00-10:30 Session 11K: EENPS 1

There are several camps in the recent debates on the nature of scientific understanding. There are factivists and quasi-factivists who argue that scientific representations provide understanding insofar as they capture some important aspects of the objects they represent. Representations, the (quasi-)factivists say, yield understanding only if they are at least partially or approximately true. The factivist position has been opposed by the non-factivists who insist that greatly inaccurate representations can provide understanding given that these representations are effective or exemplify the features of interest. Both camps face some serious challenges. The factivists need to say more about how exactly partially or approximately true representations, as well as non-propositional representations, provide understanding. The non-factivists are expected to put more effort into the demonstration of the alleged independence of effectiveness and exemplification from the factivity condition. The aim of the proposed symposium is to discuss in detail some of these challenges and to ultimately defend the factivist camp.

'The Factivity of Model-Based Explanations' defends a factive account of model-based explanations (ME). The explananda of MEs are argued to be "relaxed" approximate descriptions of the explanandum-phenomenon. The explanantia of MEs involve correct propositions that are extracted from the model. On this account, the indispensable idealizations, which many successful models contain, can contribute to factive understanding by enabling the extraction of correct explanatory information.

A different argument for the factivity of scientific understanding provided by models containing idealizations is presented in 'Understanding Metabolic Regulation: A Case for the Factivists'. The central claim of this paper is that such models bring understanding if they capture correctly the causal relationships between the entities, which these models represent.

What happens, however, when understanding is provided by explanations which do not refer to any causal facts? This question is addressed in 'Factivity of Understanding in Non-causal Explanations'. The author argues that the factivity of understanding could be analyzed and evaluated by using some modal concepts that capture "vertical" and "horizontal" counterfactual dependency relations which the explanation describes.

'Scientific Explanation and Partial Understanding' focuses on cases where the explanations consist of propositions, which are only partially true (in the sense of da Costa's notion of partial truth). The author argues that such explanations bring partial understanding insofar as they allow for an inferential transfer of information from the explanans to the explanandum.

One of the biggest challenges to factivism, the existence of non-explanatory representations which do not possess propositional content but nevertheless provide understanding, is addressed in 'Considering the Factivity of Non-explanatory Understanding'. This paper argues against the opposition between effectiveness and veridicality. Building on some cases of non-explanatory understanding, the author shows that effectiveness and veridicality are compatible and that we need both.

'Effectiveness, Exemplification, and Factivity' further explores the relation between the factivity condition and its suggested alternatives – effectiveness and exemplification. The author's main claim is that the latter are not alternatives to factivity, strictly speaking, insofar as they could not be construed without any reference to truth conditions.

09:00 [Richard David-Rus](#) (Institute of Anthropology, Romanian Academy, Romania)
EENPS: Considering the factivity of non-explanatory understanding ([abstract](#))

09:30 [Martin Zach](#) (Charles University, Czechia)
EENPS: Understanding metabolic regulation: A case for the factivists ([abstract](#))

10:00 [Lilia Gurova](#) (New Bulgarian University, Bulgaria)
EENPS: Effectiveness, Exemplification, and Factivity ([abstract](#))

09:00-10:30 Session 11L: Probability

09:00 [Berna Kilinc](#) (Bogazici University, Turkey)
Deterministic and Indeterministic Situations ([abstract](#))

09:30 [Jakob Koscholke](#) (University of Hamburg, Germany)
Siebel's argument against Fitelson's measure of coherence reconsidered
([abstract](#))

10:00 [Vladimir Reznikov](#) (Institute of philosophy and law of SB RAS, Russia)
Frequency interpretation of conditions for the application of probability theory according to Kolmogorov ([abstract](#))

09:00-10:30 Session 11M: History and philosophy of the humanities 1

09:00 [Ruipeng Lei](#) (Center for Bioethics, Huazhong University of Science and Technology, China)
[Renzong Qiu](#) (Institute of Philosophy, Chinese Academy of Social Sciences, China)
Who Benefits? Personal Identity Issues in Head Transplantation ([abstract](#))

09:30 [Hugo Tannous Jorge](#) (Birkbeck, University of London (United Kingdom) and Federal University of Juiz de Fora (Brazil), UK)
The problem of causal inference in clinical psychoanalysis: a response to the charges of Adolf Grünbaum based on the inductive principles of the historical sciences. ([abstract](#))

10:00 [Vladimir Medvedev](#) (St. Petersburg State maritime Technical University, Russia)
Explanation in Humanities ([abstract](#))

10:30-11:00 Coffee Break

11:00-12:30 Session 12A: PHS-2

11:00 [David Černín](#) (University of Ostrava, Czechia)
<PHS> Experiments in History and Archaeology: Building a Bridge to the Natural Sciences? ([abstract](#))

11:30 [Jonas Ahlskog](#) (Åbo Akademi University, Finland)
[Giuseppina D'Oro](#) (Keele University, UK)
<PHS> Collingwood, the narrative turn, and the cookie cutter conception of historical knowledge ([abstract](#))

11:00-12:30 Session 12B: LoARa-2

11:00 [Grigory Olkhovikov](#) (Ruhr-Universitaet Bochum, Germany)
LoARa: Stit heuristics and the construction of justification stit logic ([abstract](#))

11:30 [Alexandra Kuncová](#) (Utrecht University, Netherlands)
LoARa: Ability and Knowledge ([abstract](#))

12:00 [Ilaria Canavotto](#) (University of Amsterdam, Netherlands)
[Alexandru Baltag](#) (University of Amsterdam, Netherlands)
[Sonja Smets](#) (University of Amsterdam, Netherlands)
LoARa Symposium: Introducing Causality in Stit Logic ([abstract](#))

11:00-12:30 Session 12C: KRP-2

11:00 [David Miller](#) (The University of Warwick, UK)
KRP Comment on “Popper on the Mind-Brain Problem” ([abstract](#))

11:30 [Denis Noble](#) (University of Oxford, UK)
KRP Symposium: The rehabilitation of Karl Popper’s views of evolutionary biology and the agency of organisms ([abstract](#))

12:00 [Philip Madgwick](#) (Milner Centre for Evolution, University of Bath, UK)
KRP: Agency in Evolutionary Biology ([abstract](#))

11:00-12:30 Session 12D: Modalities in science

11:00 [Mihai Rusu](#) (University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca and Babeş-Bolyai University, Romania)
[Mihaela Mihai](#) (University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca, Romania)
Modal notions and the counterfactual epistemology of modality ([abstract](#))

11:30 [Ilmari Hirvonen](#) (University of Helsinki, Finland)
[Rami Koskinen](#) (University of Helsinki, Finland)
[Ilkka Pättiniemi](#) (Independent, Finland)
Epistemology of Modality Without Metaphysics ([abstract](#))

11:00-12:30 Session 12E: IS B7 Educational aspects of philosophy of science Matthes (from 11.30)

11:00 [Michael Matthews](#) (The University of New South Wales, Australia)
Philosophy in Science Teacher Education ([abstract](#))

11:00-12:30 Session 12F: Explanation and understanding

11:00 [Fabio Sterpetti](#) (Sapienza University of Rome, Italy)
Non-Causal Explanations of Natural Phenomena and Naturalism ([abstract](#))

11:30 [Andrei Marasoiu](#) (University of Virginia, United States)
The truth in understanding ([abstract](#))

12:00 [Federica Isabella Malfatti](#) (Leopold Franzens University of Innsbruck, Austria)
ON UNDERSTANDING AND INTELLIGIBILITY ([abstract](#))

11:00-12:30 Session 12G: Understanding models in science

11:00 [Thomas Durlacher](#) (University of Luxembourg, Luxembourg)
Idealizations and the decomposability of models in science ([abstract](#))

11:30 [Michal Hladky](#) (Université de Genève, Switzerland)
Mapping vs. Representational accounts of models and simulations ([abstract](#))

12:00 [Walter Veit](#) (University of Bayreuth, Germany)
Who is afraid of Model Pluralism? ([abstract](#))

11:00-12:30 Session 12H: Mathematical language

11:00 [Luc Pellissier](#) (Irif, Université Paris Diderot, France)
[Juan-Luis Gastaldi](#) (SPHERE, CNRS & Université Paris Diderot, France)
Duality and interaction: a common dynamics behind logic and natural language ([abstract](#))

11:30 [Valeria Giardino](#) (Archives Henri-Poincaré - Philosophie et Recherches sur les Sciences et les Technologies, France)
The practice of proving a theorem: from conversations to demonstrations ([abstract](#))

12:00 [Onyu Mikami](#) (Tokyo Metropolitan University, Japan)
An Attempt at Extending the Scope of Meaningfulness in Dummett's Theory of Meaning. ([abstract](#))

11:00-12:30 Session 12I: Dynamics of science

11:00 [Hernán Bobadilla](#) (University of Vienna, Austria)
Two types of unrealistic models: programmatic and prospective ([abstract](#))

11:30 [Emma Ruttkamp-Bloem](#) (University of Pretoria, South Africa)
A Dynamic Neo-Realism as an Active Epistemology for Science ([abstract](#))

11:00-12:30 Session 12J: Epistemology and reasoning in biomedical practice

11:00 [Samuel Fletcher](#) (University of Minnesota, United States)
The Topology of Intertheoretic Reduction ([abstract](#))

11:30 [Adrian Erasmus](#) (University of Cambridge, UK)
The Consequences of P-Hacking and Newcomb's Problem ([abstract](#))

12:00 [Renata Arruda](#) (Universidade Federal de Goiás, Brazil)
Multicausality and Manipulation in Medicine ([abstract](#))

11:00-12:30 Session 12K: EENPS 2

11:00 [Stefan Petkov](#) (Beijing Normal University School of Philosophy, China)
EENPS: Scientific explanations and partial understanding ([abstract](#))

11:30 [Daniel Kostic](#) (University Bordeaux Montaigne; Sciences, Philosophie, Humanité (SPH) University of Bordeaux, Bordeaux, France., France)
EENPS: Facticity of understanding in non-causal explanations ([abstract](#))

11:00-12:30 Session 12L: History and philosophy of the humanities

11:00 [Evelina Barbashina](#) (Novosibirsk State Medical University, Russia)
Schematism of historical reality ([abstract](#))

11:30 [Konstantin Skripnik](#) (Southern federal university, Russia)
[Ekaterina Shashlova](#) (Southern federal university, Russia)
Philosophy (and methodology) of the Humanities: towards constructing a glossary ([abstract](#))

12:00 [Magdalena Kersting](#) (University of Oslo, Norway)
Scientific concepts and the role of imagination in the language games of the science classroom ([abstract](#))

11:00-12:30 Session 12M: Logical analysis of science and philosophy 1

11:00 [Timm Lampert](#) (Humboldt University Berlin, Germany)
Theory of Formalization: The Tractarian View ([abstract](#))

11:30 [Samuel Elgin](#) (University of California San Diego, United States)
The Semantic Foundations of Philosophical Analysis ([abstract](#))

12:00 [Zuzana Rybaříková](#) (University of Hradec Králové, Czechia)

Łukasiewicz's Concept of Anti-Psychologism ([abstract](#))

12:30-14:00 Lunch Break

14:00-15:00 Session 13A: TDPHiMa-1

Text is a crucial medium to transfer mathematical ideas, agendas and results among the scientific community and in educational context. This makes the focus on mathematical texts a natural and important part of the philosophical study of mathematics. Moreover, it opens up the possibility to apply a huge corpus of knowledge available from the study of texts in other disciplines to problems in the philosophy of mathematics.

This symposium aims to bring together and build bridges between researchers from different methodological backgrounds to tackle questions concerning the philosophy of mathematics. This includes approaches from philosophical analysis, linguistics (e.g., corpus studies) and literature studies, but also methods from computer science (e.g., big data approaches and natural language processing), artificial intelligence, cognitive sciences and mathematics education. (cf. Fisseni et al. to appear; Giaquinto 2007; Mancosu et al. 2005; Schlimm 2008; Pease et al. 2013).

The right understanding of mathematical texts might also become crucial due to the fast successes in natural language processing on one side and automated theorem proving on the other side. Mathematics as a technical jargon or as natural language, which quite reach structure, and semantic labeling (via LaTeX) is from the other perspective an important test-case for practical and theoretical study of language.

Hereby we understand text in a broad sense, including informal communication, textbooks and research articles.

14:00 [Marcos Cramer](#) (TU Dresden, Germany)

[Bernhard Fisseni](#) (Leibniz-Institut für Deutsche Sprache, Universität Duisburg-Essen, Germany)

[Deniz Sarikaya](#) (University of Hamburg, Germany)

[Bernhard Schröder](#) (Universität Duisburg-Essen, Germany)

TDPHiMa: Bridging the Gap Between Proof Texts and Formal Proofs Using Frames and PRSs ([abstract](#))

14:30 [Bernhard Fisseni](#) (Leibniz-Institut für Deutsche Sprache, Universität Duisburg-Essen, Germany)

TDPHiMa: Perspectives on Proofs ([abstract](#))

14:00-15:00 Session 13B: LoARa-3

14:00 [Frederik Van De Putte](#) (Ghent University, Belgium)
LoARa: Constructive deliberation: pooling and stretching modalities ([abstract](#))

14:30 [Fengkui Ju](#) (School of Philosophy, Beijing Normal University, China)
LoARa: Coalitional Logic on Non-interfering Actions ([abstract](#))

14:00-15:00 Session 13C: KRP-3

14:00 [Helge Kragh](#) (University of Copenhagen, Denmark)
Popper and Modern Cosmology: His Views and His Influence (KRP) ([abstract](#))

14:30 [Anastasiia Lazutkina](#) (Leipzig University, Germany)
KRP Symposium: Comment on “Popper and Modern Cosmology” ([abstract](#))

14:00-15:00 Session 13D: Concepts and conceptual change in science education

14:00 [Dragana Bozin](#) (University of Oslo, Norway)
Teaching Conceptual Change: Can Building Models Explain Conceptual Change in Science? ([abstract](#))

14:00-15:00 Session 13E: IS C8 Philosophy of the applied sciences and technology
Burstein

14:00 [Julia Bursten](#) (University of Kentucky, United States)
Scale Separation, Scale Dependence, and Multiscale Modeling in the Physical Sciences ([abstract](#))

14:00-15:00 Session 13F: Societal, ethical and epistemological issues of AI 3

14:00 [Ravit Dotan](#) (University of California, Berkeley, United States)
Machine learning, theory choice, and non-epistemic values ([abstract](#))

14:30 [Elizabeth Seger](#) (University of Cambridge, UK)
Taking a machine at its word: Applying epistemology of testimony to the evaluation of claims by artificial speakers ([abstract](#))

14:00-15:00 Session 13G: Explanation and understanding 2

14:00 [Holger Andreas](#) (The University of British Columbia, Canada)
Explanatory Conditionals ([abstract](#))

14:00-15:00 Session 13H: History and philosophy of the life sciences 1

14:00 [Mustafa Yavuz](#) (Istanbul Medeniyet University, History of Science Department, Turkey)

Definition and Faculties of Life in Medieval Islamic Philosophy ([abstract](#))

14:30 [Daniel Nicholson](#) (Konrad Lorenz Institute for Evolution and Cognition Research, Austria)

Schrödinger's 'What Is Life?' 75 Years On ([abstract](#))

14:00-15:00 Session 13I

14:00-15:00 Session 13J: Philosophy of the humanities and social sciences

14:00 [Petr Špecián](#) (Charles University, Czechia)

Thou Shalt not Nudge: Towards an Anti-Psychological State ([abstract](#))

14:30 [Ivan F. da Cunha](#) (Federal University of Santa Catarina, Brazil)

Utopias in the context of social technological inquiry ([abstract](#))

14:00-15:00 Session 13K

14:00-15:00 Session 13L: Pluralism and philosophy of the formal sciences 1

14:00 [Andrea Sereni](#) (School of Advanced Study IUSS Pavia, Italy)

[Maria Paola Sforza Fogliani](#) (School of Advanced Study IUSS Pavia, Italy)

[Luca Zanetti](#) (School of Advanced Study IUSS Pavia, Italy)

A Roundabout Ticket to Pluralism ([abstract](#))

14:30 [Cian Guilfoyle Chartier](#) (University of Amsterdam, Netherlands)

A Practice-Oriented Logical Pluralism ([abstract](#))

14:00-15:00 Session 13M: Logical analysis of science and philosophy 2

14:00 [Martin Tabakov](#) (ISSK-BAS, Bulgaria)

Reflections on the term "Philosophical logic" ([abstract](#))

14:30 [Olga Karpinskaia](#) (Foundation for Humanities Research and Technologies, Russia)

Abstract and concrete concepts: an approach to classification ([abstract](#))

15:15-16:15 Session 14A: TDPHiMa-2

15:15 [Juan Luis Gastaldi](#) (SPHERE (CNRS - Université Paris Diderot), France)

[Luc Pellissier](#) (IRIF (Université Paris Diderot), France)

TDPHiMa: A structuralist framework for the automatic analysis of mathematical texts ([abstract](#))

15:45 [Mikkel Willum Johansen](#) (University of Copenhagen, Denmark)

TDPHiMa: Entering the valley of formalism: Results from a large-scale quantitative investigation of mathematical publications ([abstract](#))

15:15-16:15 Session 14B: LoARa-4

15:15 [Soroush Rafiee Rad](#) (Bayreuth University, Germany)

[Olivier Roy](#) (Bayreuth University, Germany)

LoARa: Deliberation, Single-Peakedness and Voting Cycles ([abstract](#))

15:15-16:15 Session 14C: KRP-4

15:15 [Stephen Senn](#) (Luxembourg Institute of Health, UK)

KRP Symposium: De Finetti meets Popper or Should Bayesians care about falsificationism? ([abstract](#))

15:45 [Timothy Childers](#) (Institute of Philosophy, Czech Academy of Sciences, Czechia)

KRP Comment on “De Finetti meets Popper” ([abstract](#))

15:15-16:15 Session 14D: Science education, pseudo-science and fake news

15:15 [Dennis Apolega](#) (Philippine Normal University, Philippines)

Does Scientific Literacy Require a Theory of Truth? ([abstract](#))

15:45 [Jan Štěpánek](#) (Masaryk University, Czechia)

[Tomáš Ondráček](#) (Masaryk University, Czechia)

[Iva Svačinová](#) (University of Hradec Králové, Czechia)

[Michal Stránský](#) (Tomáš Baťa University in Zlín, Czechia)

[Paweł Łupkowski](#) (Adam Mickiewicz University, Poland)

Impact of Teaching on Acceptance of Pseudo-Scientific Claims ([abstract](#))

15:15-16:15 Session 14E: IS B1 Aliseda

15:15 [Atocha Aliseda](#) (National, Mexico)

A plurality of methods in the philosophy of science: how is that possible?
([abstract](#))

15:15-16:15 Session 14F: Societal, ethical and epistemological issues of AI 4

15:15 [Agnė Alijauskaitė](#) (Vilnius University, Lithuania)

Liability Without Consciousness? The Case of a Robot ([abstract](#))

15:45 [David Fuenmayor](#) (Freie Universität Berlin, Germany)

[Christoph Benz Müller](#) (Freie Universität Berlin, Germany)

Automated Reasoning with Complex Ethical Theories -- A Case Study Towards Responsible AI ([abstract](#))

15:15-16:15 Session 14G: Philosophy of the applied sciences and technology

15:15 [Robin Kopecký](#) (Charles University, The Karel Čapek Center for Values in Science and Technology, Czechia)

[Michaela Košová](#) (Charles University, The Karel Čapek Center for Values in Science and Technology, Czechia)

How virtue signalling makes us better: Moral preference of selection of types of autonomous vehicles. ([abstract](#))

15:45 [Naira Danielyan](#) (National Research University of Electronic Technology, Russia)

Prospect of NBICS Development and Application ([abstract](#))

15:15-16:15 Session 14H: History and philosophy of the life sciences 2

15:15 [Hein van den Berg](#) (University of Amsterdam, Netherlands)

Theoretical Virtues in Eighteenth-Century Debates on Animal Cognition ([abstract](#))

15:45 [Martin Wasmer](#) (Leibniz University Hannover, Germany)

Bridging between biology and law: European GMO law as a case for applied philosophy of science ([abstract](#))

15:15-16:15 Session 14I: Abduction

15:15 [Lukáš Bielik](#) (Comenius University in Bratislava, Slovakia)

Abductive Inference and Selection Principles ([abstract](#))

15:45 [Christian J. Feldbacher-Escamilla](#) (Duesseldorf Center for Logic and Philosophy of Science (DCLPS), University of Duesseldorf, Germany)

Simplicity in Abductive Inference ([abstract](#))

15:15-16:15 Session 14J: Metaphysical aspects: Conceptual analysis 1

15:15 [Rogelio Miranda](#) (Universidad, Mexico)

Three Problems with the Identification of Philosophy with Conceptual Analysis ([abstract](#))

15:45 [Matt Barker](#) (Concordia University, Canada)

Using norms to justify theories within definitions of scientific concepts ([abstract](#))

15:15-16:15 Session 14K: Mathematical logic 1: Model theory 1

15:15 [Guillermo Badia](#) (The University of Queensland, Australia)
[Carles Noguera](#) (Institute of Information Theory and Automation, Academy of Sciences of the Czech Republic, Czechia)

A generalized omitting type theorem in mathematical fuzzy logic ([abstract](#))

15:15-16:15 Session 14L: Pluralism and philosophy of the formal sciences 2

15:15 [Kengo Okamoto](#) (Tokyo Metropolitan University, Japan)

How Should We Make Intelligible the Coexistence of the Different Logics? – An Attempt Based on a Modal Semantic Point of View ([abstract](#))

15:45 [Diego Fernandes](#) (Universidade Federal de Goiás, Brasil., Brazil)

On the elucidation of the concept of relative expressive power among logics ([abstract](#))

15:15-16:15 Session 14M: Logical analysis of science and philosophy 3

15:15 [Sara Ipekchi](#) (Departement of Philosophy at the Heinrich Heine University, Germany)

Even logical truths are falsifiable. ([abstract](#))

15:45 [Hussien Elzohary](#) (Head of Academic Studies & Events Section, Manuscripts Center, Academic Research Sector, Bibliotheca Alexandrina, Egypt)

The Influence Of The Late School Of Alexandria On The Origin And Development Of Logic In The Muslim World ([abstract](#))

16:15-16:45 Coffee Break

16:45-17:45 Session 15A: TDPHiMa-3

16:45 [Juan Pablo Mejía Ramos](#) (Rutgers University, United States)

[Matthew Inglis](#) (Loughborough University, UK)

TDPHiMa: Using linguistic corpora to understand mathematical explanation ([abstract](#))

17:15 [Fenner Tanswell](#) (Loughborough University, UK)

[Matthew Inglis](#) (Loughborough University, UK)

TDPHiMa: Studying Actions and Imperatives in Mathematical Texts ([abstract](#))

16:45-17:45 Session 15B: LoARa-5

16:45 [Alexandru Baltag](#) (Institute for Logic, Language and Computation, Netherlands)

[Soroush Rafiee Rad](#) (Bayreuth University, Germany)

[Sonja Smets](#) (Institute for Logic, Language and Computation, Netherlands)
LoARa: Learning Probabilities: A Logic of Statistical Learning ([abstract](#))

17:15 [Rasmus K. Rendsvig](#) (University of Copenhagen, Denmark)
LoARa: Dynamic Term-Modal Logic ([abstract](#))

16:45-17:45 Session 15C: KRP-5

16:45 [Thomas Piecha](#) (University of Tübingen, Department of Computer Science, Germany)

KRP: Karl R. Popper: Logical Writings ([abstract](#))

17:15 [Constantin C. Brîncuș](#) (University of Bucharest, Romania)

KRP Symposium: Comment on “Karl R. Popper: Logical Writings” ([abstract](#))

16:45-17:45 Session 15D: Methodology: Societal issues

16:45 [Tomáš Ondráček](#) (KPH ESF MU, Czechia)

Science as Critical Discussion and Problem of Immunizations ([abstract](#))

17:15 [Michael Sidiropoulos](#) (Member of Canadian Society for the History and Philosophy of Science, Canada)

PHILOSOPHICAL AND DEMARCATION ASPECTS OF GLOBAL WARMING THEORY ([abstract](#))

16:45-17:45 Session 15E: IS C7 Philosophy of the humanities and the social sciences
Alexandrova

16:45 [Anna Alexandrova](#) (University of Cambridge, UK)

On the definitions of social science and why they matter ([abstract](#))

16:45-17:45 Session 15F: Philosophy of the formal sciences

16:45 [Ludovica Conti](#) (Università di Pavia, Italy)

Extensionalist explanation and solution of Russell’s Paradox. ([abstract](#))

17:15 [Melisa Vivanco](#) (University of Miami, United States)

“Numbers as Properties, Dissolving Benacerraf’s Tension” ([abstract](#))

16:45-17:45 Session 15G: Societal, ethical and epistemological issues of AI 5

16:45 [Insok Ko](#) (Inha University, South Korea)

Prerequisite for Employing Intelligent Machines as Human Surrogate ([abstract](#))

17:15 [Bennett Holman](#) (Underwood International College, Yonsei University, South Korea)

Dr. Watson: The Impending Automation of Diagnosis and Treatment ([abstract](#))

16:45-17:45 Session 15H: Historical aspects of philosophy of science

16:45 [Gabor Zemplen](#) (ELTE, Hungary)

Evolving theories and scientific controversies: a carrier-trait approach
([abstract](#))

16:45-17:45 Session 15I: Epistemology 2

16:45 [Stephan Kornmesser](#) (University of Oldenburg, Germany)

Frames – A New Model for Analyzing Theories ([abstract](#))

17:15 [Demetris Portides](#) (University of Cyprus, Cyprus)

[Athanasios Raftopoulos](#) (University of Cyprus, Cyprus)

Abstraction in Scientific Modeling ([abstract](#))

16:45-17:45 Session 15J: Metaphysical aspects: Conceptual analysis 2

16:45 [Laszlo E. Szabo](#) (Institute of Philosophy, Eotvos Lorand University Budapest, Hungary)

Intrinsic, extrinsic, and the constitutive a priori ([abstract](#))

17:15 [Nikolay Milkov](#) (University of Paderborn, Germany)

Towards an Analytic Scientific Metaphysics ([abstract](#))

16:45-17:45 Session 15K: Mathematical logic 2: Model theory 2

16:45 [Inessa Pavlyuk](#) (Novosibirsk State Pedagogical University, Russia)

[Sergey Sudoplatov](#) (Sobolev Institute of Mathematics, Novosibirsk State Technical University, Novosibirsk State University, Russia)

On ranks for families of theories of abelian groups ([abstract](#))

16:45-17:45 Session 15L: SLMFCE 1

The Spanish Society of Logic, Methodology and Philosophy of Science (SLMFCE in its Spanish acronym) is a scientific association formed by specialists working in these and other closely related fields. Its aims and scope cover also those of analytic philosophy in a broad sense and of argumentation theory. It is worth mentioning that among its priorities is the support and promotion of young researchers. To this aim, the Society has developed a policy of grants and awards for its younger members.

The objectives of the SLMFCE are to encourage, promote and disseminate study and research in the fields above mentioned, as well as to foster contacts and interrelations among specialists and with other similar societies and institutions. The symposium is intended to

present the work carried out by prominent researchers and research groups linked to the Society. It will include four contributions in different subfields of specialization, allowing the audience at the CLMPST 2019 to form an idea of the plural research interests and relevant outcomes of our members.

16:45 [Jose Martinez Fernandez](#) (Logos - Universitat de Barcelona, Spain)
SLMFCE: On revision-theoretic semantics for special classes of circular definitions ([abstract](#))

17:15 [Sergi Oms](#) (Logos, University of Barcelona, Spain)
SLMFCE: Common solutions to several paradoxes. What are they? When should they be expected? ([abstract](#))

16:45-17:45 Session 15M: Philosophy of the cognitive and behavioral sciences

16:45 [Lavinia Marin](#) (Delft University of Technology, Netherlands)
Online misinformation as a problem of embodied cognition ([abstract](#))

17:15 [Sarah Songhorian](#) (Vita-Salute San Raffaele University, Italy)
The Role of Cognitive and Behavioral Research on Implicit Attitudes in Ethics ([abstract](#))

18:00-19:30 Session 16A: TDPHiMa-4

18:00 [Anna Kiel Steensen](#) (ETH Zurich, Switzerland)
TDPHiMa: Semiotic analysis of Dedekind's arithmetical strategies ([abstract](#))

18:30 [Karl Heuer](#) (Technical University of Denmark, Denmark)
[Deniz Sarikaya](#) (University of Hamburg, Germany)
TDPHiMa: Text-driven variation as a vehicle for generalisation, abstraction, proofs and refutations: an example about tilings and Escher within mathematical education. ([abstract](#))

19:00 [Karl Heuer](#) (Technical University of Denmark, Denmark)
[Deniz Sarikaya](#) (University of Hamburg, Germany)
The development of epistemic objects in mathematical practice: Shaping the infinite realm driven by analogies from finite mathematics in the area of Combinatorics. ([abstract](#))

18:00-19:30 Session 16B: LoARa-6

18:00 [Dominik Klein](#) (University of Bamberg, Germany)
LoARa: A logical approach to Nash equilibria ([abstract](#))

18:30 [Antti Kuusisto](#) (Tampere University, Finland)

LoARa: Interactive Turing-complete logic via game-theoretic semantics
([abstract](#))

19:00 [Raine Rönholm](#) (University of Tampere, Finland)

[Valentin Goranko](#) (Stockholm University, Sweden)

[Antti Kuusisto](#) (University of Bremen, Germany)

LoARa: Rationality principles in pure coordination games ([abstract](#))

18:00-19:30 Session 16C: Theory assessment and theory change

18:00 [Lei Ma](#) (Huaqiao University, China)

Empirical Identity as an Indicator of Theory Choice ([abstract](#))

18:30 [Cristin Chall](#) (University of South Carolina, United States)

Abandoning Models: When Non-Empirical Theory Assessment Ends ([abstract](#))

19:00 [In-Rae Cho](#) (Seoul National University, South Korea)

Toward a Coevolutionary Model of Scientific Change ([abstract](#))

18:00-19:30 Session 16D: Philosophy of the applied sciences and technology

18:00 [Dazhou Wang](#) (University of Chinese Academy of Sciences, China)

A Phenomenological Analysis of Technological Innovations ([abstract](#))

18:30 [Paulina Wiejak](#) (Università Politecnica delle Marche, Italy)

On Engineering Design. A Philosophical Inquiry ([abstract](#))

19:00 [Aleksandr Fursov](#) (M.V. Lomonosov Moscow State University, Russia)

The anthropic technological principle ([abstract](#))

18:00-19:30 Session 16E: IS B4 Knuuttila

18:00-19:30 Session 16F: Philosophy of computing and computation

18:00 [Jens Kipper](#) (University of Rochester, United States)

Intuition, Intelligence, Data Compression ([abstract](#))

18:00-19:30 Session 16G: Pragmatism

18:00 [Ana Cuevas-Badallo](#) (University of Salamanca, Spain)

[Daniel Labrador-Montero](#) (University of Salamanca, Spain)

How Pragmatism Can Prevent From the Abuses of Post-truth Champions
([abstract](#))

18:30 [Nataliia Viatkina](#) (Institute of Philosophy of National Academy of Sciences of Ukraine, Ukraine)

Deference as Analytic Technique and Pragmatic Process ([abstract](#))

18:00-19:30 Session 16H: Philosophy of Popper; Hypothetical reasoning

18:00 [Manjari Chakrabarty](#) (VISVA BHARATI UNIVERSITY, India)

KARL POPPER, PREHISTORIC TECHNOLOGY AND COGNITIVE EVOLUTION
([abstract](#))

18:30 [Lois Rendl](#) (Institute Vienna Circle, Austria)

Peirce on the Logic of Science – Induction and Hypothesis ([abstract](#))

19:00 [Martin Potschka](#) (Independent Scholar, Austria)

What is an hypothesis? ([abstract](#))

18:00-19:30 Session 16I: Formal philosophy of science and formal epistemology:
Axiomatic and formal topics

18:00 [Salvatore Roberto Arpaia](#) (Università degli Studi di Bergamo, Italy)

Incompleteness-based formal models for the epistemology of complex systems ([abstract](#))

18:30 [Maria Dimarogkona](#) (National Technical University of Athens, Greece)

[Petros Stefaneas](#) (National Technical University of Athens, Greece)

A Meta-Logical Framework for Philosophy of Science ([abstract](#))

19:00 [Vladimir Lobovikov](#) (Ural Federal University, Laboratory for Applied System Research, Russia)

A formal axiomatic epistemology theory and the controversy between Otto Neurath and Karl Popper about philosophy of science ([abstract](#))

18:00-19:30 Session 16J: Epistemology 3

18:00 [Rueylin Chen](#) (National Chung-Cheng university, Taiwan)

Natural analogy: A Hessean Approach to Analogical Reasoning in Theorizing
([abstract](#))

18:00-19:30 Session 16K: Mathematical logic 3: Model theory 3

18:00-19:00 Session 16L: SLMFCE 2

Ends 19:00.

18:00 [Lilian Bermejo-Luque](#) (University of Granada, Spain)

SLMFCE: What should a normative theory of argumentation look like?
([abstract](#))

18:30 [Maria Cerezo](#) (University of Murcia, Spain)
SLMFCE: ISSUES AT THE INTERSECTION BETWEEN METAPHYSICS AND BIOLOGY ([abstract](#))

18:00-19:30 Session 16M: Philosophy of the cognitive and behavioral sciences

18:00 [Shunkichi Matsumoto](#) (Tokai University, Japan)
How Can We Make Sense of the Relationship between Adaptive Thinking and Heuristic in Evolutionary Psychology? ([abstract](#))

18:30 [Jakub Matyja](#) (Polish Academy of Sciences, Poland)
Music cognition and transposition heuristics: a peculiar case of mirror neurons ([abstract](#))

19:00 [Błażej Skrzypulec](#) (Polish Academy of Sciences, Poland)
What is constitutive for flavour experiences? ([abstract](#))

Thursday, August 8th

View this program: [with abstracts](#) [session overview](#) [talk overview](#)

09:00-10:30 Session 17A: clmpsmod-1

This symposium builds on the proposed Authors and Critics session on Baldwin's book: Model Theory and the Philosophy of Mathematical Practice: Formalization without Foundationalism. A key thesis of that book asserts: Contemporary model theory enables systematic comparison of local formalizations for distinct mathematical areas in order to organize and do mathematics, and to analyze mathematical practice.

Session I: Appropriate formalization for different areas of mathematics.

Session II: Abstract elementary classes and accessible categories.

09:00 [James Freitag](#) (University of Illinois at Chicago, United States)
clmpsmod Some recent applications of model theory ([abstract](#))

09:30 [Tibor Beke](#) (University of Massachusetts Lowell, United States)
(clmpsmod) Feasible syntax, feasible proofs, and feasible interpretations ([abstract](#))

10:00 [Cameron Hill](#) (Wesleyan University, United States)
clmpsmod Towards a characterization of pseudo-finiteness ([abstract](#))

09:00-10:30 Session 17B: Bolzano 1

The resources for study and scholarship on the thought and writings of Bernard Bolzano (Prague, 1781-1848) have been transformed by the ongoing publication of the Bernard Bolzano-Gesamtausgabe (Frommann-Holzboog, Stuttgart, 1969 -). This edition is projected to have 132 volumes, of which 99 have already appeared. (See <https://www.frommann-holzboog.de/editionen/20>.) The prodigious scale of the work testifies to the wide spectrum of Bolzano's interests and insights, ranging from his theology lectures and 'edifying discourses', through social, political and aesthetic themes, to his major works on philosophy, logic, mathematics and physics. In his thinking and his life he personified the congress theme of, 'Bridging across academic cultures'. The availability of so much previously unpublished, and significant, material has contributed to an increasing momentum in recent decades for Bolzano-related research, including: publications, PhD theses, translations, conferences, projects, reviews and grant awards. More than half of the Gesamtausgabe volumes, overall, are devoted to methodological or mathematical subjects.

The topic, and purpose, of this symposium is the presentation, and representation, of this thriving area of research which encompasses the history and philosophy of science and mathematics. We propose to divide the symposium into two sessions: Session A on the broader theme of methodology, Session B more specifically on mathematics. The two themes are not disjoint.

09:00 [Michael Otte](#) (University of Bielefeld, Germany)

BMMS Bolzano, Kant and the Evolution of the Concept of Concept ([abstract](#))

09:30 [Arianna Betti](#) (University of Amsterdam, Netherlands)

[Pauline van Wierst](#) (University of Amsterdam, Netherlands)

<BMMS><Bolzano's theory of ground and consequence and the traditional theory of concepts> ([abstract](#))

10:00 [Paola Cantu](#) (Aix-Marseille Universite, France)

BMMS. Bolzano's requirement of a correct ordering of concepts and its inheritance in modern axiomatics ([abstract](#))

09:00-10:30 Session 17C: MEt4CE-1

Conceptual engineering is a fast-moving research program in the field of philosophical methodology. Considering concepts as cognitive devices that we use in our cognitive activities, it basically assumes that the quality of our conceptual apparatuses crucially determines the quality of our corresponding cognitive activities. On these grounds, conceptual engineering adopts a normative standpoint that means to prescribe which concepts we should have, instead of describing the concepts we do have as a matter of fact. And its ultimate goal

as a research program is thus to develop a method to assess and improve the quality of any of our concepts working as such cognitive devices—that is, for the identification of improvable conceptual features (e.g. conceptual deficiencies) and the elaboration of correlated ameliorative strategies (e.g. for fixing the identified conceptual deficiencies). Given the ubiquity of deficient and improvable concepts, the potential outreach of conceptual engineering is arguably unlimited. But conceptual engineering is still a very young research program and little has been said so far as to how its method should be devised. The purpose of the MET4CE Symposium is to contribute to filling this theoretical gap. Its main aim will then be to propose critical reflections on the very possibility—whether and why (or why not)? how? to what extent?—of developing an adaptable set of step-by-step instructions for the cognitive optimization of our conceptual apparatuses. With this in mind, the common background of the symposium will be made of the Carnapian method of explication rebooted as an ameliorative project for (re-)engineering concepts. Against this background, a first objective of the symposium will be to present ways to procedurally recast Carnapian explication with complementary frameworks (e.g. via reflective equilibrium, metrological naturalism, formalization, or conceptual modeling) for the purposes of conceptual engineering. A second objective will next be to present ways to extend the scope Carnapian explication as a template method with alternative frameworks (e.g. via conceptual history/genealogy, experimental philosophy, or constructionism in philosophy of information), again, for the purposes of conceptual engineering. And finally, a third objective of the symposium will be to evaluate these upgraded methodological frameworks for (re-)engineering concepts by comparison with competing theories of conceptual engineering that reject the very possibility of developing any template procedural methods for (re-)engineering concepts (such as Cappelen’s ‘Austerity framework’). The expected outcome of the MET4CE Symposium is thereby to provide conceptual engineering with proven guidelines for making it an actionable program for the cognitive optimization of our conceptual apparatuses.

09:00 [Manuel Gustavo Isaac](#) (Swiss National Science Foundation (SNSF) + Institute for Logic, Language, and Computation (ILLC), Netherlands)

MET4CE: Broad-Spectrum Conceptual Engineering ([abstract](#))

09:30 [Joey Pollock](#) (University of Oslo, Norway)

MET4CE: Conceptual Engineering and Semantic Control ([abstract](#))

10:00 [Steffen Koch](#) (Ruhr-University Bochum, Germany)

MET4CE: On two kinds of conceptual engineering and their methodological counterparts ([abstract](#))

09:00-10:30 Session 17D: Organisms: Constitutions, self-regulation and situated models

09:00 [Javier González de Prado](#) (UNED, Spain)

[Cristian Saborido](#) (UNED, Spain)

Organizational Etiological Teleology: a Selected-Effect Approach to Biological Self-Regulation ([abstract](#))

09:30 [Rachel Ankeny](#) (The University of Adelaide, Australia)
[Sabina Leonelli](#) (University of Exeter, UK)

Organisms as Situated Models ([abstract](#))

09:00-10:30 Session 17E: Mathematics and ideology

09:00 [Tatiana Levina](#) (Higher School of Economics (National Research University), Russia)

In Defense of Abstractions: Sofia Yanovskaya between Ideology and Cybernetics ([abstract](#))

09:30 [András Máté](#) (Eötvös University Budapest, Hungary)

Lakatos' philosophy of mathematics and „political ideologies” ([abstract](#))

09:00-10:30 Session 17F: Economic method 1/2

09:00 [María Caamaño](#) (Universidad de Valladolid, Spain)

Pseudoscience within science? The case of economics ([abstract](#))

09:30 [Sofia Blanco Sequeiros](#) (University of Helsinki, Finland)

External Validity and Field Experiments in Economics ([abstract](#))

10:00 [Ricardo Crespo](#) (IAE (Universidad Austral) and CONICET, Argentina)

Economic sciences and their disciplinary links ([abstract](#))

09:00-10:30 Session 17G: Realism 1

09:00 [Matthias Egg](#) (University of Bern, Switzerland)

Scientific Metaphysics and the Manifest Image ([abstract](#))

09:30 [Chunling Yan](#) (University of Virginia, China)

Underdetermination and Empirical Equivalence: The Standard Interpretation and Bohmian Mechanics ([abstract](#))

09:00-10:30 Session 17H: Ontology in physics and chemistry

09:00 [Tina Wachter](#) (University of Hannover, Germany)

Can Conventionalism save the Identity of Indiscernibles? ([abstract](#))

09:30 [Sho Fujita](#) (Osaka University, Japan)

Spacetime and Fundamental parts ([abstract](#))

09:00-10:30 Session 17I: IS A1 Christine Brech (from 9.30)

09:00-10:30 Session 17J: Explanation 1

09:00 [Matteo De Benedetto](#) (Ludwig-Maximilians-Universität München (Munich Center for Mathematical Philosophy), Germany)

Explicating 'Explication' via Conceptual Spaces ([abstract](#))

09:30 [Vladimir Drekalović](#) (University of Montenegro, Montenegro)

New versions of the mathematical explanation of the cicada case - ad hoc improvements with uncertain outcomes or the way to a full explanation? ([abstract](#))

10:00 [Nathaniel Gan](#) (The University of Sydney, Australia)

Explanation and ontology ([abstract](#))

09:00-10:30 Session 17K

09:00-10:30 Session 17L: HOPOS 1

09:00 [David Stump](#) (University of San Francisco, United States)

Poincaré Read as a Pragmatist ([abstract](#))

09:30 [Xiaoming Ren](#) (Nankai University, China)

[Xianhua Liang](#) (Nankai University, China)

Three Ways to Understand the Inductive thoughts of Whewell ([abstract](#))

10:00 [Artur Koterski](#) (Dept. of Logic and Cognitive Science, WFiS, UMCS, Poland)

The Nascency of Ludwik Fleck's Polemics with Tadeusz Bilikiewicz ([abstract](#))

09:00-10:30 Session 17M: Paraconsistent, relevant, conditiona, and intuitionistic logics 1

09:00 [Xunwei Zhou](#) (Beijing Union University, China)

Mutually inverse implication inherits from and improves on material implication ([abstract](#))

09:30 [José M. Méndez](#) (Universidad, Spain)

[Gemma Robles](#) (Universidad, Spain)

[Francisco Salto](#) (Universidad, Spain)

Expansions of relevant logics with a dual intuitionistic type negation ([abstract](#))

10:00 [Gemma Robles](#) (Universidad, Spain)

Basic quasi-Boolean expansions of relevant logics with a negation of intuitionistic kind ([abstract](#))

10:30-11:00 Coffee Break

11:00-12:30 Session 18A: clmpsmod-2

- 11:00 [Rehana Patel](#) (Harvard University, United States)
clmpsmod: Towards a model theory of symmetric probabilistic structures
([abstract](#))
- 11:30 [Jiří Rosický](#) (Masaryk university, Czechia)
Accessible categories and model theory ([abstract](#))
- 12:00 [Michael Lieberman](#) (Masaryk University, Czechia)
Tameness, compactness, and cocompleteness [This talk is intended for the symposium "Some Directions in Model Theory," acronym clmpsmod] ([abstract](#))

11:00-12:30 Session 18B: Bolzano 2

- 11:00 [Johan Blok](#) (Hanze University of Applied Sciences, Netherlands)
Symposium BMMS: Did Bolzano Solve the Eighteenth Century Problem of Problematic Mathematical Entities? ([abstract](#))
- 11:30 [Kateřina Trlifajová](#) (Czech Technical University, Czechia)
BMMS: Bernard Bolzano and the part-whole principle for infinite collections
([abstract](#))
- 12:00 [Elías Fuentes-Guillén](#) (National Autonomous University of Mexico, Mexico)
BMMS: On Bolzano's early rejection of infinitesimals ([abstract](#))

11:00-12:30 Session 18C: MEt4CE-2

- 11:00 [Delia Belleri](#) (University of Vienna, Austria)
In Defense of a Contrastivist Approach to Evidence Statements ([abstract](#))
- 11:30 [Mark Pinder](#) (The Open University, UK)
MET4CE: Concepts and Replacement: What should the Carnapian model of conceptual re-engineering be? ([abstract](#))
- 12:00 [Moritz Cordes](#) (Universität Greifswald, Germany)
MET4CE: The Methodological Tradition of Explication ([abstract](#))

11:00-12:30 Session 18D: SIM 1 Styles in mathematics

About 90% of the biomedical data accessible to researchers was created in the last two years. This certainly implies complex technical problems on how to store, analyze and distribute data, but it also brings relevant epistemological issues. In this symposium we will present some of such problems and discuss how epistemic innovation is key in order to tackle such issues.

Databases implied in biomedical research are so huge that they raise relevant questions about how scientific method is applied, such as what counts as evidence of a hypothesis when data can not be directly apprehended by humans, how to distinguish correlation from causation, or in which cases the provider of a database can be considered co-author of a research paper. To analyze such issue current characterizations of hypothesis formation, causal link, or authorship do not hold, and we need some innovation in the methodological and epistemic fields in order to revise these and other relevant concepts.

At the same time, due to the fact that a relevant deal of such biomedical data is linked to individual people, and how some knowledge from biomedical sciences can be used to predict and transform human behavior, there are ethical questions difficult to solve as they imply new challenges. Some of the them are in the awareness field, so patients and citizens understand these new ethical problems that didn't arise before the development of big data; others relate to the way in which scientists can and can't store, analyze and distribute information, and some others relate to the limits on which technologies are ethically safe and which bring erosion of basic human rights.

During the symposium we will present a coherent understanding on what is epistemic innovation, some of logical tools necessary for its development, and then we will discuss several cases on how epistemic innovation applies to different aspect of the biomedical sciences, also commenting its relevance when tackling ethical problems that arise in contemporary biomedical sciences.

11:00 [Erich Reck](#) (University of California at Riverside, United States)

SIM: Dedekind, Number Theory, and Methodological Structuralism: A Matter of Style? ([abstract](#))

11:30 [Georg Schiemer](#) (University of Vienna, Austria)

[Styles in Mathematics/SIM:] Structuralism as a mathematical style: Klein, Hilbert, and 19th-Century Geometry ([abstract](#))

12:00 [Jean-Pierre Marquis](#) (University of Montreal, Canada)

SIM: Designing the structuralist style: Bourbaki, from Chevalley to Grothendieck ([abstract](#))

11:00-12:30 Session 18E: IS C3 Leonelli (from 11.30)

11:00 [Sabina Leonelli](#) (University of Exeter, UK)

The Shifting Semantics of Plant (Data) Science ([abstract](#))

11:00-12:30 Session 18F: Economic method 2/2

11:00 [Paul Hoyningen-Huene](#) (Leibniz University of Hannover, University of Zurich, Germany)

Do abstract economic models explain? ([abstract](#))

11:30 [Robert Northcott](#) (Birkbeck, UK)

Prediction markets and extrapolation ([abstract](#))

11:00-12:30 Session 18G: Realism 2

11:00 [Tim Lyons](#) (Indiana University-Purdue University Indianapolis, United States)

The Reach of Socratic Scientific Realism: From axiology of science to axiology of exemplary inquiry ([abstract](#))

11:30 [Lisa Zorzato](#) (University of Tartu, Estonia)

[Antonella Foligno](#) (University of Urbino, Italy)

An Attempt to Defend Scientific Realism ([abstract](#))

12:00 [Peeter Mürsepp](#) (Tallinn University of Technology, Estonia)

Practical Realism and Metaphysics in Science ([abstract](#))

11:00-12:30 Session 18H: Philosophy of the cognitive and behavioral sciences

11:00 [Vladimir Iakovlev](#) (MGU, Russia)

Metaphysics and Physics of Consciousness as a problem of modern science ([abstract](#))

11:30 [Sergey Pavlov](#) (Institute of philosophy, Russia)

On conditions of inference in many-valued logic semantics of $CL_{\{2\}}$ ([abstract](#))

12:00 [Marc Artiga](#) (University of Valencia, Spain)

Doing Without Structural Representations ([abstract](#))

11:00-12:30 Session 18I: New approaches to illness and health

11:00 [Natividad Garrido Rodríguez](#) (University La Laguna, Spain)

Intimate diary of an AIDS patient. An approximation to the "medical gaze" with Foucault and Guibert ([abstract](#))

11:30 [Tina Sikka](#) (Newcastle University, UK)

Food, identity and end of life ([abstract](#))

11:00-12:30 Session 18J: Explanation 2

11:00 [Susan Vineberg](#) (Wayne State University, United States)

Mathematical Depth and Explanation ([abstract](#))

11:30 [Lukas Zamecnik](#) (Palacky University Olomouc, Czechia)

Non-causal Explanations in Quantitative Linguistics ([abstract](#))

11:00-12:30 Session 18K: Game-theory, probability, social choice 1

11:00 [Kevin Kelly](#) (Carnegie Mellon University, United States)

[Hanti Lin](#) (University of California, Davis, United States)

[Konstantin Genin](#) (University of Toronto, Canada)

[Jack Parker](#) (Carnegie Mellon University, United States)

A Learning Theoretic Argument for Scientific Realism ([abstract](#))

11:30 [Liqian Zhou](#) (Nanjing University, China)

Mutual Misunderstanding in Signalling Games ([abstract](#))

12:00 [Eleonora Cresto](#) (Universidad Torcuato Di Tella/ CONICET, Argentina)

A Constructivist Application of the Condorcet Jury Theorem ([abstract](#))

11:00-12:30 Session 18L: HOPOS L

11:00 [Jared Neumann](#) (Indiana University - Bloomington, United States)

Deductive Savages: The Oxford Noetics on Logic and Scientific Method ([abstract](#))

11:30 [Pascale Roure](#) (Bergische Universität Wuppertal / Istanbul Üniversitesi, Germany)

Logical Empiricism in Exile. Hans Reichenbach's Research and Teaching Activities at Istanbul University (1933–1938) ([abstract](#))

12:00 [Elena Sinelnikova](#) (St. Petersburg Branch of S.I. Vavilov Institute for the History of Science and Technology, Russian Academy of Sciences, Russia)

[Vladimir Sobolev](#) (St. Petersburg Branch of S.I. Vavilov Institute for the History of Science and Technology, Russian Academy of Sciences, Russia)

V.N. Ivanovsky's Conception of Science ([abstract](#))

11:00-12:30 Session 18M: Paraconsistent, relevant, conditiona, and intuitionistic logics 2

11:00 [Thomas Piecha](#) (University of Tübingen, Department of Computer Science, Germany)

[Peter Schroeder-Heister](#) (University of Tübingen, Department of Computer Science, Germany)

Abstract semantic conditions and the incompleteness of intuitionistic propositional logic with respect to proof-theoretic semantics ([abstract](#))

11:30 [Yaroslav Shramko](#) (Kryvyi Rih State Pedagogical University, Ukraine)

First-degree entailment and structural reasoning ([abstract](#))

12:00

[Claudia Tanús](#) (Institute for Philosophical Research, National Autonomous University of Mexico (UNAM), Mexico)

The irrelevance of the axiom of Permutation ([abstract](#))

12:30-14:00 Lunch Break

14:00-14:30 Session 19A: clmpsmod-3

14:00 [Sebastien Vasey](#) (Harvard University, United States)

Forking and categoricity in non-elementary model theory ([abstract](#))

14:00-15:00 Session 19B: Bolzano 3

14:00 [Davide Crippa](#) (Université Paris Diderot (Paris 7), France)

[Elias Fuentes Guillén](#) (UNAM, Mexico)

[Jan Makovský](#) (Charles University Prague, CTS, Czechia)

BMMS: BERNARD BOLZANO'S 1804 EXAMINATION : MATHEMATICS AND MATHEMATICAL TEACHING IN EARLY 19th CENTURY BOHEMIA ([abstract](#))

14:00-15:00 Session 19C: MET4CE-3

14:00 [Patrick Allo](#) (Vrije Universiteit Brussel, Belgium)

MET4CE: Conceptual Engineering in the Philosophy of Information ([abstract](#))

14:30 [Georg Brun](#) (University of Bern, Switzerland)

[Kevin Reuter](#) (University of Bern, Switzerland)

MET4CE: The Common-Sense Notion of Truth as a Challenge for Conceptual Re-Engineering ([abstract](#))

14:00-15:00 Session 19D: SIM 2 Styles in mathematics

14:00 [Hourya Benis-Sinaceur](#) (Institut d'Histoire et Philosophie des Sciences et des Techniques (IHPST), France)

SIM: Granger's Philosophy of Style ([abstract](#))

14:30 [Karine Chemla](#) (SPHERE-CNRS & University Paris Diderot, France)

SIM: COMPARING THE GEOMETRIC STYLE AND ALGEBRAIC STYLE OF ESTABLISHING EQUATIONS IN CHINA, 11TH-13TH CENTURIES ([abstract](#))

14:00-15:00 Session 19E: IS C4 Broadbent

14:00 [Alexander Broadbent](#) (University of Johannesburg, South Africa)

Decolonising Medicine ([abstract](#))

14:00-15:00 Session 19F: SILFS 1

SILFS (Società Italiana di Logica e Filosofia della Scienza) is the Italian national organization devoted to fostering research and teaching in the fields of logic, general philosophy of science and philosophy of the special sciences. It comprises a large number of academics working in such areas, who are based in Italy as well as in other countries. This symposium proposes to explore philosophical and methodological issues concerning the foundations of our best scientific theories, with the aim of bridging across the diverse research trends characterizing the Italian community of logicians and philosophers of science. Specifically, the symposium focuses on the formal status of successful theories developed in various fields of science, most notably the life-sciences, the mathematical sciences and the social sciences. For this purpose, it brings together experts on the logic and philosophy of medicine, physics, computation and socio-economics, so as to jointly investigate from different perspectives a host of inter-connected questions that arise when facing the outstanding problem of how to formalize scientific theories.

More to the point, we plan to deal with the following issues: (1) how to provide a formal treatment of empirical evidence in medical research; (2) how to elaborate a computational notion of trust that can be applied to socio-economical contexts; (3) how to construct a rigorous framework for the logic of physical theories, with particular focus on the transition from classical to quantum mechanics; (4) how to develop a mathematical foundation for the concept of reduction between different theoretical systems. By addressing such specific questions with a systematic and inter-disciplinary approach, the symposium wishes to advance our general understanding of the relation between theories and formalization.

14:00 [Barbara Osimani](#) (Univpm, Italy)

SILFS: A game-theoretic approach to evidence standards in Medicine ([abstract](#))

14:30 [Mirko Tagliaferri](#) (University of Urbino, Italy)

SILFS: How to Build a Computational Notion of Trust ([abstract](#))

14:00-15:00 Session 19G: Realism 3a

14:00 [Yousuf Hasan](#) (University of Western Ontario, Pakistan)

Carnap on the Reality of Atoms ([abstract](#))

14:30 [Alberto Cordero](#) (CUNY, United States)

Functional Ontologies and Realism: The Case of Nuclear Physics ([abstract](#))

14:00-15:00 Session 19H: Metaphysical aspects: Structure 1

14:00 [Michal Oleksowicz](#) (Nicolaus Copernicus University in Torun, Poland)

Some philosophical remarks on the concept of structure. Case of Ladyman's and Heller's view ([abstract](#))

14:30 [Damian Luty](#) (Adam Mickiewicz University, Poland)

Regarding minimal structural essentialism in philosophy of spacetime ([abstract](#))

14:00-15:00 Session 19I: PFB-1

One of the primary tasks of philosophers of physics is to determine what our best physical theories tell us about the nature of reality. Our best theories of particle physics are quantum field theories. Are these theories of particles, fields, or both? In this colloquium we will debate this question in the context of quantum field theory and in an earlier and closely related context: classical electromagnetism. We believe that the contemporary debate between particle and field interpretations of quantum field theory should be informed by a close analysis of classical electromagnetism and seek to demonstrate the fruitfulness of such a dialogue in this session.

Our first speaker will start the session by discussing the debate between Einstein and Ritz in the early 20th century over whether classical electromagnetism should be formulated as theory of particles interacting directly with one another or interacting via fields. They will discuss the technical challenges facing each approach as well as the role that philosophical and methodological presuppositions play in deciding which approach is to be preferred.

Our second speaker will defend a dual ontology of particles and fields in classical electromagnetism. They argue that the singularities which arise in the standard Maxwell-Lorentz formulation of electromagnetism are unacceptable. However, the standard equations of electromagnetism can be modified (as is done in the Born-Infeld and Bopp-Podolsky formulations).

Our third speaker will recount the problems of self-interaction that arise for a dual ontology of particles and fields in the context of classical electromagnetism and defend point particle ontology. They will go on to argue that attempts to formulate quantum field theory as a theory of fields have failed. They believe that it too should be interpreted as a theory of particles.

Our final speaker will defend a pure field ontology for quantum field theory. They will argue that quantum theories where the photon is treated as a particle are unacceptable. On the other hand, treating the electron as a field yields significant improvements over the ordinary particle interpretation.

14:00 [Mathias Frisch](#) (Leibniz University Hannover, Germany)

PFB: Particles, fields, or both? A reevaluation of the Ritz-Einstein debate
([abstract](#))

14:30 [Mario Hubert](#) (Columbia University, United States)

PFB: Good Singularities, Bad Singularities ([abstract](#))

14:00-15:00 Session 19J: Explanation 3

14:00 [Arto Mutanen](#) (Finnish Naval Academy & Finnish National Defence University, Finland)

On Explanation and Unification ([abstract](#))

14:30 [Paul Daniell](#) (London School of Economics, UK)

EQUILIBRIUM THEORY AND SCIENTIFIC EXPLANATION ([abstract](#))

14:00-15:00 Session 19K: Mathematical logic 5: General logic

14:00 [Yong Cheng](#) (School of Philosophy, Wuhan University, Hubei Province, China, China)

Some formal and informal misunderstandings of Gödel's incompleteness theorems ([abstract](#))

14:30 [Sourav Tarafder](#) (St. Xavier's College, Kolkata, India)

[Benedikt Loewe](#) (University of Amsterdam, University of Hamburg, Germany)

[Robert Passmann](#) (University of Amsterdam, Netherlands)

Constructing illoyal algebra-valued models of set theory ([abstract](#))

14:00-15:00 Session 19L: &HPS

14:00 [Hakob Barseghyan](#) (University of Toronto, Canada)

[Jamie Shaw](#) (Ryerson University, Canada)

Integrating HPS: What's in it for a Philosopher of Science? ([abstract](#))

14:00-15:00 Session 19M: Induction

14:00 [Jorge Luis Garcia Rodriguez](#) (Tsinghua University, China)

A Naturalized Globally Convergent Solution to the Problem of Induction
([abstract](#))

14:30 [Paul Thorn](#) (HHU, Germany)

[Gerhard Schurz](#) (University of Duesseldorf, Germany)

Meta-Inductive Prediction based on Attractivity Weighting: Mathematical and Empirical Performance Evaluation ([abstract](#))

15:15-16:15 Session 20A: Philosophy of the cognitive and behavioral sciences

15:15-16:15 Session 20B: Bolzano 4

15:15 [Anna Bellomo](#) (University of Amsterdam, Netherlands)

BMMS: Bolzano's real numbers: sets or sums? ([abstract](#))

15:45 [Peter Simons](#) (Department of Philosophy, Trinity College Dublin, Ireland, UK)

BMMS: On the several kinds of number in Bolzano ([abstract](#))

15:15-16:15 Session 20C: MEt4CE-4

15:15 [Lieven Decock](#) (Department of Philosophy, Vrije Universiteit Amsterdam, Netherlands)

Varieties of conceptual change: the evolution of color concepts ([abstract](#))

15:45 [Esa Diaz Leon](#) (Universitat de Barcelona, Spain)

MET4CE: The Semantic Account of Slurs, Appropriation, and Metalinguistic Negotiations ([abstract](#))

15:15-16:15 Session 20D: SIM 3 Styles in mathematics

15:15 [Jemma Lorenat](#) (Pitzer College, United States)

"Cultured people who have not a technical mathematical training": audience, style, and mathematics in The Monist (1890–1917) (Styles in Mathematics Session) ([abstract](#))

15:45 [Dirk Schlimm](#) (McGill University, Canada)

[Styles in Mathematics/SIM] On the "mechanical" style in 19th-century logic ([abstract](#))

15:15-16:15 Session 20E: IS B5 Ethical and political issues in philosophy of science
Chimakonam

15:15 [Jonathan Chimakonam](#) (University of Calabar, Nigeria)

Decolonising Scientific Knowledge: Morality, Politics and a New Logic ([abstract](#))

15:15-16:15 Session 20F: History and philosophy of the life sciences 3

15:15 [Javier Suárez](#) (University of Barcelona - University of Exeter, UK)

Stability of traits as the kind of stability that matters among holobionts ([abstract](#))

15:45 [Joeri Witteveen](#) (University of Copenhagen / Utrecht University, Denmark)

Referential practices in biological taxonomy: an HPS perspective ([abstract](#))

15:15-16:15 Session 20G: Realism 3

15:15 [Agnieszka Proszewska](#) (Jagiellonian University, Poland)
Is semantic structuralism necessarily "set-theoretical" structuralism? A case of ontic structural realism. ([abstract](#))

15:45 [Michel Ghins](#) (Universite catholique de Louvain, Belgium)
Scientific realism and the reality of properties ([abstract](#))

15:15-16:15 Session 20H: Metaphysical aspects: Structure 2

15:15 [Haktan Akcin](#) (Lingnan University, Hong Kong)
Structural Modality as the Criterion for Naturalistic Involvement in Scientific Metaphysics ([abstract](#))

15:45 [Mariusz Maziarz](#) (University of Warsaw, Poland)
Econometric modeling falsifies structural realism ([abstract](#))

15:15-16:15 Session 20I: PFB-2

15:15 [Dustin Lazarovici](#) (Université de Lausanne, Switzerland)
PFB: Why field theories are not theories of fields ([abstract](#))

15:45 [Charles Sebens](#) (California Institute of Technology, United States)
PFB: The Fundamentality of Fields ([abstract](#))

15:15-16:15 Session 20J: Explanation 4

15:15 [Franziska Reinhard](#) (Munich Center for Mathematical Philosophy, Germany)
Realism and Representation in Model-Based Explanation ([abstract](#))

15:45 [Ludwig Fahrbach](#) (University of Bern, Germany)
Is the No-miracles argument an Inference to the Best Explanation? ([abstract](#))

15:15-16:15 Session 20K: Mathematical logic 6: General logic

15:15 [Luis Fernández Moreno](#) (Universidad Politécnica de Madrid, Spain)
Rigidity and Necessity: The Case of Theoretical Identifications ([abstract](#))

15:45 [Marek Porwolik](#) (Institute of Philosophy, Cardinal Stefan Wyszyński University in Warsaw, Poland)
The axiomatic approach to generativity according to Z. Augustynek ([abstract](#))

15:15-16:15 Session 20L: &HPS

15:15 [Bobby Vos](#) (University of Cambridge, UK)

Integrated HPS? Formal versus Historical Approaches to Philosophy of Science ([abstract](#))

15:45 [Babette Chabout-Combaz](#) (Université Paris-Diderot / Laboratoire SPHERE, France)

A Philosophy of Historiography of the Earth. Metaphor and analogies of “natural body” ([abstract](#))

15:15-16:15 Session 20M: SILFS 2

15:15 [Marianna Antonutti Marfori](#) (Ludwig Maximilian University of Munich, Germany)

SILFS: Formalisation and Proof-theoretic Reductions ([abstract](#))

15:45 [Ivan Chajda](#) (Palacky University, Czechia)

[Davide Fazio](#) (Università di Cagliari, Italy)

[Antonio Ledda](#) (University of Cagliari, Italy)

SILFS SYMPOSIUM: The generalized orthomodularity property: configurations, pastings and completions ([abstract](#))

16:15-16:45 Coffee Break

16:45-18:15 Session 21: Plenary 2

18:30-20:30 Session 22: General assembly

Friday, August 9th

View this program: [with abstracts](#) [session overview](#) [talk overview](#)

09:00-10:30 Session 23: Plenary 3 Joel D. Hamkins

10:30-11:00 Coffee Break

11:00-12:30 Session 24A: ERC panel

ERC grant recipients as well as members of ERC assessment panels will share experiences with the audience.

11:00-12:30 Session 24B: SGBS-1

The study of sets of real numbers and their structural properties is one of the central topics of contemporary set theory and the focus of the set-theoretic disciplines of descriptive set theory and set theory of the reals. The Baire space consists of all functions from the set of natural numbers to itself. Since this space is Borel-isomorphic to the real line and has a very accessible structure, it is one of the main tools of descriptive set theory. Because a great

variety of mathematical objects can be canonically represented as subsets of Baire space, techniques from descriptive set theory and set theory of the reals can be applied throughout mathematics. These applications are limited to the study of objects of cardinality at most the size of the continuum. Therefore, the question whether similar methods can be applied in the analysis of larger objects arose naturally in several areas of mathematics and led to a strongly increasing interest in the study of higher Baire spaces, i.e., higher analogues of Baire space which consist of all functions from a given uncountable cardinal to itself.

In the recent years, an active and steadily growing community of researches has initiated the development of higher analogues of descriptive set theory and set theory of the reals for higher Baire spaces, turning this area of research into one of the hot topics of set theory. Results in this area provide a rich and independent theory that differs significantly from the classical setting and gives new insight into the nature of higher cardinals. The proofs of these results combine concepts and techniques from different areas of set theory: combinatorics, forcing, large cardinals, inner models and classical descriptive set theory. Moreover, they also use methods from other branches of mathematical logic, like model theory and the study of strong logics. In the other direction, these results have been applied to problems in other fields of mathematical logic and pure mathematics, like the classification of non-separable topological spaces, the study of large cardinals and Shelah's classification theory in model theory.

These developments have been strongly supported by regular meetings of the research community. The community met first at the Amsterdam Set Theory Workshop in 2014, then at a satellite workshop to the German mathematics congress in Hamburg in 2015, at a workshop at the Hausdorff Center for Mathematics in Bonn in 2016, and at the KNAW Academy Colloquium in Amsterdam in 2018.

The increased significance of the study of higher Baire spaces has been reflected through these meetings by both strongly growing numbers of attendees and a steadily increasing percentage of participants from other fields of set theory. The Symposium on higher Baire spaces will provide the opportunity to reunite this community a year after the last meeting.

11:00 [Dorottya Sziráki](#) (Alfréd Rényi Institute of Mathematics, Hungarian Academy of Sciences, Hungary)

SGBS: The Open Dihypergraph Dichotomy for Definable Subsets of Generalized Baire Spaces ([abstract](#))

11:30 [Radek Honzik](#) (Charles University, Czechia)

SGBS: The indestructibility of the tree property ([abstract](#))

12:00 [Sarka Stejskalova](#) (Charles University, Czechia)

SGBS: Easton's function and the tree property below \aleph_ω
([abstract](#))

11:00-12:30 Session 24C: glivenko-1

Glivenko's theorem from 1929 says that if a propositional formula is provable in classical logic, then its double negation is provable within intuitionistic logic. Soon after, Gödel extended this to predicate logic, which requires the double negation shift. As is well-known, with the Gödel-Gentzen negative translation in place of double negation one can even get by with minimal logic. Several related proof translations saw the light of the day, such as Kolmogorov's and Kuroda's.

Glivenko's theorem thus stood right at the beginning of a fundamental change of perspective: that classical logic can be embedded into intuitionistic or minimal logic, rather than the latter being a diluted version of the former. Together with the revision of Hilbert Programme ascribed to Kreisel and Feferman, this has led to the quest for the computational content of classical proofs, today culminating in agile areas such as proof analysis, dynamical algebra, program extraction from proofs and proof mining. The considerable success of these approaches suggests that classical mathematics will eventually prove much more constructive than widely thought still today.

Important threads of current research include the following:

1. Exploring the limits of Barr's theorem about geometric logic
2. Program extraction in abstract structures characterised by axioms
3. Constructive content of classical proofs with Zorn's Lemma
4. The algorithmic meaning of programs extracted from proofs

11:00 [Itala Maria Loffredo D'Ottaviano](#) (Centre for Logic, Epistemology and the History of Science, University of Campinas - UNICAMP, Brazil)

[Hércules De Araujo Feitosa](#) (Faculty of Sciences, São Paulo State University-UNESP, Brazil)

glivenko90-On the historical relevance of Glivenko's translation from classical into intuitionistic logic: is it conservative and contextual? ([abstract](#))

11:30 [Sara Negri](#) (University of Helsinki, Finland)

glivenko90: A simple proof of Barr's theorem for infinitary geometric logic
([abstract](#))

12:00 [Michael Rathjen](#) (University of Leeds, UK)

glivenko90 "Proof theory of infinite geometric theories" ([abstract](#))

11:00-12:30 Session 24D: FCDP-1

In their day-to-day practice, scientists make constant use of defective (false, imprecise, conflicting, incomplete, inconsistent etc.) information. The philosophical explanations of the toleration of defective information in the sciences are extremely varied, making philosophers struggle at identifying a single correct approach to this phenomenon. Given that, we adopt a pluralist perspective on this issue in order to achieve a broader understanding of the different roles that defective information plays (and could play) in the sciences.

This symposium is devoted to exploring the connections between scientific pluralism and the handling of inconsistent as well as other types of defective information in the sciences. The main objectives of this symposium are (a) to discuss the different ways in which defective information could be tolerated (or handled) in the different sciences (formal, empirical, social, health sciences, etc.) as well as (b) to analyze the different methodological tools that could be used to explain and handle such type of information.

The symposium is divided into two parts: the first tackles the issue of inconsistency and scientific pluralism. This part includes discussions of the possible connections between the different ways in which scientist tolerate contradictions in the sciences and particular kinds of scientific pluralism. This analysis is extremely interesting in itself as the phenomenon of inconsistency toleration in the science has often been linked to the development of a plurality of formal approaches, but not necessarily to logical or scientific pluralism. In fact, scientific pluralism is independent of inconsistency toleration.

The second part of the symposium is concerned with a pluralistic view on contradictions and other defects. This part is devoted to explore under which circumstances (if any) it is possible to use the same mechanisms for tolerating inconsistencies and for dealing with other types of defective information. This part includes reflections on the scope of different formal methodologies for handling defectiveness in the sciences as well as considerations on scientific communicative practices and their connections with the use of defective information and reflections on the different epistemic commitments that scientists have towards defective information.

11:00 [Xavier de Donato-Rodriguez](#) (University of Santiago de Compostela, Spain)

FCDP: INCONSISTENCY AND BELIEF REVISION IN CASES OF APPROXIMATIVE REDUCTION AND IDEALIZATION ([abstract](#))

11:30 [Joke Meheus](#) (Ghent University, Belgium)

FCDP: Logic-based ontologies in the biomedical domain: From defects to explicit contradictions ([abstract](#))

12:00 [Moises Macias Bustos](#) (National Autonomous University of Mexico, University of Massachussets -Amherst, Mexico)

FCDP : Lewis, Stalnaker and the Problem of Assertion & Defective Information in the Sciences ([abstract](#))

11:00-12:30 Session 24E: IS C2 Halvorson (from 11.30)

11:00 [Hans Halvorson](#) (Princeton University, United States)

How to describe reality objectively: lessons from Einstein ([abstract](#))

11:00-12:30 Session 24F: Philosophy of the cognitive and behavioral sciences

11:00 [Robert Chis-Ciure](#) (University of Bucharest, Romania)

[Francesco Ellia](#) (University of Bologna, Italy)

Is There a Hard Problem for the Integrated Information Theory of Consciousness? ([abstract](#))

11:30 [Mahi Hardalupas](#) (University of Pittsburgh, United States)

What is “biological” about biologically-inspired computational models in cognitive science?: Implications for the multiple realisation debate ([abstract](#))

12:00 [Regina Fabry](#) (Ruhr University Bochum, Germany)

Turing Redux: An Enculturation Account of Calculation and Computation ([abstract](#))

11:00-12:30 Session 24G: History of science

11:00 [Jagdish Hattiangadi](#) (York University, Canada)

Inductive Method, or the Experimental Philosophy of the Royal Society ([abstract](#))

11:30 [Davide Pietrini](#) (University of Urbino, Italy)

“Bilancie giuste a posta per chiarire questa verità”. The Importance of Instrument in Guidobaldo dal Monte’s *Le mechaniche* ([abstract](#))

11:00-12:30 Session 24H: Issues in the philosophy of explanation

11:00 [Pablo Lorenzano](#) (National University of Quilmes/CONICET, Argentina)

Laws, Causation and Explanations in Classical Genetics: A Model-theoretic Account ([abstract](#))

11:30 [Jinyeong Gim](#) (Seoul National University, South Korea)

Category Theory as a Formal Language of the Mechanistic Philosophy ([abstract](#))

12:00 [Gregor Greslehner](#) (ImmunoConcept, CNRS & University of Bordeaux, France)

What is the explanatory role of the structure-function relationship in immunology? ([abstract](#))

11:00-12:30 Session 24I: Game theory, probability, social choice 2

11:00 [Florian Fischer](#) (University of Siegen, Germany)
[Alexander Gebharter](#) (University of Groningen, Netherlands)

Dispositions and Causal Bayes Nets ([abstract](#))

11:30 [Alexander Gebharter](#) (University of Groningen, Netherlands)
[Christian J. Feldbacher-Escamilla](#) (Duesseldorf Center for Logic and Philosophy of Science (DCLPS), University of Duesseldorf, Germany)

Modeling Creative Abduction Bayes Net Style ([abstract](#))

11:00-12:30 Session 24J: Formal philosophy

11:00 [Adrian Groza](#) (Technical University of Cluj-Napoca, Romania)

Differences of discourse understanding between human and software agents ([abstract](#))

11:30 [Grzegorz Trela](#) (Jordan University College, Tanzania)

Logic as metaphilosophy? Remarks on the mutual relations of logic and philosophy ([abstract](#))

12:00 [Joachim Hertel](#) (H-Star, Inc, United States)

Hypercomputing Minds: New Numerical Evidence ([abstract](#))

11:00-12:30 Session 24K: Philosophy of the humanities and social sciences

11:00 [Saúl Pérez-González](#) (University of Valencia, Spain)

Mechanistic Explanations and Components of Social Mechanisms ([abstract](#))

11:30 [Dafne Muntanyola-Saura](#) (Universitat Autònoma de Barcelona, Spain)

Against Reductionism: Naturalistic methods in pragmatic cognitive sociology ([abstract](#))

11:00-12:30 Session 24L: Modalities, change and identity 1

11:00 [Syraya Chin-Mu Yang](#) (National Taiwan University, Taiwan)

Higher-order identity in the necessitism-contingentism debate in higher-order modal logic ([abstract](#))

11:30 [Jui-Lin Lee](#) (Center for General Education and Dept. of CSIE, National Formosa University, Taiwan)

Model Existence in Modal Logics ([abstract](#))

11:00-12:30 Session 24M: Semantic analysis of logics and natural language 1

11:00 [Andrey Pavlenko](#) (Institute of Philosophy, Russian Academy of Sciences, Russia)
Frege semantics or why can we talk about deflation of false? ([abstract](#))

11:30 [Pavel Arazim](#) (Czech Academy of Sciences, Institute of Philosophy, Department of Logic, Czechia)
Are logical expressions ambiguous and why? ([abstract](#))

12:00 [Mircea Dumitru](#) (University of Bucharest, Romania)
New Thoughts on Compositionality. Contrastive Approaches to Meaning: Fine's Semantic Relationism vs. Tarski-Style Semantics ([abstract](#))

12:30-14:00 Lunch Break

14:00-15:00 Session 25A: Big Data 1

The HaPoC symposium "Philosophy of Big Data" is submitted on behalf of the DLMPST, History and Philosophy of Computing division

The symposium devoted to a discussion of philosophical problems related to Big Data, an increasingly important topic within philosophy of computing. Big Data are worth studying from an academic perspective for several reasons. First of all, ontological questions are central: what Big Data are, whether we can speak of them as separate ontological entity, and what their mereological status is. Second, epistemological ones: what kind of knowledge do they induce, and what methods do they require for accessing valuable information.

These general questions have also very specific counterparts raising series of methodological questions. Should data accumulation and analysis follow the same general patterns for all Sciences, or should those be relativized to particular domains? For instance, shall medical doctors and businessmen focus on the same issues related to gathering of information? Is the quality of information similarly important in all the contexts? Can one community be inspired by experience of another? To which extent human factors influence information that we issue from Big Data?

In addition to these theoretical academic issues, Big Data represents also a social phenomenon. "Big Data" is nowadays a fancy business buzzword, which - together with "AI" and "Machine Learning" – shapes business projects and the R&D job market, with data analysts among the most attractive job titles. It is believed that "Big Data" analysis opens up unknown opportunities and generates additional profits. However, it is not clear what counts as Big Data in the industry and critical reflection about it seems necessary.

The proposed symposium gathers philosophers, scientists and experts in commercial Big Data analysis to reflect on these questions. We believe that the possibility to exchange ideas, methodologies and experiences gathered from different perspectives and with divergent objectives, will enrich not only academic philosophical reflection, but will also prove useful for practical - scientific or business - applications.

14:00 [Jens Ulrik Hansen](#) (Department of People and Technology, Roskilde University, Denmark, Denmark)

BigData: Philosophizing on Big Data, Data Science, and AI ([abstract](#))

14:00-15:00 Session 25B: SGBS-2

14:00 [Francesco Parente](#) (University of East Anglia, UK)

SGBS: Set-theoretic perspectives on classification theory: Keisler's order and higher descriptive set theory ([abstract](#))

14:30 [Philipp Lücke](#) (Mathematisches Institut, Universität Bonn, Germany)

SGBS: Definable bistationary sets ([abstract](#))

14:00-15:00 Session 25C: glivenko-2

14:00 [Tadeusz Litak](#) (FAU Erlangen-Nürnberg, Germany)

glivenko90: Modal Negative Translations as a Case Study in The Big Programme ([abstract](#))

14:00-15:00 Session 25D: FCDP-2

14:00 [Carolin Antos](#) (Universität Konstanz, Germany)

[Daniel Kuby](#) (Universität Konstanz, Germany)

FCDP: Mutually inconsistent set theoretic-universes: An analysis of universist and multiversist strategies ([abstract](#))

14:30 [Jody Azzouni](#) (Department of Philosophy, United States)

FCDP: Informal Rigorous Mathematics and its Logic ([abstract](#))

14:00-15:00 Session 25E: Philosophy of science in practice

14:00 [Uskali Mäki](#) (University of Helsinki, Finland)

Asymmetries in interdisciplinarity ([abstract](#))

14:30 [Mieke Boon](#) (University of Twente, Netherlands)

How scientists are brought back into science – The error of empiricism ([abstract](#))

14:00-15:00 Session 25F: NDCXL-1

Modern connexive logic started in the 1960s with seminal papers by Richard B. Angell and Storrs McCall. Connexive logics are orthogonal to classical logic insofar as they validate certain non-theorems of classical logic, namely

Aristotle's Theses: $\sim(\sim A \rightarrow A)$, $\sim(A \rightarrow \sim A)$

Boethius' Theses: $A \rightarrow B \rightarrow \sim(A \rightarrow \sim B)$, $(A \rightarrow \sim B) \rightarrow \sim(A \rightarrow B)$

Systems of connexive logic have been motivated by considerations on a content connection between the antecedent and succedent of valid implications and by applications that range from Aristotle's syllogistic to Categorical Grammar and the study of causal implications.

Surveys of connexive logic can be found in:

*Storrs McCall, "A History of Connexivity", in D.M. Gabbay et al. (eds.), Handbook of the History of Logic. Volume 11. Logic: A History of its Central Concepts, Amsterdam, Elsevier, 2012, pp. 415-449.

*Heinrich Wansing, "Connexive Logic", in Edward N. Zalta (ed.), The Stanford Encyclopedia of Philosophy (Fall 2014 Edition).

There is also a special issue on connexive logics in the IfCoLog Journal of Logics and their Applications. The entire issue is available at: <http://collegepublications.co.uk/ifcolog/?00007>

As we are observing some growing interests in topics related to connexive logics, collecting attention from researchers working on different areas within philosophical logic, the symposium aims at discussing directions for future research in connexive logics. More specifically, we will have talks related to modal logic, many-valued logic, probabilistic logic, relevant (or relevance) logic and conditional logic, among others. There will also be some connections to experimental philosophy and philosophy of logic.

14:00 [Niki Pfeifer](#) (Department of Philosophy, University of Regensburg, Germany)

NDCXL Are connexive principles coherent? ([abstract](#))

14:30 [Luis Estrada-González](#) (Institute for Philosophical Research, National Autonomous University of Mexico (UNAM), Mexico)

[Claudia Tanús](#) (Instituto de Investigaciones Filosóficas - UNAM, Mexico)

NDCXL: Variable sharing principles in connexive logic ([abstract](#))

14:00-15:00 Session 25G: History of science

14:00 [Alison Peterman](#) (University of Rochester, United States)

Margaret Cavendish on corporeal qualities ([abstract](#))

14:30 [Julita Slipkauskaitė](#) (Vilnius University, Lithuania)

Theory of Impetus and its Significance to the Development of Late Medieval Notions of Place ([abstract](#))

14:00-15:00 Session 25H: Understanding systems and networks in the life sciences 1

14:00 [Flavia Fabris](#) (Konrad Lorenz Institute, Austria)

Rethinking Cybernetics in Philosophy of Biology ([abstract](#))

14:30 [Nathalie Gontier](#) (Applied Evolutionary Epistemology Lab, Center for Philosophy of Science, University of Lisbon, Portugal)

Time, causality and the transition from tree to network diagrams in the life sciences ([abstract](#))

14:00-15:00 Session 25I: Science and society 1

14:00 [Eugenio Petrovich](#) (University of Siena, Italy)

Bridging Across Philosophy of Science and Scientometrics: Towards an Epistemological Theory of Citations ([abstract](#))

14:30 [Magdalena Malecka](#) (Stanford University & University of Helsinki, United States)

Why the behavioural turn in policy takes behavioural science wrong and what it means for its policy relevance ([abstract](#))

14:00-15:00 Session 25J: Geometry

14:00 [Piotr Błaszczuk](#) (Institute of mathematics, Pedagogical University of Cracow, Poland, Poland)

On how Descartes changed the meaning of the Pythagorean theorem ([abstract](#))

14:30 [Philip Ehrlich](#) (Ohio University, United States)

Are Points (Necessarily) Unextended? ([abstract](#))

14:00-15:00 Session 25K: Game theory, probability, social choice 3

14:00 [Young E Rhee](#) (Kangwon National University, South Korea)

On Howson's Bayesian approach to the old evidence problem ([abstract](#))

14:30 [A. V. Ravishankar Sarma](#) (Indian Institute of Technology Kanpur, India)

On a structuralist view of theory change: study of some semantic properties in formal model of belief revision ([abstract](#))

14:00-15:00 Session 25L: Modalities, change and identity 2

14:00 [Kordula Świętorzecka](#) (Cardinal Stefan Wyszyński University in Warsaw, Poland)
[Marcin Łyczak](#) (Cardinal Stefan Wyszyński University in Warsaw, Poland)
A bimodal logic of change with Leibnizian hypothetical necessity ([abstract](#))

14:30 [David Rey](#) (LOGOS - University of Barcelona, Spain)
[Pablo Cubides](#) (University of Caen, France)
Expressive power and intensional operators ([abstract](#))

14:00-15:00 Session 25M: Semantic analysis of logics and natural language 2

14:00 [Peter Simons](#) (Department of Philosophy, Trinity College Dublin, Ireland, UK)
Leśniewski, Lambda, and the Problem of Defining Operators ([abstract](#))

14:30 [Mihai Hîncu](#) (Faculty of Political Sciences, Letters and Communication, Valahia University of Târgoviște, Romania)
Intensionality, Reference, and Strategic Inference ([abstract](#))

15:15-16:15 Session 26A: Big Data 2

15:15 [Wolfgang Pietsch](#) (Technical University of Munich, Germany)
BigData: On the epistemology of data science – the rise of a new inductivism
([abstract](#))

15:45 [Domenico Napoletani](#) (Chapman University, United States)
[Marco Panza](#) (Chapman University and CNRS, IHPST (CNRS and Univ. of Paris 1, Pantheon-Sorbonne), United States)
[Daniele C. Struppa](#) (Chapman University, United States)
<BigData>:<Finding a Way Back: Philosophy of Data Science on Its Practice>
([abstract](#))

15:15-16:15 Session 26B: SGBS-3

15:15 [Wolfgang Wohofsky](#) (University of Kiel, Germany)
SGBS: Can we add kappa-dominating reals without adding kappa-Cohen reals? ([abstract](#))

15:45 [Lorenzo Galeotti](#) (Universität Hamburg., Germany)
SGBS: Higher Metrisability in Higher Descriptive Set Theory ([abstract](#))

15:15-16:15 Session 26C: glivenko-3

15:15 [Ulrich Berger](#) (Swansea University, UK)
On the constructive content of proofs in abstract analysis ([abstract](#))

15:45 [Monika Seisenberger](#) (Swansea University, UK)

glivenko90: Program Optimisation through Proof Transformation ([abstract](#))

15:15-16:15 Session 26D: FCDP-3

15:15 [Diderik Batens](#) (Ghent University, Belgium)

FCDP: Handling of defectiveness in a content-guided manner ([abstract](#))

15:45 [Martin Brown](#) (University of Lethbridge, Canada)

FCDP: Chunk and Permeate: Reasoning faute de mieux ([abstract](#))

15:15-16:15 Session 26E: IS C9 Sang Wook Yi

15:15-16:15 Session 26F: NDCXL-2

15:15 [Andreas Kapsner](#) (Ludwig Maximilian University of Munich, Germany)

NDCXL: Connexivity and Conditional Logic ([abstract](#))

15:45 [Hitoshi Omori](#) (Ruhr University Bochum, Germany)

NDCXL: Towards a bridge over two approaches in connexive logic ([abstract](#))

15:15-16:15 Session 26G: IYPT-1

The year 2019 is the International Year of the Periodic Table (IYPT), celebrating the 150th anniversary of its year of discovery, and the International Union for History and Philosophy of Science and Technology (IUHPST) is one of the supporting institutions of IYPT.

With this event at CLMPST 2019, we aim to offer all participants of the congress, independent of whether they are working in philosophy of chemistry or not, an insight into the relevance and importance of the Periodic Table. The event consists of talks for a general academic audience, with a non-technical historical introduction by Hasok Chang, two personal reflections by current or recent graduate students in philosophy of chemistry, and a local point of view by an expert from Prague. The session will be chaired by Gisela Boeck.

15:15 [Hasok Chang](#) (University of Cambridge, UK)

IYPT: Why should philosophers care about the periodic table? ([abstract](#))

15:45 [Soňa Štrbáňová](#) (Czech Academy of Sciences, Czechia)

IYPT: Mendeleev's dedicated supporter and friend. The Czech chemist Bohuslav Brauner and the worldwide reception of the periodic system ([abstract](#))

15:15-16:15 Session 26H: Understanding systems and networks in the life sciences 2

15:15 [Yukinori Onishi](#) (The Graduate University for Advanced Studies, Japan)

Does research with deep neural networks provide a new insight to the aim of science debate? ([abstract](#))

15:45 [Shimin Zhao](#) (Simon Fraser University, Canada)

Process, not just product: the case of network motifs analysis ([abstract](#))

15:15-16:15 Session 26I: Modal logic

15:15 [Susumu Yamasaki](#) (Okayama University, Japan)

Multi-modal Mu-calculus with Postfix Modal Operator Abstracting Actions ([abstract](#))

15:45 [Francisco Martínez Herrera](#) (Universidad, Mexico)

Dialogical Justication Logic, A basic approach ([abstract](#))

15:15-16:15 Session 26J: Structuralism

15:15 [Josef Mensik](#) (Masaryk University, Czechia)

How are mathematical structures determined ([abstract](#))

15:15-16:15 Session 26K: Methodology and praxis

15:15 [John Huss](#) (The University of Akron, United States)

Tool-driven science ([abstract](#))

15:45 [László Ropolyi](#) (Eötvös University, Hungary)

Technoscience and Philoscience ([abstract](#))

15:15-16:15 Session 26L: Modalities, change and identity 3

15:15 [Mirko Engler](#) (Humboldt-Universität zu Berlin, Germany)

Generalized Interpretability and Conceptual Reduction of Theories ([abstract](#))

15:45 [Mateusz Radzki](#) (The Maria Grzegorzewska Pedagogical University, Poland)

The Tarski equipollence of axiom systems ([abstract](#))

15:15-16:15 Session 26M: Semantic analysis of logics and natural language 3

15:15 [Sebastian G.W. Speitel](#) (University of California San Diego, United States)

A Notion of Semantic Uniqueness for Logical Constants ([abstract](#))

15:45 [Juan Redmond](#) (Universidad, Chile)

[Rodrigo Lopez-Orellana](#) (Universidad, Spain)

Clasical Logic and Schizophrenia: for A Neutral Game Semantics ([abstract](#))

16:15-16:45 Coffee Break

16:45-18:15 Session 27A: Big Data 3

16:45 [Sabina Leonelli](#) (University of Exeter, UK)

<BigData>: Semantic interoperability: The oldest challenge and newest frontier of Big Data ([abstract](#))

17:15 [Helena Kossowska](#) (University of Warsaw, Poland)

BigData: Big Data in Life Sciences ([abstract](#))

16:45-18:15 Session 27B: Philosophy of the cognitive and behavioral sciences

16:45-17:45 Session 27C: glivenko-4

16:45 [Daniel Wessel](#) (University of Verona, Italy)

glivenko90: Ideals, idealization, and a hybrid concept of entailment relation ([abstract](#))

17:15 [Peter Schuster](#) (Università degli Studi di Verona, Italy)

[Giulio Fellin](#) (Università degli Studi di Verona, Italy)

[Daniel Wessel](#) (University of Verona, Italy)

glivenko90: The Jacobson Radical and Glivenko's Theorem ([abstract](#))

16:45-18:15 Session 27D: FCDP-4

16:45 [Michèle Friend](#) (George Washington University, United States)

FCDP: Disturbing Truth ([abstract](#))

17:15 [Jonas Becker Arenhart](#) (Federal University of Santa Catarina, Brazil)

[Décio Krause](#) (Federal University of Santa Catarina, Brazil)

<FCDP>: Quasi-truth and defective situations in science ([abstract](#))

17:45 [Maria Del Rosario Martinez Ordaz](#) (UNAM, Mexico)

[Otávio Bueno](#) (University of Miami, United States)

FCDP: Making Sense of Defective Information: Partiality and Big Data in Astrophysics ([abstract](#))

16:45-18:15 Session 27E: Heuristics

16:45 [Sofia Almpani](#) (National Technical University of Athens, Greece)

[Petros Stefanias](#) (National Technical University of Athens, Greece)

[Ioannis Vandoulakis](#) (The Hellenic Open University, Greece)

On the Significance of Argumentation in Discovery Proof-Events ([abstract](#))

17:15 [Peter Vojtas](#) (Charles University Prague, Czechia)

[Michal Vojtas](#) (Salesian Pontifical University, Italy)

Problem Reduction as a general epistemic reasoning method ([abstract](#)) 

16:45-17:45 Session 27F: NDCXL-3

Ends 17:45 now.

16:45 [Claudio E.A. Pizzi](#) (Siena University, Italy)

NDCXL Tableaux procedures for logics of consequential implication ([abstract](#))

16:45-18:15 Session 27G: IYPT-2 Until 17.45

16:45 [Sarah Hijmans](#) (Université, France)

IYPT: Understanding the chemical element: a reflection on the importance of the periodic table ([abstract](#))

17:45 [Karoliina Pulkkinen](#) (University of Cambridge, UK)

IYPT: Values in Science and Early Periodic Tables ([abstract](#))

16:45-18:15 Session 27H: Information in biology

16:45 [María Ferreira Ruiz](#) (University of Buenos Aires, Argentina)

Parity claims in biology and a dilemma for informational parity ([abstract](#))

16:45-18:15 Session 27I: Philosophy of quantum physics

16:45-18:15 Session 27J: Semantics

16:45 [Mario Günther](#) (University of Regensburg, Germany)

Learning Subjunctive Conditional Information ([abstract](#))

17:15 [Sergey Ospichev](#) (Sobolev Institute of Mathematics, Novosibirsk State University, Russia)

[Denis Ponomaryov](#) (A.P. Ershov Institute of Informatics Systems, Sobolev Institute of Mathematics, Novosibirsk State University, Russia)

On the complexity of formulas in semantic programming ([abstract](#))

17:45 [Marie Duzi](#) (VSB-Technical University Ostrava, Czechia)

Hyperintensions as abstract procedures ([abstract](#))

16:45-18:15 Session 27K: Mathematical logic 7: Proof theory

16:45 [Marta Fiori Carones](#) (Università degli Studi di Udine, Italy)

A theorem of ordinary mathematics equivalent to ADS ([abstract](#))

17:15 [Ricardo Arturo Nicolás-Francisco](#) (Institute of philosophical research UNAM, Mexico)

A non-trivial extension for Ms ([abstract](#))

16:45-18:15 Session 27L: Modalities, change and identity 4

16:45 [Sara Negri](#) (University of Helsinki, Finland)

[Edi Pavlovic](#) (University of Helsinki, Finland)

DSTIT modalities through labelled sequent calculus ([abstract](#))

17:15 [Mahfuz Rahman Ansari](#) (INDIAN INSTITUTE OF TECHNOLOGY, KANPUR, India)

[Avr Sarma](#) (INDIAN INSTITUTE OF TECHNOLOGY, KANPUR, India)

Counterfactuals and Reasoning about Action ([abstract](#))

17:45 [Ionel Narita](#) (West University of Timisoara, Romania)

Logic of Scales ([abstract](#))

16:45-18:15 Session 27M: Semantic analysis of logics and natural language 4

16:45 [Pietro Galliani](#) (Free University of Bozen-Bolzano, Italy)

What is it Like to Be First Order? Lessons from Compositionality, Teams and Games ([abstract](#))

17:15 [Ivo Pezlar](#) (The Czech Academy of Sciences, Institute of Philosophy, Czechia)

Analysis of Incorrect Proofs ([abstract](#))

19:30-21:00 Congress dinner

Saturday, August 10th

View this program: [with abstracts](#) [session overview](#) [talk overview](#)

09:00-10:30 Session 28A: IdCFAS 1

Defining identity between two objects is a fundamental problem in several philosophical disciplines, from logic to language and formal ontology. Since Frege, identity has been addressed in terms of formal constraints on definitional criteria which vary depending on context, application and aims. This symposium collects and compares current approaches to identity for computational systems in formal and applied contexts. Problems of interest include: definitional identity in arithmetics, intensional identity for proofs, the definition of replicas and the study of preservation of second-order properties for copied computational artefacts, and the identity over time of formally defined social institutions. All these contexts offer problematic interpretations and interesting questions for the notion of identity.

Arithmetics offers a precise formal interpretation of logical identity, but higher types display a tension between extensionality and equivalent term evaluation of identical functions: if the latter is accepted, then functions are co-definable but irreducible.

In proof-theoretical semantics a sentence is identified by the set of all its proofs with a common inferential structure. Accounting for intensional aspects of these objects means to uphold their identity, while investigating common meta-theoretical properties like harmony and stability.

From formal to implemented objects, the problem of identity resurfaces for computational artefacts. For these objects, by definition subject to replication, the notion of copy has started receiving formal treatment in the literature, while the notion of replica can be further analysed with respect to existing approaches for technical artefacts. Moreover, the problem of preservation of behavioural properties like safety and reliability is crucial.

Finally, these problems extend to applications in social ontology. In particular, identity criteria are at the basis of an ontological analysis of the persistence of organisations through time and changes, a problem which can be formulated both theoretically and formally.

The problem of defining formal identity criteria for natural and technical objects traces back to ancient philosophy and it characterises modern and contemporary analytic ontology from Leibniz to Frege. This symposium collects contemporary analyses of the logical accounts of identity in formal and applied contexts.

This symposium is submitted on behalf of the Commission for the History and Philosophy of Computing, Member of the DLMPST.

09:00 [Ansten Klev](#) (Czech Academy of Sciences, Czechia)

IdCFAS: Definitional identity in arithmetic ([abstract](#))

09:30 [Luca Tranchini](#) (Eberhard Karls Universität Tübingen, Germany)

[Alberto Naibo](#) (IHPST (UMR 8590), Université Paris 1 Panthéon-Sorbonne, France)

IdCFAS: Harmony, stability, and the intensional account of proof-theoretic semantics ([abstract](#))

09:00-10:30 Session 28B: WEBPROVOC-1

The topic of the special symposium is inspired by Max Weber's lecture on "Science as a Vocation" [Wissenschaft als Beruf], which will be celebrating the 100th anniversary of its publication in 2019. The ambivalence of the German term Beruf [occupation, job, vocation] plays a crucial role in Weber's text, making it possible, on the one hand, to view science as a

highly specialized activity, and on the other hand, to uncover its openness, its communicative nature, and its ethical dimension. In particular, the essay's focus on the communicative dimension of science, and its relation to ideas of social progress, brings to light the significance of human meaning and practice in the conduct of science, but also the reliability of scientific knowledge and its perceived status in society. Weber's lecture clearly remains relevant today, since it interrogates the possibility of history and philosophy of science to be both a specialized and an open project, designed to bridge the disciplinary gaps between various approaches to study science. More broadly, his essay thus presents a timely attempt to address the problem of integrating different academic cultures: philosophy and the sciences; ethics and methodology.

The call for epistemic openness should be complemented by a renewed methodological focus, including an emphasis on detailed historical and sociological research, and the development of educational practices that foster the creation of new "trading zones" (Peter Galison), in which cross-disciplinary discussions of science, technology and human values can take place. With our call, we thus invite scholars to re-engage Weber's text, from the perspective of 21st century Science and Technology Studies (STS), to help forge new forms of interdisciplinary interaction and expertise.

09:00 [Ilya Kasavin](#) (RAS Institute of Philosophy, Moscow, Russia)

WEBPROVOC: The Scientist's Dilemma: After Weber (Special Symposium "Science as profession and vocation. On STS interdisciplinary crossroads")
([abstract](#))

09:30 [Svetlana Shibarshina](#) (National Research Lobachevsky State University of Nizhni Novgorod, Russia)

WEBPROVOC: Scientists' social responsibilities in the context of science communication (Special Symposium "Science as profession and vocation. On STS interdisciplinary crossroads") ([abstract](#))

10:00 [Liana Tukhvatulina](#) (Institute of Philosophy, Russian Academy of Sciences, Russia)

WEBPROVOC: Scientist as an Expert: Breaking the Ivory Tower (Science as Profession and Vocation: On STS's Interdisciplinary Crossroads. A special symposium) ([abstract](#))

09:00-10:30 Session 28C: FFIUM-1

This project investigates the interplay between informal mathematical theories and their formalization, and argues that this dynamism generates three different forms of understanding:

1. Different kinds of formalizations fix the boundaries and conceptual dependences between concepts in different ways, thus contributing to our understanding of the content of an informal mathematical theory. We argue that this form of understanding of an informal theory is achieved by recasting it as a formal theory, i.e. by transforming its expressive means.

2. Once a formal theory is available, it becomes an object of understanding. An essential contribution to this understanding is made by our recognition of the theory in question as a formalization of a particular corpus of informal mathematics. This form of understanding will be clarified by studying both singular intended models, and classes of models that reveal the underlying conceptual commonalities between objects in different areas of mathematics.

3. The third level concerns how the study of different formalizations of the same area of mathematics can lead to a transformation of the content of those areas, and a change in the geography of informal mathematics itself.

In investigating these forms of mathematical understanding, the project will draw on philosophical and logical analyses of case studies from the history of mathematical practice, in order to construct a compelling new picture of the relationship of formalization to informal mathematical practice. One of the main consequences of this investigation will be to show that the process of acquiring mathematical understanding is far more complex than current philosophical views allow us to account for.

While formalization is often thought to be negligible in terms of its impact on mathematical practice, we will defend the view that formalization is an epistemic tool, which not only enforces limits on the problems studied in the practice, but also produces new modes of reasoning that can augment the standard methods of proof in different areas of mathematics.

Reflecting on the interplay between informal mathematical theories and their formalization means reflecting on mathematical practice and on what makes it rigorous, and how this dynamism generates different forms of understanding. We therefore also aim to investigate the connection between the three levels of understanding described above, and the notion of rigor in mathematics. The notion of formal rigor (in the proof theoretic sense) has been extensively investigated in philosophy and logic, though an account of the epistemic role of the process of formalization is currently missing. We argue that formal rigor is best understood as a dynamic abstraction from informally rigorous mathematical arguments. Such informally rigorous arguments will be studied by critically analyzing case studies from different subfields of mathematics, in order to identify patterns of rigorous reasoning.

[FFIUM]:Mathematical Vs. Empirical Thought Experiments: between Informal Mathematics and Formalization ([abstract](#))

09:30 [Silvia De Toffoli](#) (Princeton University, United States)

FFIUM: The Epistemic Basing Relation in Mathematics ([abstract](#))

10:00 [Benedict Eastaugh](#) (Munich Center for Mathematical Philosophy, LMU Munich, Germany)

[Marianna Antonutti Marfori](#) (Munich Center for Mathematical Philosophy, LMU Munich, Germany)

FFIUM: Epistemic aspects of reverse mathematics ([abstract](#))

09:00-10:30 Session 28D: SubStrE-1

Epistemic and Doxastic logic, on one hand, and probabilistic logics on the other, are the two main formal apparatus used in the representation of knowledge and (graded) belief. Both are striving fields that have allowed for many fruitful applications in philosophy and AI. In representing knowledge and belief, classic epistemic and deontic logic rely on a number of minimal assumptions. Agents are, for instance, usually taken to be logically omniscient and their informational states are assumed closed under logical equivalence. Within dynamic logic, also informational updates are often assumed to be correct, i.e. truthful. In the same manner in the probabilistic approach the agents beliefs are assumed to satisfy the Kolmogorov axioms for probabilities which in turn impose strong rationality and consistency conditions on these beliefs.

These assumptions are, of course, idealizations. Newly learned information can often be false or misleading and rarely satisfies classic strong consistency criteria. What is more, real agents frequently behave in ways that are incompatible with orthodox assumptions of logical and probability theory. To establish more comprehensive positive or normative theories about agents, there is hence a need for theories that are able to deal with weaker contexts where some standard assumptions are violated.

This workshop brings together a number of approaches for weak, substructural epistemic logic. The approaches discussed apply to the merging of possibly contradictory information, probabilistic assignments based on contradictory or inconclusive information, intensional and hyper-intensional beliefs, i.e. belief states that are not closed under logical equivalence and collective epistemic states such as group knowledge among groups of weaker-than-classic agents.

09:00 [Marta Bilkova](#) (Academy of Sciences of the Czech Republic, Czechia)

SubstrE: Common belief logics based on information ([abstract](#))

09:30 [Ondrej Majer](#) (Institute of Philosophy, Academy of Sciences of the Czech Republic, Czechia)

[Dominik Klein](#) (Bayreuth University, Germany)

[Soroush Rafiee Rad](#) (Bayreuth University, Germany)

Non-classical probabilities over Dunn Belnap logic ([abstract](#))

10:00 [Zoé Christoff](#) (University of Bayreuth, Germany)

[Olivier Roy](#) (University of Bayreuth, Germany)

SubstrE: Priority Merge and Intersection Modalities ([abstract](#))

09:00-10:30 Session 28E: IS A1 Malliaris

09:00 [Maryanthe Malliaris](#) (University of Chicago, United States)

Complexity and model theory ([abstract](#))

09:00-10:30 Session 28F: Journal panel

Books and journals have a significant role in the scholarly disciplines, as means of disseminating work, as professional forums for debate, and as criteria for advancement in most research fields. Scholarly publishing is undergoing profound changes, which makes it all the more critical that researchers, especially junior researchers, stay abreast of the current state of scholarly publishing.

To this end, the Editors of prominent journals in the history and philosophy of science will convene a panel on issues facing scholarly publishing. The forum will have a strong focus on providing advice and mentorship to junior scholars about selecting journals, placing their work in journals, best practices for navigating the review process, and obtaining a broad and engaged audience for scholarly work. These recommendations will be of interest to more senior researchers as well, including discussion of the role of referees and of the review process, and of recent changes to the landscape of journal publishing.

As part of the panel, some speakers will discuss current developments in, and prospects for, scholarly publishing. These may include the increasing role of open access publishing, including Plan S in Europe, and the changing relationships between book and journal publishing.

The following Editors have agreed to take part:

- Rachel Ankeny, Studies in History and Philosophy of Biological and Biomedical Sciences
- Otávio Bueno, Synthese
- Lydia Patton, HOPOS

- Thomas Reydon, Journal for General Philosophy of Science
- Darrell Rowbottom, Studies in History and Philosophy of Science
- Federica Russo, European Journal for Philosophy of Science
- Andrea Woody, Philosophy of Science
- K. Brad Wray, Metascience

A 90 minute time slot will allow ample time for questions.

09:00-10:30 Session 28G: Philosophy of neuroscience

- 09:00 [Henk De Regt](#) (Radboud University, Netherlands)
[Linda Holland](#) (Vrije Universiteit Amsterdam, Netherlands)
[Benjamin Drukarch](#) (Amsterdam UMC, Netherlands)
Modeling in neuroscience: Can complete and accurate understanding of nerve impulse propagation be achieved? ([abstract](#))
- 09:30 [Karen Yan](#) (Institute of Philosophy of Mind and Cognition, National Yang-Ming University, Taiwan)
Understanding Causal Reasoning in Neurophysiology ([abstract](#))

09:00-10:30 Session 28H: History and philosophy of traditional logic 1

- 09:00 [Farrukh Khudoydodov](#) (TAJIK NATIONAL UNIVERSITY, Tajikistan)
SIMILARITIES AND DIFFERENCES IN THE LOGIC OF ARISTOTLE AND AVICENNA ([abstract](#))
- 09:30 [Karel Šebela](#) (Palacký University Olomouc, Czechia)
Sortal Interpretation of Aristotelian Logic ([abstract](#))
- 10:00 [Ioannis Vandoulakis](#) (Hellenic Open University, Greece)
Pythagorean arithmetic as a model for Parmenidean semantics ([abstract](#))

09:00-10:30 Session 28I: Philosophy of evolution

- 09:00 [Alan Love](#) (University of Minnesota, United States)
[Brenna Urmanski](#) (University of Minnesota, United States)
Environment, Innovation, and Evolvability: Mapping the Conceptual Landscape ([abstract](#))
- 09:30 [Adrian Stencel](#) (Jagiellonian University, Faculty of Philosophy,, Poland)
Fitness incommensurability and evolutionary transitions in individuality ([abstract](#))
- 10:00 [David Villena Saldaña](#) (Department of Philosophy, Lingnan University, Hong Kong)

Theoretical and methodological differences in the evolutionary analysis of human behavior ([abstract](#))

09:00-10:30 Session 28J

09:00-10:30 Session 28K: Time

09:00 [Cristian López](#) (CONICET-University of Buenos Aires, Argentina)

What time symmetry can (and cannot) tell us about time's structure ([abstract](#))

09:30 [Tatiana Denisova](#) (Surgut State University, Russia)

Metaphysical issues in modern philosophy of time: V.I. Vernadsky's idea of "cause" of time ("source" of time) ([abstract](#))

10:00 [Lars-Göran Johansson](#) (Uppsala University, Sweden)

The direction of time ([abstract](#))

09:00-10:30 Session 28L: Philosophy of the cognitive and behavioral sciences

09:00 [Paula Quinon](#) (Department of Philosophy, Lund University, Sweden)

[Peter Gardenfors](#) (Department of Philosophy, Lund University, Sweden)

Situated Counting ([abstract](#))

09:30 [Mario Santos-Sousa](#) (University College London, UK)

Grounding Numerals ([abstract](#))

10:00 [Valentin Bazhanov](#) (Ulyanovsk State University, Russia)

[Tatyana Shevchenko](#) (Ulyanovsk State University, Russia)

Numerical cognition in the perspective of the Kantian program in modern neuroscience ([abstract](#))

09:00-10:30 Session 28M: Many-valued and probability logics 1

09:00 [Pawel Pawlowski](#) (University of Gdansk, Poland)

[Rafal Urbaniak](#) (University of Gdansk, Poland)

Combining truth values with provability values: a non-deterministic logic of informal provability ([abstract](#))

09:30 [Matthew Parker](#) (CPNSS, London School of Economics and Political Science, UK)

Comparative Infinite Lottery Logic ([abstract](#))

10:30-11:00 Coffee Break

11:00-12:30 Session 29A: IdCFAS 2

11:00

[Nicola Angius](#) (University of Sassari, Italy, Italy)

[Giuseppe Primiero](#) (University of Milan, Italy)

IdCFAS: SECOND ORDER PROPERTIES OF COPIED COMPUTATIONAL ARTEFACTS ([abstract](#))

11:30 [Roberta Ferrario](#) (Institute for Cognitive Sciences and Technologies - CNR, Italy)
<IdCFAS><Organisations and variable embodiments> ([abstract](#))

11:00-12:30 Session 29B: WEBPROVOC-2

11:00 [Alexander Antonovskiy](#) (Russian Academy of Science, Russia)

WEBPROVOC: Max Weber's distinction truth/value and 'Old-European' semantics ([abstract](#))

11:30 [Anton Dolmatov](#) (RAS Institute of Philosophy, Higher School of Economics, Russia)

WEBPROVOC: Moral achievement of a scientist ([abstract](#))

12:00 [Lada Shipovalova](#) (Saint Petersburg State University, Russia)

WEBPROVOC: M. Weber's "inconvenient facts" and contemporary studies of science-society communication. ([abstract](#))

11:00-12:30 Session 29C: FFIUM-2

11:00 [Michael Andrew Moshier](#) (Chapman University, United States)

[FFIUM] The Independence of Excluded Middle from Double Negation via Topological Duality ([abstract](#))

11:30 [Alberto Naibo](#) (IHPST (UMR 8590) - Université Paris 1 Panthéon-Sorbonne, France)

FFIUM:A formalization of logic and proofs in Euclid's geometry ([abstract](#))

12:00 [Marco Panza](#) (CNRS, France)

[Symposium 'Formalism, Formalisation, Intuition and Understanding in Mathematics (FFIUM)'] Formalisation and Understanding in Mathematics ([abstract](#))

11:00-12:30 Session 29D: SubStrE-2

11:00 [Vit Puncochar](#) (Institute of Philosophy, Czech Academy of Sciences, Czechia)

SubstrE: Algebraic Semantics for Inquisitive Logics ([abstract](#))

11:30 [Igor Sedlar](#) (Czech Academy of Sciences, Czechia)

SubStrE: Substructural propositional dynamic logic ([abstract](#))

12:00 [Andrew Tedder](#) (Institute for Computer Science, Czech Academy of Sciences, Czechia)

[Igor Sedlar](#) (Institute for Computer Science, Czech Academy of Sciences, Czechia)
SubStrE: Residuals and Conjugates in Positive Substructural Logic ([abstract](#))

11:00-12:30 Session 29E: IS C5 Sullivan (from 11.30)

11:00 [Jackie Sullivan](#) (University of Western Ontario, Canada)
How to Create Epistemically Successful Interdisciplinary Research Infrastructures: Translational Cognitive Neuroscience as a Case Study
([abstract](#))

11:30 [Jacqueline Sullivan](#) (University of Western Ontario, Canada)
Creating Epistemically Successful Interdisciplinary Research Infrastructures: Translational Cognitive Neuroscience as a Case Study ([abstract](#))

11:00-12:30 Session 29F: Teaching panel

This is a symposium proposal with a PANEL DISCUSSION format. No individual symposium papers will be submitted.

Prospective participants: Douglas Allchin, Mieke Boon, Hasok Chang, Melinda Fagan, Hans Halvorson, Mikkel Johansen, Alan Love, Roy Wagner, Andrea Woody, Cory Wright

Chair: Hanne Andersen / Joeri Witteveen

Abstract:

The teaching of history and philosophy of science occupies a somewhat unusual position in many university curricula. It is typically offered to philosophy students as part of their program, but is sometimes also part of the science curriculum. Often philosophy of science courses are electives, but at some (European) universities, history and philosophy of science is a required course for science students and forms part of the core curriculum. The aim of this panel discussion is to reflect on the practice of teaching HPS to science students. This is a particularly fitting topic for discussion at CLMPST 2019 as it takes the conference theme, "Bridging across academic cultures," beyond research, into teaching.

The symposiasts will share and reflect on their experience with teaching HPS to science students in the formal, physical, life, and engineering sciences. The session format will be open-ended and allow for a broad variety of inputs and contributions. It will provide room for sharing personal experiences, reflect on the institutional and organizational embedding of teaching science students, and allow for the presentation of sample teaching materials. The audience of the session is welcomed to join the discussion, which will touch on the following

questions, among others.

(1) What makes teaching science students different from teaching philosophy students and how should we (historians and philosophers) adapt to an audience of practitioners of a field of study that we are reflecting on? The goals of teaching science students will often be somewhat different from teaching philosophy students, which could affect the selection of topics, the teaching format and styles, and the modes of examination.

(2) How can the teaching of philosophy of science to science students benefit from recent developments in integrated HPS, practice-oriented philosophy of science, and socially relevant philosophy of science? The increasing attention to case studies and scientific practice in contemporary HPS research is a rich source of teaching materials. Based on particular examples, panel members will discuss how these can be packaged and processed to make them suitable for teaching.

(3) What kind of teaching materials are useful for teaching HPS to science students? Many history and philosophy of science textbooks are written without an audience of scientists in mind, but some newer textbooks are particularly written for training scientists. If used, what role should a textbook occupy? What is the proper role of other teaching materials (articles, dedicated webpages, podcasts, vlogs) for exploring specific topics and examples? We discuss advantages and disadvantages of working with different kinds of textbooks and with collections of articles.

(4) What is the added value of having someone trained in HPS teach a course history and philosophy of a scientific subject? Does HPS teaching occupy a special niche, which HPS teachers do better than specialists in the field, and if this is claimed, what is the evidence for it? Reflection on these questions will be crucial to explain the importance of educational expertise in HPS to students and program managers.

(5) What are the best practices for co-teaching a philosophy of science course with a scientist? We consider best practices for developing co-taught courses and discuss how different academic backgrounds and teaching styles can be complementary and in conflict.

(6) What, if any, are the essential ingredients for a course in HPS for scientists? Should a brief twentieth-century history of philosophy of science from (say) logical empiricism to Feyerabend be part of any philosophy of science course, or should developments in the particular science under discussion be leading in the selection of topics? And what about teaching students about their own role as scientists: should an HPS course make space for discussion of responsible conduct of research, integrity, and social responsibility?

The outcomes of the panel discussion will be used in a project led by the University of Copenhagen to inventory, organize, and disseminate teaching materials and information about best practices on teaching philosophy of science to science students. To this end, we aim to open a web portal for philosophy of science teachers in the near future.

This symposium is predicated upon the assumption that one can distinguish between different scientific cultures. This is the founding hypothesis of the IASCUD commission. The distinction between these scientific cultures can be made on the basis of the bodies of knowledge actors uphold (which present differences depending on the culture) and the scientific practices they adopt; the distinct kinds of material environment that actors shaped to operate in these contexts and how they operate with them; and also on the basis of epistemological facets. Among the facets that appear to be useful to differentiate cultures, we include: epistemic and epistemological values; types of questions and answers that are expected; types of explanation and understanding that actors hope for. This approach to scientific cultures has the potential of allowing us to understand cultures as temporary formations and not as fixed entities.

The aim of this symposium is to focus on the types of circulation that can be identified between cultures conceived along these lines and also on how these various phenomena of circulation can help us approach the historicity of scientific cultures and of their relationship with one another. The issues we would like to address include the following:

- What can circulate between scientific cultures? We are interested in cases when knowledge and practices migrate from one culture to another. We are also interested in the borrowing of material elements and practices, as well as the adoption of epistemological choices and practices from one context into another. Events of this latter type have perhaps been studied to a lesser extent, but they seem to us to deserve specific attention.
- How does the circulation affect what is circulated? If we all agree that the adoption of an element of knowledge or practice in a different environment transforms this element, we lack a systematic approach to these phenomena of “recycling”.
- How does the circulation affect the adopting culture, and its relationship with the culture of origin? How can it elicit a reconfiguration of the scientific cultures in presence? The study of how actors revise their knowledge in the light of new elements falls for us under this broader category of questions. However, if we consider circulation in the wider perspective that we advocate, the issue of revision presents itself in a new light. In the symposium, we aim at promoting the study of revision more broadly.

11:00 [Galina Sorina](#) (Lomonosov Moscow State University, Russia)
[Irina Griftsova](#) (Moscow Pedagogical State University, Russia)

CESC: The alienated/subjective character of scientific communication
([abstract](#))

11:30 [Nicolas Michel](#) (Université Paris-Diderot, France)

<CESC> Avatars of generality: on the circulation and transformation of list-making practices in the context of enumerative geometry ([abstract](#))

12:00 [Xiaofei Wang](#) (Institute for History of Natural Science, Chinese Academy of Sciences, China)

(<CESC> Symposium) The circulation of epistemic values between mathematical cultures: The epistemic values pursued by J. –L. Lagrange in his teaching of analysis at the Ecole Polytechnique ([abstract](#))

11:00-12:30 Session 29H: CFT-1

The aim of our symposium is twofold. Firstly, we provide a unified approach to a number of contemporary logico-philosophical results and propose to see them as being about the commitments of various prominent foundational theories. Secondly, we give an overview of formal results obtained over the past few years which shed new light on commitments of both arithmetical theories and theories of sets.

The rough intuition is that commitments of a theory are all the restrictions on the ways the world might be, which are imposed on us given that we accept all the basic principles of the theory. For clarification, during the symposium we focus on the following two types of commitments of a given foundational theory Th:

1. Epistemic commitments are all the statements in the language of Th (or possibly, in the language of Th extended with the truth predicate) that we should accept given that we accept Th.
2. Semantic commitments are all the restrictions on the class of possible interpretations of Th generated by the acceptance of a theory of truth over Th.

In the context of epistemic commitments, several authors have claimed that a proper characterisation of a set of commitments of Th should take the form of an appropriate theory of truth built over Th (see, for example, [Feferman 91], [Ketland 2005] and [Nicolai, Piazza 18]). During the symposium we give an overview of the latest results concerning the Tarski Boundary - the line demarcating the truth theories which generate new implicit commitments of Peano Arithmetic (PA) from the ones which do not. Moreover, we investigate the role of a special kind of reducibility, feasible reducibility, in this context and prove some prominent theories of compositional truth to be feasibly reducible to their base theories.

A different approach to characterize the epistemic commitments of a foundational theory Th was given in [Cieśliński 2017]. Its basic philosophical motivation is to determine the scope of implicit commitments via an epistemic notion of believability. One of the symposium talks will be devoted to presenting this framework.

While investigating the epistemic commitments of Th, we look at the consequences of truth

theories in the base truth-free language. Within this approach, a truth theory Th_1 is at least as committing as Th_2 if Th_1 proves all the theorems of Th_2 in the base language. In the semantic approach, one tries to understand every possible condition which truth theories impose on the class of models of Th , instead of looking only at the conditions which are expressible in the base language. A theory Th_1 is at least as semantically committing as Th_2 if for every condition which Th_2 can impose on models of PA, the same condition is imposed already by Th_1 . During the symposium we present and compare the latest formal results concerning the semantical commitments of various truth theories extending two of the most distinguished foundational theories: PA and Zermelo-Fraenkel set theory (ZF). During the talks we discuss the philosophical meaning of these developments.

References:

[Cieśliński 2017] The Epistemic Lightness of Truth, Cambridge University Press.

[Feferman 1991] Reflecting on Incompleteness, Journal of Symbolic Logic, 56(1), 1-49.

[Ketland 2005] Deflationism and the Godel Phenomena: reply to Tennant, Mind, 114(453), 75-88.

[Nicolai, Piazza 2018] The Implicit Commitments of Arithmetical Theories and its Semantic Core, Erkenntnis

11:00 [Cezary Cieslinski](#) (University of Warsaw, Poland)

CFT Commitments of foundational theories: Introduction ([abstract](#))

11:30 [Mateusz Łełyk](#) (University of Warsaw, Poland)

CFT: The contour of the Tarski Boundary ([abstract](#))

12:00 [Ali Enayat](#) (University of Gothenburg, Sweden)

CFT: Feasible reducibility and interpretability of truth theories ([abstract](#))

11:00-12:30 Session 29I: Evolution and explanation

11:00 [Rodrigo Lopez-Orellana](#) (Universidad, Spain)

[David Cortés-García](#) (Universidad, Spain)

A Scientific-Understanding Approach to Evo-Devo Models ([abstract](#))

11:30 [Cristina Villegas](#) (Universidad Complutense de Madrid, Spain)

Explanatory propensities and the extended synthesis ([abstract](#))

12:00 [Thomas Reydon](#) (Leibniz University of Hannover, Germany)

How do evolutionary explanations explain? ([abstract](#))

11:00-12:30 Session 29J: Model theory

11:00 [Ziv Shami](#) (Ariel University, Israel)

On the forking topology of a reduct of a simple theory ([abstract](#))

11:30 [Yiannis Kiouvrekis](#) (National Technical University of Athens, Greece)

Remarks on Abstract Logical Topologies: An Institutional Approach. ([abstract](#))

11:00-12:30 Session 29K: History and philosophy of traditional logic 2

11:00 [Jari Palomäki](#) (Tampere University of Technology, Finland)

The Intensional and Conceptual Content of Concepts ([abstract](#))

11:30 [Yusuf Dasdemir](#) (University of Jyväskylä, Finland)

Reception of Absolute Propositions in the Avicennian Tradition: Ibn Sahlān al-Sāwī on the Discussions of the Contradiction and Conversion of Absolute Propositions ([abstract](#))

11:00-12:30 Session 29L

11:00 [Lorenzo Cocco](#) (Université, Switzerland)

[Joshua Babic](#) (University of Geneva/Université de Genève, Switzerland)

Theoretical equivalence and special relativity ([abstract](#))

11:30 [Pablo Acuña](#) (Universidad, Chile)

DYNAMICS AND CHRONOGEOMETRY IN SPACETIME THEORIES ([abstract](#))

12:00 [Noah Stemeroff](#) (Tel Aviv University, Israel)

Symmetry, General Relativity, and the Laws of Nature ([abstract](#))

11:00-12:30 Session 29M: Many-valued and probability logics 2

11:00 [Adam Edwards](#) (University of Illinois at Urbana-Champaign, United States)

Seeing and Doing, or, why we should all be only half-Bayesian ([abstract](#))

11:30 [Luca San Mauro](#) (Vienna University of Technology, Austria)

Inductive Inference and Structures: How to Learn Equality in the Limit ([abstract](#))

12:30-14:00 Lunch Break

14:00-15:00 Session 30A: Baldwin-1

This book serves both as a contribution to the general philosophy of mathematical practice and as a specific case study of one area of mathematics: model theory. It deals with the role of formal methods in mathematics, arguing that introduction of formal logic around the turn of the last century is important, not merely for the foundations of mathematics, but for direct impact in such standard areas of tra-

ditional mathematics as number theory, algebraic geometry, and even differential equations. Finding informative axiomatizations of specific areas of mathematics, rather than a foundation which is impervious to the needs of particular areas drives this impact. Some of the many uses of the tools of modern model theory are described for non-specialists.

The book outlines the history of 20th century model theory, stressing a paradigm shift from the study of logic as abstract reasoning to a useful tool for investigating issues in mathematics and the philosophy of mathematics. The book supports the following four theses that elaborate on this shift.

Theses

1. Contemporary model theory makes formalization of specific mathematical areas a powerful tool to investigate both mathematical problems and issues in the philosophy of mathematics (e.g. methodology, axiomatization, purity, categoricity and completeness).
2. Contemporary model theory enables systematic comparison of local formalizations for distinct mathematical areas in order to organize and do mathematics, and to analyze mathematical practice.
3. The choice of vocabulary and logic appropriate to the particular topic are central to the success of a formalization. The technical developments of first order logic have been more important in other areas of modern mathematics than such developments for other logics.
4. The study of geometry is not only the source of the idea of axiomatization and many of the fundamental concepts of model theory, but geometry itself (through the medium of geometric stability theory) plays a fundamental role in analyzing the models of tame theories and solving problems in other areas of mathematics.

The book emphasizes the importance in formalization of the choice of both the basic notions of a topic and the appropriate logic, be it first order, second order, or infinitary logic. Geometry is studied in two ways: the analysis of the formalization of geometry from Euclid to Hilbert to Tarski and by describing the role of combinatorial geometries (matroids) in classifying models. The analysis of Shelah's method of dividing lines for classifying first order theories provides a new look into the methodology of mathematics. A discussion of the connections between model theory and axiomatic and combinatorial set theory fills out the historical study.

14:00 [Juliette Kennedy](#) (University of Helsinki, United States)
JBaldmtpmp: Symposium on John Baldwin's Model Theory and the Philosophy of Mathematical Practice ([abstract](#))

14:30 [Andrew Arana](#) (Université Paris 1 Panthéon-Sorbonne, France)
JBaldmtpmp: Symposium on John Baldwin's Model Theory and the Philosophy of Mathematical Practice ([abstract](#))

14:00-15:00 Session 30B: WEBPROVOC-3

14:00 [Elena Chebotareva](#) (Saint Petersburg State University, Russia)
WEBPROVOC: An Engineer: Bridging the gap between mechanisms and values ([abstract](#))

14:30 [Tatiana Sokolova](#) (RAS Institute of Philosophy, Russia)
Symposium Science as profession and vocation. On STS interdisciplinary crossroads; Title What's in a Name? To the History of a 'scientist' ([abstract](#))

14:00-15:00 Session 30C: FFIUM-3

14:00 [Mate Szabo](#) (AHP Univ Lorraine, IHPST Paris 1, France)
[Patrick Walsh](#) (Carnegie Mellon University, United States)
FFIUM: Gödel's and Post's Proofs of Incompleteness ([abstract](#))

14:30 [Pierre Wagner](#) (Institut d'histoire et de philosophie des sciences et des techniques, France)
FFIUM: Gödel and Carnap on the impact of incompleteness on formalization and understanding ([abstract](#))

14:00-15:00 Session 30D: EAIBS-1

About 90% of the biomedical data accessible to researchers was created in the last two years. This certainly implies complex technical problems on how to store, analyze and distribute data, but it also brings relevant epistemological issues. In this symposium we will present some of such problems and discuss how epistemic innovation is key in order to tackle such issues.

Databases implied in biomedical research are so huge that they rise relevant questions about how scientific method is applied, such as what counts as evidence of a hypothesis when data can not be directly apprehended by humans, how to distinguish correlation from causation, or in which cases the provider of a database can be considered co-author of a research paper. To analyze such issue current characterizations of hypothesis formation, causal link, or

authorship do not hold, and we need some innovation in the methodological and epistemic fields in order to revise these and other relevant concepts.

At the same time, due to the fact that a relevant deal of such biomedical data is linked to individual people, and how some knowledge from biomedical sciences can be used to predict and transform human behavior, there are ethical questions difficult to solve as they imply new challenges. Some of the them are in the awareness field, so patients and citizens understand these new ethical problems that didn't arise before the development of big data; others relate to the way in which scientists can and can't store, analyze and distribute information, and some others relate to the limits on which technologies are ethically safe and which bring erosion of basic human rights.

During the symposium we will present a coherent understanding on what is epistemic innovation, some of logical tools necessary for its development, and then we will discuss several cases on how epistemic innovation applies to different aspect of the biomedical sciences, also commenting its relevance when tackling ethical problems that arise in contemporary biomedical sciences.

14:00 [Alger Sans](#) (Universitat Autònoma de Barcelona, Spain)

EAIBS: The Incompleteness of Explanatory Models of Abduction in Diagnosis: The Case of Mental Disorders ([abstract](#))

14:30 [Angel Puyol](#) (Universitat Autònoma de Barcelona, Spain)

EAIBS: Solidarity and regulatory frameworks in (medical) Big Data ([abstract](#))

14:00-15:00 Session 30E: IS A2 Wansing

14:00 [Heinrich Wansing](#) (Ruhr-Universität Bochum, Germany)

[Sergey Drobyshevich](#) (Sobolev Institute of Mathematics, Russia)

Proof systems for various FDE-based modal logics ([abstract](#))

14:00-15:00 Session 30F: TRLBPS-1

n philosophy of science, Bayesianism has long been tied to subjective interpretation of probability, or probability as a degree of belief. Although several attempts have been made to construct an objective kind of Bayesianism, most of the core issues and controversies concerning Bayesianism have been biased to this subjectivity, particularly to the subjective priors. Along this line of argument, philosophers currently seem to implicitly assume that Bayesian statistics, which is increasingly getting popular in many fields of science, can be treated legitimately as a branch of subjective Bayesianism.

Despite this comprehensive view, which could be partly traced back to the interpretation of Savage's 'Likelihood Principle', how subjectivity is involved in Bayesian statistics is not so obvious. On the contrary, scientists who use Bayesian statistics are inclined to think of it rather as based on an objective methodology, or else merely as a mathematical technique, without even knowing much of arguments of philosophical Bayesianism. These suggest that there is a considerable gap between typically discussed Bayesianism in philosophy and Bayesian statistical method used in science. The problem is no longer simply the distinction about subjective or objective but more importantly, the present situation where this linkage is almost neglected by both philosophers and statisticians despite the common use of the term "Bayesian". Bayesian philosophy without statistics and Bayesian statistics without philosophy are both epistemically unsound, and undoubtedly philosophers of science should have responsibility for the restoration of this linkage.

In this symposium, we present some perspectives which could presumably help this restoration. Although an approach trying to examine the history of Bayesianism minutely is certainly necessary in some part of the analysis to achieve this goal, there must be a risk of losing our way if we focus too much attention on this, because the history of it, particularly of the rise of Bayesian statistics, is tremendously complicated to unravel. In order to grasp appropriately the relation between current Bayesian philosophy and statistics, it seems a more plausible way to start from the current situation we are placed in and to investigate it from multiple philosophical and statistical perspectives available, with some help of historical ones when in need. This is the basic strategy we have in this symposium. Accordingly, our focus is not just upon restoration, but rather on (in a positive sense) reconstruction of the linkage between the two Bayesian camps. The perspectives we present are: a parallelism found between Bayesianism and inductive logic; a complementary relation between Bayesian philosophy and statistics; a solution to the conflict between Bayesian philosophy and frequentism through Bayesian statistics; and a linkage between Bayesian philosophy and statistics through statistical theories based on both Bayesianism and frequentism. In this symposium, we have time to discuss after each speaker's presentation.

14:00 [Kazutaka Takahashi](#) (Hokkaido University, Japan)

TRLBPS: Examination of the linkage between Bayesian philosophy and statistics from a logical point of view ([abstract](#))

14:30 [Masahiro Matsuo](#) (Hokkaido University, Japan)

TRLBPS: Constructing a complimentary relation between Bayesian philosophy and statistics ([abstract](#))

14:00-15:00 Session 30G: CESC-2

14:00 [François Lé](#) (Institut Camille Jordan - Université Claude Bernard Lyon 1, France)
<CESC><Communication and exchanges among scientific cultures: Sharing, recycling, trading, and other forms of circulation> Characterizing as a cultural system the organization of mathematical knowledge: a case study from the history of mathematics ([abstract](#))

14:30 [Michael Barany](#) (The University of Edinburgh, UK)
<CESC> Experts and Expertise in North-South Circulation in Mid-Twentieth Century Mathematics ([abstract](#))

14:00-15:00 Session 30H: CFT-2

14:00 [Bartosz Wcisło](#) (Institute of Mathematics, University of Warsaw, Poland)
CFT: Models of Truth Theories ([abstract](#))

14:30 [Michał Tomasz Godziszewski](#) (University of Warsaw, Poland)
CFT: Some semantic properties of typed axiomatic truth theories built over theory of sets ([abstract](#))

14:00-15:00 Session 30I

14:00-15:00 Session 30J: Epistemic and philosophical logic

14:00 [Oliver Kutz](#) (KRDB Research Centre for Knowledge and Data, Free University of Bozen-Bolzano, Italy)
[Rafael Peñaloza](#) (Free University of Bozen-Bolzano, Italy)
Remarks on Probabilistic Connections ([abstract](#))

14:30 [Daniel Álvarez Domínguez](#) (Universidad, Spain)
Splicing Logics: How to Combine Hybrid and Epistemic Logic to Formalize Human Reasoning ([abstract](#))

14:00-15:00 Session 30K: Interpretation of quantum physics 1

14:00 [Sebastian Fortin](#) (CONICET-UBA, Argentina)
[Jesús A. Jaimes Arriaga](#) (CONICET-UBA, Argentina)
[Hernán Accorinti](#) (Universidad, Argentina)
About the world described by Quantum Chemistry ([abstract](#))

14:30 [Vladislav Terekhov](#) (Institute of Philosophy, Saint Petersburg University, Saint Petersburg, Russia)
Does the reality of the wave function follow from the possibility of its manipulation? ([abstract](#))

14:00-15:00 Session 30L: Philosophy of the cognitive and behavioral sciences

14:00 [Nina Atanasova](#) (The University of Toledo, United States)
Eliminating Pain ([abstract](#))

14:30 [Andrea Guardo](#) (University of Milan, Italy)
The Privilege Problem for Semantic Dispositionalism ([abstract](#))

14:00-15:00 Session 30M: Formal philosophy of science and formal epistemology

14:00 [Leander Vignero](#) (Katholieke Universiteit Leuven, Belgium)
A Computational Pragmatics for Weaseling ([abstract](#))

14:30 [Yuki Ozaki](#) (Faculty of Science, Hokkaido University, Japan)
**Sensory perception constructed in terms of Carnap's inductive logic:
developing philosophy of computational modeling of perception** ([abstract](#))

15:15-16:15 Session 31A: Baldwin-2

15:15 [M. Malliaris](#) (University of Chicago, United States)
JBaldmtpmp: Should a mathematician read this book? ([abstract](#))

15:45 [John Baldwin](#) (University of Illinois at Chicago, United States)
**JBaldmtpmp: Mathematical and Philosophical Problems arising in the context
of the book** ([abstract](#))

15:15-16:15 Session 31B

15:15-16:15 Session 31C: Philosophy of the formal sciences

15:15 [Andrea Sereni](#) (School for Advanced Studies IUSS Pavia, Italy)
[Luca Zanetti](#) (School for Advanced Studies IUSS Pavia, Italy)
**Modelling Minimalism and Trivialism in the Philosophy of Mathematics
Through a Notion of Conceptual Grounding** ([abstract](#))

15:45 [Sakiko Yamasaki](#) (Tokyo Metropolitan University, Japan)
**What is the Common Conceptual Basis of Gödel Embedding and Girard
Embedding?** ([abstract](#))

15:15-16:15 Session 31D: EAIBS-2

15:15 [David Casacuberta](#) (Universitat Autònoma de Barcelona, Spain)
**EAIBS: innovative tools for reaching agreements in ethical and epistemic
problems in biosciences** ([abstract](#))

15:45 [Anna Estany](#) (UNIVERSITAT AUTOBOMA BARCELONA, Spain)
EAIBS Design epistemology as innovation in biomedical research ([abstract](#))

15:15-16:15 Session 31E: IS A2 Goranko

15:15 [Valentin Goranko](#) (Stockholm University, Sweden)
Logic-based Strategic Reasoning in Social Context ([abstract](#))

15:15-16:15 Session 31F: TRLBPS-2

15:15 [Ohkubo Yusaku](#) (Dept. Environmental Science, Hokkaido University, Sapporo, Japan., Japan)
TRLBPS: Revisiting the two major statistical problems, stopping-rule and the catch-all hypothesis, from the viewpoint of neo-Bayesian statistics. ([abstract](#))

15:45 [Kenichiro Shimatani](#) (The Institute of Statistical Mathematics, Japan)
TRLBPS: The linkage between Bayesian and frequentism statistics is easier than between Bayesian statistics and philosophy ([abstract](#))

15:15-16:45 Session 31G: CESC-3

15:15 [Xiaohan Zhou](#) (The Institute for the History of Natural Sciences, Chinese Academy of Sciences, China)
<CESC>: <Elements of Continuity in the Circulation of Mathematical Knowledge and Practices in Chapter “Measures in Square” in Mathematical Writings in China> ([abstract](#))

15:45 [Madeline Muntersbjorn](#) (University of Toledo, United States)
<CESC>: <Notations & translations as catalysts of conceptual change> ([abstract](#))

16:15 [Polina Petrukhina](#) (Lomonosov Moscow State University, Russia)
[Vitaly Pronskikh](#) (Fermi National Accelerator Laboratory, United States)
<CESC> High-energy physics cultures during the Cold War: between exchanges and translations ([abstract](#))

15:15-16:15 Session 31H: Philosophy of the physical and chemical sciences

15:15 [Michele Ginammi](#) (University of Amsterdam, Italy)
Applicability Problems Generalized ([abstract](#))

15:45 [Martin King](#) (University of Bonn, Germany)
Towards the Reconciliation of Confirmation Assessments ([abstract](#))

15:15-16:45 Session 31I: Historical issues in evolutionary thinking

- 15:15 [Roman Otto Jordan](#) (Institute Vienna Circle (University of Vienna), Austria)
The evolutionary epistemology of Rupert Riedl – a consequent realization of the program of naturalizing epistemology? ([abstract](#))
- 15:45 [Christopher Donohue](#) (National Institutes of Health, United States)
The Monogenesis Controversy: A Historical and Philosophical Investigation ([abstract](#))
- 16:15 [Hayley Clatterbuck](#) (University of Rochester, United States)
Darwin's causal argument against intelligent design ([abstract](#))

15:15-16:15 Session 31J

15:15-16:15 Session 31K: Interpretation of quantum physics 2

- 15:15 [Maria Panagiotatou](#) (National and Kapodistrian University of Athens, Greece)
The quantum measurement as a physical interaction ([abstract](#))
- 15:45 [Foad Dizadji-Bahmani](#) (California State University Los Angeles, United States)
In Defence of Branch Counting in Everettian Quantum Mechanics ([abstract](#))

15:15-16:15 Session 31L: Philosophy of the cognitive and behavioral sciences

- 15:15 [Sajjad Karmaly](#) (Universty Paris-Sorbonne, France)
Why cognitive kinds can't be the kind of kinds that are natural kinds? A new hypothesis for natural kinds ([abstract](#))

15:15-16:45 Session 31M: Mathematical logic 8

- 15:15 [Giovanni Marco Martino](#) (San Raffaele University, Italy)
An algebraic model for Frege's Basic Law V ([abstract](#))
- 15:45 [Nurlan Markhabatov](#) (Novosibirsk State Technical University, Russia)
[Sergey Sudoplatov](#) (Sobolev Institute of Mathematics, Novosibirsk State Technical University, Novosibirsk State University, Russia)
On calculi and ranks for definable families of theories ([abstract](#))
- 16:15 [Nikolay Bazhenov](#) (Sobolev Institute of Mathematics, Russia)
[Manat Mustafa](#) (Mathematics Department, SST, Nazarbayev University, Kazakhstan)
[Mars Yamaleev](#) (Kazan (Volga Region) Federal University, Russia)
Semilattices of numberings ([abstract](#))

16:15-16:45 Coffee Break

16:45-18:15 Session 32: Closing ceremony

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