

**Proceedings of the Académie
Internationale de Philosophie des Sciences**

**Comptes Rendus de l'Académie
Internationale de Philosophie des Sciences**

Tome III

**Models and
Representations in Science**

**Éditeur
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Preface

Models have recently become increasingly important in academia and the public sphere, particularly given the Covid-19 pandemic and discourses on climate change. How can we describe their relationship to what they represent and make conceivable? The essays in this volume discuss this fundamental question in the philosophy of science and engage with the understanding, function and use of models in various academic disciplines. In all sciences—whether natural, technical or life sciences, social sciences or humanities—models are important for understanding, conceiving and explaining complex relations within the realm of knowledge and reality. All sciences work with models, which are then taken as a given, although every scientist knows that the model may not produce conclusive knowledge about something. One must then necessarily reflect on the difference between the model and the reality the model depicts.

The *Académie Internationale de Philosophie des Sciences* (AIPS) discussed these and many other questions at its annual conference from 26 to 29 September 2023 at the University of Münster (Germany). This third volume of the *Comptes Rendus de l'Académie Internationale de Philosophie des Sciences* contains a selection of the papers presented at the conference.

In order to document the full programme of the conference and the work of the AIPS, all the papers presented at the conference should be listed here in the preface:

Tuesday, 26 September 2023. Fürstenberghaus, Room F2, Domplatz 20–22, 48143 Münster.

9.00–9.30. Welcome of Participants. Chair: Hans-Peter Grosshans. Speakers: Michael Quante, Vice-Rector of the University of Münster & Jure Zovko, President of the AIPS.

9.30–10.15. Johan van Benthem (Amsterdam, Netherlands): *The importance of representation in enabling logical reasoning.*

10.15–11.00. Itala Loffredo d'Ottaviano (São Paulo, Brazil): *Partial-structures and partial-truth in science.*

11.00–11.15. Coffee Break.

11.15–12.00. Chen Bo (Wuhan, China): *Does logic represent this world and our mind? Yes!*

12.00–12.45. Hannes Leitgeb (München, Germany): *On non-representational parts of models.*

13.00–15.30. Lunch Break.

15.30–16.15. Demetris Portides (Nicosia, Cyprus): *Idealization and abstraction in scientific models.*

16.15–17.00. Michel Ghins (Louvain, Belgium): *A defence of the structural view of scientific representation.*

17.00–17.45. Jean-Guy Meunier (Montréal, Canada): *Modeling computer assisted conceptual analysis from philosophical texts.*

17.45–18.00. Coffee Break.

18.00–18.45. Pablo Lorenzano (Buenos Aires, Argentina): *Models and theory construction: structuralist and models in scientific practice programs.*

18.45–19.30. Bernard Feltz (Louvain, Belgium): *Modelling and simulating in biology: a comparative approach.*

20.00. Dinner Restaurant Mimigernaford (Bült 23).

Wednesday, 27 September 2023. Fürstenberghaus, Room F2, Domplatz 20–22, 48143 Münster.

9.00–9.45. Atocha Aliseda Llera (Mexico City, Mexico): *Models of change.*

9.45–10.30. Jure Zovko & Jörn Witt (Zadar, Croatia & Düsseldorf, Germany): *Diagnosis as an explanatory model of reality: Philosophical-medical approaches.*

10.30–11.15. Lorenzo Magnani (Pavia, Italy): *Model-based scientific cognition as epistemic warfare.*

11.15–11.30. Coffee Break.

11.30–12.15. Hans-Jörg Rheinberger (Berlin, Germany): *Modelling in experimentation.*

12.15–13.00. John Symons (Kansas, United States of America): *What is the scientific value of machine learning models?*

13.00–15.30. Lunch Break.

15.30–16.15. Gerhard Schurz (Düsseldorf, Germany): *The Principle of total evidence: Justification and political significance.*

16.15–17.00. Gino Tarozzi (Urbino, Italy): *Non-standard realistic models of quantum phenomena and new forms of complementarity.*

17.00–17.15. Coffee Break.

17.15–18.00. Jesus Pedro Zamora Bonilla (Madrid, Spain): *Models and representations in an inferential-deflationary view of scientific knowledge.*

18.00–18.45. Marco Buzzoni (Macerata, Italy): *Thought experiments and computer simulations: a comparison.*

20.00. Dinner Restaurant Mocca d'or (Rothenburg 14).

Thursday, 28 September 2023. Fürstenberghaus, Room F2, Domplatz 20–22, 48143 Münster.

9.00–9.45. Alberto Cordero (New York, United States of America): *Models and representation in functional realism.*

9.45–10.30. Anjan Chakravartty (Miami, United States of America): *Models of science education and representations of science.*

10.30–11.15. Martin Carrier (Bielefeld, Germany): *Model-building in practice-driven research.*

11.15–11.30. Coffee Break.

11.30–12.15. Gregor Schiemann (Wuppertal, Germany): *Scientific worldviews and models in Hermann von Helmholtz and Werner Heisenberg.*

12.15–13.00. Jan Faye (Copenhagen, Denmark): *Models or theories: what is the real representation in science?*

13:00–15:00. Lunch Break.

15.00–15.45. Hans-Peter Grosshans (Münster, Germany): *What do models in theology represent?*

15.45–16.30. Elisabeth Gräß-Schmidt (Tübingen, Germany): *Model and normativity: On the relation of nature—technology—ethics.*

16.30–19.30. *Assemblée Générale de l'Académie Internationale de Philosophie des Sciences.*

20.15. Gala dinner Mövenpick Restaurant (Kardinal-von-Galen-Ring 65).

Friday, 29 September 2023. Fürstenberghaus, Room F2, Domplatz 20–22, 48143 Münster.

9.00–9.45. Harvey Brown (Oxford, England): *Do symmetry principles explain conservation laws in physics? Lessons from the modern (first) Noether theorem.*

9.45–10.30. Dennis Dieks (Utrecht, Netherlands): *Factivity of representation in science.*

10.30–11.15. Otavio Bueno (Miami, United States of America): *Empiricism and microscopy.*

11.15–11.30. Coffee Break.

11.30–12.15. James McAllister (Leiden, Netherlands): *Are empirical data representations?*

12.15–13.00. Reinhard Kahle (Tübingen, Germany): *Hilbert on sciences.*

13:00–15:30. Lunch Break.

15.30. City tour & visit to the museums in Münster.

19.30. Dinner Restaurant A2 am See (Annette-Allee 3).

As editor of this volume and organiser of the conference, I am very grateful to all those who made the conference and the publication possible. I would like to thank those who presented papers at the conference and those who made their contributions available for this publication. I would like to thank Benedikt Löwe

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Münster, Westfalen
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H.-P.G.