

MODEL-BASED REASONING IN SCIENCE AND TECHNOLOGY

Inferential Models for Logic, Language, Cognition and Computation

20th Anniversary

Sevilla, Spain, October 24th -26th, 2018

Chairs:

Angel Nepomuceno Fernandez, Lorenzo Magnani and Francisco Salguero
Lamillar

MBR18_SPAIN

(Eighth International MBR Conference)

Central University of Seville Building
University of Seville, Calle San Fernando 4

MBR COMMUNITY WEB SITE: [http://www.unipv.it/webphilos_lab/
cpl2/](http://www.unipv.it/webphilos_lab/cpl2/)

CONGRESS WEB SITE: http://gestioneventos.us.es/go/MBR18_SPAIN

University of Sevilla (US): School of Philosophy (US), School of
Philology (US)

School of Computer Sciences (US),
Department of Philosophy, Logic and Philosophy of Sciences (US)
Research Group on Logic, Language and Information (HUM-502- US)
Fidertia (US)

University of Pavia, Department of Humanities, Philosophy Section,
Pavia, Italy

Italian Society of Logic and Philosophy of Science (SILFS)

Sociedad de Lógica, Metodología y Filosofía de la Ciencia, Spain
Lekta

GENERAL INFORMATION

The International Conference MODEL-BASED REASONING IN SCIENCE AND TECHNOLOGY will be held at Tobacco Factory Building (University of Seville) in the town of Sevilla (Spain), from Wednesday 24th to Friday 26th of October 2018. The conference is promoted by the Logic, Language and Information Group of the University of Sevilla (Spain) and the Department of Humanities, Philosophy Section and Computational Philosophy Lab of the University of Pavia (Italy).

PROCEEDINGS

Proceedings will be published by Springer (series "SAPERE" <http://www.springer.com/series/10087>). Selected technical papers will be published in one or two special issues of the Logic Journal of IGPL (<https://academic.oup.com/jigpal>) or in another renowned international journal.

Previously unpublished papers in English should be sent in LaTeX or DOC MAX 18/20 pages. In case LATEX is preferred, the use of BIBTEX is encouraged.

Final papers.....due... January 15th, 2019

CONFERENCE SITE

Central University of Seville Building
<http://www.andalucia.org/en/cultural-tourism/visits/sevilla/monuments/antigua-real-fabrica-de-tabacos-universidad-de-sevilla/>
University of Seville
Calle San Fernando 4
41004, Sevilla, Spain

The conference derives from an international research cooperation and is promoted by the Research Group on Logic, Language and Information Group at the University of Seville and the Department of Humanities (Philosophy Section) and the Computational Philosophy Lab of the University of Pavia, (Italy). It continues the topics and traditions of past conferences: "Model-Based Reasoning in Scientific Discovery" MBR'98; "Model-Based Reasoning: Scientific Discovery, Technological Innovation, and Values" MBR'01; "Model-Based Reasoning in Science and Engineering: Abduction, Visualization, and Simulation" MBR'04; "Model-Based Reasoning in Science and Medicine" MBR06_CHINA; "Model-Based Reasoning in Science and Technology. Abduction, Logic, and Computational Discovery" MBR09_BRAZIL; "Model-Based Reasoning in Science and Technology. Theoretical and Cognitive Issues" MBR12_ITALY; and "Model-Based Reasoning in Science and Technology. Models and Inferences: Logical, Epistemological, and Cognitive Issues" MBR15_ITALY.

Previous volumes derived from those conferences are:

L. Magnani, N. J. Nersessian, and P. Thagard (eds.) (1999), Model-Based Reasoning in Scientific Discovery, Kluwer Academic/Plenum Publishers, New York. <http://www.wkap.nl/prod/b/0-306-46292-3> (Chinese edition, translated and edited by Q. Yu and T. Wang, China Science and Technology Press, Beijing, 2000).

L. Magnani and N. J. Nersessian (eds.) (2002), Model-Based Reasoning. Science, Technology, Values, Kluwer Academic/Plenum Publishers, New

York. <http://www.wkap.nl/prod/b/0-306-47244-9>

L. Magnani, N. J. Nersessian, and C. Pizzi (eds.) (2002), *Logical and Computational Aspects of Model-Based Reasoning*, Kluwer Academic, Dordrecht. <http://www.wkap.nl/prod/b/1-4020-0791-4>

P. Li, X. Chen, Z. Zhang, and H. Zhang (eds.) (2004), *Science, Cognition, and Consciousness*, JiangXi People's Press, Nanchang, China.

L. Magnani and Li. Ping (eds.) (2006), *Philosophical Investigations from a Perspective of Cognition*, Guangdong People's Publishing House, Guangzhou, (published in Chinese).

L. Magnani (2006) (ed.), *Model-Based Reasoning in Science and Engineering. Cognitive Science, Epistemology, Logic*, College Publications, London. <http://www.amazon.co.uk/Model-Based-Reasoning-Science-Engineering/dp/1904987230>

L. Magnani and P. Li (eds.) (2007), *Model-Based Reasoning in Science, Technology, and Medicine*, Series "Studies in Computational Intelligence", Vol. 64, Springer, Berlin/New York. <http://www.springer.com/engineering/book/978-3-540-71985-4>

L. Magnani, W. Carnielli, C. Pizzi (eds.) (2010) *Model-Based Reasoning in Science and Technology Abduction, Logic, and Computational Discovery*, Series "Studies in Computational Intelligence", Vol. 314, Springer, Heidelberg/Berlin. <http://www.springer.com/us/book/9783642152221>

L. Magnani (ed.) (2014) *Model-Based Reasoning in Science and Technology. Theoretical and Cognitive Issues*, Series "Sapere", Vol. 8, Springer, Heidelberg/Berlin. <http://www.springer.com/us/book/9783642374272>

L. Magnani and C. Casadio (eds.) (2016), *Model-Based Reasoning in Science and Technology. Logical, Epistemological, and Cognitive Issues*, Springer, Switzerland, Series "Sapere" <http://www.springer.com/us/book/9783319389820>

Selected papers of the previous conferences were published in international journals (*Philosophia*, *Foundations of Science*, *Logic Journal of the IGPL*).

A recent HANDBOOK fruit of the research of the MBR community is L. Magnani and T. Bertolotti (eds.) (2017) *Springer Handbook of Model-Based Science*, Springer, Switzerland <http://www.springer.com/us/book/9783319305257>

PROGRAM

The conference will deal with the logical, epistemological, and cognitive aspects of modeling practices employed in science, technology, and cognitive science, including logical and computational models of such practices. We solicit papers that examine the role of abduction, visualization, simulation, and other aspects in model-based reasoning from philosophical, logical, epistemological, historical, sociological, psychological, or computational perspectives. The conference is also devoted to examine the impact of Model-Based

Reasoning research in the enhancement of various kinds of human cognitive skills, mental, hybrid, manipulative, etc.

RELEVANT RESEARCH AREAS

We call for papers that cover topics pertaining to model-based reasoning in science and human cognition as presented on the following list:

- General theoretical and cognitive issues
- Models as fictions, distortions, credible worlds
- Models and games of make-believe
- Ontology of models
- Affordances, artifacts, and model-based reasoning
- Brain, neuroscience, and model-based reasoning
- Abduction
- Logical analyses related to model-based reasoning
- Inferences, interaction and duality in logic and language
- Visual, spatial, imagistic modeling and reasoning
- Simulative modeling
- The role of diagrammatic representations
- Computational models of visual and simulative reasoning
- Causal and counterfactual reasoning in model construction
- Visual analogy
- Thought experiments
- Manipulative reasoning
- Distributed model-based reasoning
- Distributed cognition, embodiment, and model-based reasoning
- Models of rationality and inference patterns in decision making
- Model-based reasoning in scientific discovery and conceptual change
- Model-based reasoning and ethics
- Model-based reasoning and history of philosophy
- Model-based reasoning and semiotics
- Model-based reasoning in scientific explanation
- Model-based medical diagnosis
- Model-based reasoning in engineering and robotics
- Model-based reasoning and technological artifacts
- Model-based reasoning and knowledge management
- Model-based reasoning and information technology
- The role of models in scientific and technological thinking
- Model-based reasoning and learning
- Model-based reasoning and language

PROGRAM COMMITTEE (to be confirmed)

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John Woods, Department of Philosophy, University of British Columbia,
CANADA

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INVITED SPEAKERS AND PLENARY PRESENTATIONS

Atocha Aliseda, Instituto de Investigaciones Filosóficas, Universidad Nacional Autónoma de México (UNAM), MEXICO

Walter Carnielli, Department of Philosophy, Institute of Philosophy and Human Sciences, State University of Campinas, BRAZIL.

Hans van Ditmarsch, LORIA, Nancy. FRANCE.

Nancy J Nersessian, Harvard University, Boston, MA, USA. (to be confirmed).

Lorenzo Magnani, Department of Humanities, Philosophy Section & Computational Philosophy Laboratory, University of Pavia, ITALY.

Mario J. Pérez, Department of Computer Sciences, European Academy of Sciences, Sevilla University, SPAIN.

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Paul Thagard, Department of Philosophy, University of Waterloo, Waterloo, CANADA.

John Woods, Department of Philosophy, University of British Columbia, CANADA.

SUBMISSIONS OF PAPERS AND SYMPOSIA PROPOSALS

All submitted extended abstracts will be carefully refereed. The precise format of the conference will be fixed once the revision process is over. We expect approximately 60/80 contributed presentations. Proposals will be reviewed and may obtain three scores:

- 1) Accepted for presentation of half an hour;
- 2) Accepted for poster session;
- 3) Rejected

In cases 1) and 2) the complete paper may be submitted for publication.

There will be several invited presentations of 1 hour. A selected subset of accepted papers will be invited for inclusion (subject to

additional refereeing) in a book, which will constitute an advanced handbook for researchers in this area. The book will be published by Springer (Series "SAPERE" <http://www.springer.com/series/10087>). Moreover, another selected subset of papers will be invited for inclusion (subject to additional refereeing) in one or two special issues of the Logic Journal of IGPL or of other renowned international journals.

PAPERS PROPOSAL

Presentation Proposal

To participate in the conference authors must submit an electronic version (by April 10th, 2018) – formatted in Microsoft Word or .RTF, or (.PDF if sent together with the source file, .DOC, .TXT or similar) – of an extended abstract (total word count approximately 1000–1500). The file must also contain a 300–word abstract that will be used for the conference web site/booklet.

Deadline April 10th, 2018. Please send the extended abstract electronically by EasyChair.

Symposia Proposal (intended for approx. 4–5 participants):

No later than April 10th, 2018. Please send a 2–page symposium proposal.

<https://easychair.org/conferences/?conf=mbr18-spain>

REGISTRATION FEES

Participation in all the activities of the Conference and Social Dinner included:

Before June 20th, 2018.

Standard: 250 euros

PhD Students and independent researchers: 150 euros

Master and Undergraduate students: 60 euros

After June 20th, 2018:

Standard: 300 euros

PhD Students and independent researchers: 200 euros

Master and Undergraduate Students: 75 euros

One day only: 100 euros

Social Dinner Only: 40 euros

No refunds will be granted after September 20th 2018. Terms & Conditions: an administration fee of 75 euros will be charged for cancellations confirmed in writing by September 20th 2018.

METHOD OF PAYMENT

To be announced.

IMPORTANT DATES

Submission deadline.....April 10th, 2018
Notification of acceptance.....May 20th, 2018
Registration discount price.....June 20th, 2018
Conference.....October
24th–26th, 2018
Final papers (LaTeX Version).....due... January 15th, 2019

PROGRAM CHAIRS:

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HOW TO REACH SEVILLA

In Practical information: http://gestioneventos.us.es/go/MBR18_SPAIN