

Academic Report for 2014 (01.01.2014- 31.12.2014)

Prof. Dr. Stephan Hartmann

April 30, 2015

2014 was a very successful year for the Chair of Philosophy of Science at the MCMP at LMU Munich. Several excellent new postdocs and PhD students joined us, we hosted a number of highly successful academic events (such as the e MCMP Summer School on Mathematical Philosophy for Female Students a), a large number of scholars from all over the world visited us to work with us and to present their work, and our new master program in Logic and Philosophy of Science keeps on attracting excellent students and has an excellent placement record.

Our research is organized in three research groups. Group 1 focuses on problems from the **foundations of physics** and entertains close relations to LMU's Faculty of Physics. This group is strengthened by the contributions of Alexander von Humboldt Research Award winner Michael Esfeld (Lausanne). Group 2 works on the application of **modeling and simulation methods in philosophy**. This group established relations to research groups in economics, epidemiology, psychology and political science and several joint research projects, including the application of a DFG Forschergruppe on the topic "Decisions, Groups and Networks" were carried out or are planned. This group is strengthened by the contributions of Anneliese-Maier Research Award winner Ulrike Hahn (Birkbeck). Group 3 works on problems from **general philosophy of science and formal epistemology**. Also this group

entertains close links to other departments, e.g. LMU Department of Statistics, stressing the interdisciplinary character of our research. In 2014 we made a big step forward towards reaching our goal to become the leading research center in the world that applies scientific (i.e. formal and empirical) methods to questions of philosophical interest.

In this report, we present the work done in 2014 in more detail.

(I) We presented our center to the academic public at various occasions:

We gave various lectures and interviews. They are listed with each MCMP member below in point (IV).

(II) We were using different media in order to reach out to the public:

1. The MCMP website

With the help of the whole media team, especially Cornelia Kroiss, Michael Bräustetter and Roland Poellinger, we refreshed the MCMP website twice in 2014. By the high-click count we can tell that our website really is the go-to resource for everything MCMP.

Among the most popular pages is our front page, of course, which shows upcoming events, recent news and since this years also newly published videos.

2. MCMP on iTunes U

The MCMP has an assortment of eleven video channels on iTunes U, one of them our archive with 250 recordings since 2011. In total we have published more than 500 recordings by the end of 2014, while in the last twelve months alone we counted over 20.000 video downloads each month on average through our various interface possibilities. A highlight example is Helen Beebe's talk at the 2014 summer school for female students, being downloaded more than 2.000 times only in the first week of availability. Also our current channels do appear in "great" or "recommended" collections on iTunes U quite regularly.

3. MCMP on Coursera

In 2014, the MCMP offered an updated version of the MOOC (= Massive Open Online Course) "Introduction to Mathematical Philosophy" already held in 2013. The new version had been enriched particularly by elaborated lecture notes on each unit. In addition to this, Lena Hofer, who also manages the course, gave a "flipped classroom" BA-seminar in the summer term. Later on, the team had been involved in planning an extended version of the MOOC including three additional lectures.

4. MCMP @ Facebook

The MCMP regularly posts news and events on Facebook. Currently we have more than 1.000 people following our page, where we are sharing announcements, events, new recordings in our iTunes U channels, and new videos about the MCMP including video abstracts on our First Sight video abstract server.

5. M-Phi Blog

The MCMP maintains a blog on current topics in mathematical philosophy.

6. What's Hot in Mathematical Philosophy

Members of the MCMP are in charge of the "What's Hot in Mathematical Philosophy?" series which appears regularly in the online gazette *The Reasoner*.

7. Internship Program

In March 2013 we kicked off the MCMP internship program "Science & Communication" to internally support our media and event activities. The program was advertised again in early 2014 and we were able to choose among a handful of interesting applications from students of philosophy as well as media or communication. In July and August Philippe van Basshuysen, finishing his studies at the London School of Economics at that time joined us for six weeks, helping our media team with their various activities.

8. Others about the MCMP

The Munich Center for Mathematical Philosophy has been listed twice in the latest edition of the *Philosophical Gourmet Report*. The report is an influential ranking of graduate programs in philosophy, traditionally only including the English-speaking world. The MCMP appears in subject breakdowns for General Philosophy of Science and Decision, Rational Choice, & Game Theory. In each case the center is not ranked, but rather listed as "Additional programs not evaluated this year but recommended for consideration by the Advisory Board".

9. Publication Management

In collaboration with LMU's library and the central internet department we introduced our very own publication management system and a novel publication search function in 2014. We have already transferred more than 200 MCMP publications into the new system with great care to consolidate all research output in a unified repository.

The database is still in beta version and we are working to improve its usability and introducing our own ideas, like implementing cross-links from papers to video recordings on our LMUcast servers and a policy to publish pre-prints from MCMP members.

(III) We organized a great variety of academic events including speakers from all over the world and we had a great number of excellent visitors:

a. Talks and Colloquia

1. Colloquium in Logic, Philosophy of Science and Philosophy

The Colloquium in Logic, Philosophy of Science and Philosophy is held every week on Wednesday during the term in Ludwigstraße 31, Ground Floor, Room E21. Sometimes additional sessions are organized. The speakers are invited to give a talk and are often staying for some days at our Centre. This is the list of the Wednesday Speakers/Visitors January until December 2014:

08.01.2014	18:15 - 20:00	Klaus Mainzer (TU Munich)
15.01.2014	16:15 - 18:00	Johannes Thürigen (Albert Einstein Institute)
	18:15 - 20:00	Rainer Hegselmann (Bayreuth)
22.01.2014	16:15 - 18:00	Kevin Zollman (Carnegie Mellon University)
	18:15 - 20:00	Oliver Pooley (Oxford)
29.01.2014	16:15 - 18:00	Thomas Sturm (Barcelona)
	18:15 - 20:00	Roberto Fumagalli (Bayreuth)
05.02.2014	16:15 - 18:00	Erwin Frey (LMU)
10.02.2014	18:00 - 20:00	Lev Vaidman (Tel Aviv)
09.04.2014	16:15 - 18:00	Gábor Hofer-Szabó
	18:15 - 20:00	Anna Leuschner

16.04.2014	16:15 - 18:00	Vincenzo Crupi	16.07.2014	16:15 - 18:00	Branden Fitelson (Rutgers University)
	18:15 - 20:00	Gregor Betz (KIT)		18:15 - 20:00	Steve Awodey (Carnegie Mellon University)
23.04.2014	18:15 - 20:00	Michael Waldmann (Göttingen)	02.07.2014	16:15 - 18:00	Radin Dardashti (MCMP/LMU)
30.04.2014	18:15 - 20:00	Jason McKenzie Alexander (LSE)	09.07.2014	18:15 - 20:00	Yasuo Deguchi (Kyoto)
	16:15 - 18:00	Franz Huber (Toronto)	16.07.2014	16:15 - 18:00	Branden Fitelson (Rutgers University)
07.05.2014	18:15 - 20:00	Andreas Bartels (Bonn)		18:15 - 20:00	Steve Awodey (Carnegie Mellon University)
14.05.2014	18:15 - 20:00	Roland Poellinger (MCMP/LMU)	08.10.2014	16:15 - 18:00	Michael Zehetleitner (LMU)
	16:15 - 18:00	Adam Caulton (Cambridge)		18:15 - 20:00	Jon Williamson (Kent)
21.05.2014	18:15 - 20:00	Catherine Stinson (Ryerson)	15.10.2014	16:15 - 18:00	Sam Fletcher (MCMP/LMU)
	16:15 - 18:00	Tom Pashby (Pittsburgh)		18:15 - 20:00	Sam Sanders (MCMP/LMU)
28.05.2014	18:15 - 20:00	Gregor Schiemann	22.10.2014	16:15 - 18:00	Gereon Wolters (Konstanz)
	18:15 - 20:00	Isabelle Drouet (Paris IV)		18:15 - 20:00	Thomas Hofweber
04.06.2014	18:15 - 20:00	Sibylle Anderl (Grenoble I)	29.10.2014	16:15 - 18:00	Arthur Merin (MCMP/Konstanz)
	16:15 - 18:00	David Papineau (KCL)		18:15 - 20:00	Jason Konek (Bristol)
11.06.2014	18:15 - 20:00	Martin Peterson (Eindhoven)	05.11.2014	16:15 - 18:00	Barbara Osimani (University of Camerino)
	16:15 - 18:00	Chris Menzel (Texas A&M University)		12.11.2014	Mauricio Suarez
18.06.2014	18:15 - 20:00	Eric Schliesser (Ghent)	19.11.2014	16:15 - 18:00	Michael Stoeltzner (University of South Carolina)
	16:15 - 18:00	Gregory Wheeler (MCMP/LMU)		26.11.2014	Michael Esfeld (Lausanne)
25.06.2014	18:15 - 20:00	Otávio Bueno (University of Miami)	10.12.2014	18:15 - 20:00	Meinard Kuhlmann
30.06.2014	16:15 - 18:00	Radin Dardashti (MCMP/LMU)	15.12.2014	12:00 - 14:00	Simon Friederich (Groningen)
02.07.2014	18:15 - 20:00	Yasuo Deguchi (Kyoto)	17.12.2014	16:15 - 18:00	Henk de Regt (VU Amsterdam)

2. Colloquium in Mathematical Philosophy

The Colloquium in Mathematical Philosophy is held every week on Thursday during the term in Ludwigstraße 31, Ground Floor, Room E21. Sometimes additional sessions are organized. The speakers are invited to give a talk and are often staying for some days at our Centre. This is the list of the Thursday Speakers/Visitors January until December 2014:

			22.05.2014	18:15 - 20:00	Simon Huttegger (UCI)
			05.06.2014	18:15 - 20:00	Joao Marcos (UFRN)
			26.06.2014	16:15 - 18:00	Mathias Frisch (Maryland)
			27.06.2014	14:15 - 16:00	Chris Menzel (Texas A&M University)
			03.07.2014	18:15 - 20:00	Steven French (Leeds)
			10.07.2014	18:15 - 20:00	Yasuo Deguchi (Kyoto)
				16:15 - 18:00	Barry Loewer (Rutgers)
			17.07.2014	18:15 - 20:00	Branden Fitelson (Rutgers)
			24.07.2014	18:15 - 20:00	Branden Fitelson (Rutgers)
			03.07.2014	18:15 - 20:00	Steven French (Leeds)
			10.07.2014	18:15 - 20:00	Yasuo Deguchi (Kyoto)
			17.07.2014	16:15 - 18:00	Barry Loewer (Rutgers)
				18:15 - 20:00	Branden Fitelson (Rutgers)
			24.07.2014	18:15 - 20:00	Branden Fitelson (Rutgers)
			16.10.2014	16:15 - 18:00	Juha Saatsi (Leeds)
			06.11.2014	16:15 - 18:00	Stanislav Speranski (Sobolev Institute of Mathematics)
			13.11.2014	16:15 - 18:00	Aidan Lyon (Maryland/MCMP)
			20.11.2014	16:15 - 18:00	Joseph Berkovitz (Toronto)
				18:15 - 20:00	Chris Fuchs (Perimeter Institute)
16.01.2014	18:15 - 20:00	Andreas Stokke (Umeå University)			
	16:15 - 18:00	Catarina Dutilh Novaes (Groningen)			
23.01.2014	18:15 - 20:00	Peter Brössel (Bochum) & Anna-Maria Eder (Konstanz)			
	16:15 - 18:00	Ed Mares (Victoria Univ. of Wellington)			
30.01.2014	18:15 - 20:00	Gil Sagi (LMU)			
03.02.2014	18:15 - 20:00	Sean Walsh (UC Irvine)			
06.02.2014	18:15 - 20:00	Johanna Thoma (Toronto)			
13.02.2014	18:15 - 20:00	Jossi Berkovitz (Toronto)			
24.04.2014	18:15 - 20:00	Vieri Benci			
	16:15 - 18:00	Simon Huttegger (UCI)			
08.05.2014	18:15 - 20:00	Paolo Mancosu (UC Berkeley)			
	16:15 - 18:00	Dietmar Zaefferer (LMU)			
15.05.2014	18:15 - 20:00	Marie Duzi (Technical University Ostrava)			

27.11.2014	16:15 - 18:00	Charlotte Werndl (Salzburg)
	18:15 - 20:00	Paula Quinon (Lund University)
04.12.2014	16:15 - 18:00	Stanislav Speranski (Sobolev Institute of Mathematics)
11.12.2014	16:15 - 18:00	Markus Werning (Bochum)
18.12.2014	16:15 - 18:00	Michael De (Konstanz)
	18:15 - 20:00	Stewart Shapiro

3. Work in Progress

The MCMP is also scheduling an intern Work in Progress session, offering MCMP members to talk about their current work and to get feedback on early stages from their colleagues. This is a list of the Work in Progress Presentations that were given from January until December 2014:

16.01.2014	Johannes Korbmacher (LMU)
02.07.2014 (18:15 - 20:00)	Alexander Reutlinger (LMU)
07.07.2014 (18:15 - 20:00)	Jéssica Georgina Cabuto García
10.07.2014	Ana-Maria Cretu (Edinburgh)
17.07.2014	Anna-Maria Eder (LMU)
18.07.2014 (14:00 - 16:00)	Neil Dewar (Oxford)
24.07.2014	Florian Steinberger (LMU)
09.10.2014	Aidan Lyon (Maryland)
16.10.2014	Clayton Peteron (LMU)

30.10.2014	Seamus Bradley (LMU)
06.11.2014	Rosella Marrano
13.11.2014	Richard Dawid (LMU)
20.11.2014	Gregory Wheeler (LMU)
27.11.2014	Johannes Stern (LMU)
03.12.2014 (16:15 - 18:00)	Alessandra Basso (Helsinki)
04.12.2014	Radin Dardashti (LMU)
18.12.2014	Leon Geerdink

b. Workshops and Conferences

From the total of fifteen MCMP events in 2014 the Chair of Philosophy of Science hosted eleven workshops and conferences throughout the year:

1. Computational Methods in Philosophy

April 11th 2014, Geschwister-Scholl-Platz 1

Organizer: Stephan Hartmann and Conor Mayo-Wilson

Recently, computational methods have become an important tool in philosophy of science, epistemology, and value theory. For example, computer simulations have been used to address several central philosophical topics including (1) the evolution of language, (2) paradigm shifts and discovery within scientific communities, (3) the emergence of social norms and morality, and more. In this event, it was planned to showcase research by current faculty, students, and visitors at the Munich Center for Mathematical Philosophy (MCMP)

who employ computational methods. We also hoped to stimulate interest in the methodology of such computational methods and to encourage collaboration among philosophers and scientists working in this area.

Invited Speaker: Kevin Zollman, Will Nalls, Berta Grimau, Soroush Rafiee Rad, Hannah Übler, Conor Mayo-Wilson

2. Paraconsistent Reasoning in Science and Mathematics

June 11th until June 13th 2014, Carl-Friedrich-von-Siemens-Stiftung, Schloss Nymphenburg

Organizer: Stephan Hartmann, Holger Andreas, Peter Verdée (Ghent University, Belgium)

Paraconsistent logics restrict the inferential power of logics that trivialize inconsistent sets, such as Classical Logic. A large number of different paraconsistent logics have been developed in the previous and present century. They attempt to formalize reasoning from inconsistent premises, with the intent to explain how theories may be inconsistent, and yet meaningful and useful. Such non-trivial inconsistent theories definitely exist: this is abundantly shown in the history of science. There are moreover prototypical non-empirical cases among which naive set theory and naive truth theories are the most prominent ones. The great variety of paraconsistent logics gives rise to various, interrelated questions: What are the desiderata a paraconsistent logic should satisfy? Which paraconsistent logics score well given certain desiderata? Is there prospect of a universal approach to paraconsistent reasoning with axiomatic theories? Comparison of paraconsistent approaches in terms of inferential power. To what extent is reasoning about sets structurally analogous

to reasoning about truth? To what extent is reasoning about sets structurally analogous to reasoning with inconsistent axiomatic theories in the natural sciences? Is paraconsistent logic a normative or descriptive discipline, or intermediate between these two options? Which inconsistent but non-trivial axiomatic theories are well understood by which types of paraconsistent approaches? This conference aims to address these questions from different perspectives in order to obtain a representative overview of the state of the art in paraconsistent logics, to come up with fresh ideas for the future of paraconsistency, and to facilitate debate and collaboration beyond the borders of the different schools of paraconsistency.

Invited Speaker: Graham Priest (City University of New York, University of S. Andrews, UK), Diderik Batens (Ghent University, Belgium), Otavio Bueno (University of Miami, USA), Itala M. Loffredo D'Ottaviano (University of Campinas, Brazil), Heinrich Wansing (Ruhr Universität Bochum, Germany), Joke Meheus (Ghent University, Belgium), Francesco Berto (University of Amsterdam, The Netherlands), Andreas Kapsner, Maarten McKubre-Jordens (University of Canterbury, New Zealand), Bryson Brown (University of Lethbridge, Canada)

3. Imprecise Probabilities in Statistics and Philosophy

June 27th until June 28th 2014, Münchner Kompetenzzentrum Ethik (MKE), Geschwister-Scholl-Platz 1

Organizer: Stephan Hartmann, Seamus Bradley

Imprecise probabilities offer a model of uncertainty that is more general, less idealised than the standard precise probability

framework. Imprecise probabilities are receiving increasing attention in statistics (as well as in artificial intelligence and in economics). Recently, there has been a resurgence of philosophical interest in these generalised models of uncertainty. The aim of this workshop was to bring together philosophers and statisticians to see what we can learn from each other. We were sure that such interdisciplinary collaboration will be valuable both to philosophers and to statisticians. Topics on which we expected fruitful discussions included: updating imprecise probabilities and dilation; foundations of imprecise probabilities; procedures for eliciting imprecise probabilities; decision making with imprecise probabilities.

Invited Speaker: Fabio Cozman (University of Sao Paulo, Brazil), James M. Joyce (University of Michigan, USA), Teddy Seidenfeld (Carnegie Mellon University, USA)

4. 2nd International Summer School in Philosophy of Physics: Probabilities in Physics

July 21st until July 26th 2014, Lenzkirch/Saig in the Black Forrest

Organizer: Stephan Hartmann, Michael Esfeld (University of Lausanne, Switzerland), Detlef Dürr (LMU, Germany)

Some of the most fundamental results from physics come in a probabilistic guise. For instance, quantum mechanics can only provide probabilities for the outcomes of measurements; various ensembles in statistical mechanics are characterized by their probability distributions, and many other models in physics are random in character. But why are probabilities so ubiquitous in physics? How can we interpret the probabilities from physical theories? Are they just some „descriptive fluff“ for conveniently

representing certain patterns? Or are there ontic chances out there in the world? If so, can we think of them as dispositions or Popperian propensities? Are genuine chances compatible with determinism? And how do probabilities figure in the most prominent interpretations of quantum mechanics? These are some of the questions that we were discussing in this summer school, which addressed graduate students and postdocs from philosophy of physics and related fields.

Invited Speaker: David Z. Albert (Columbia University, USA), Jeremy Butterfield (University of Cambridge, UK), Fay Dowker (Imperial College London, UK), Michael Esfeld (University of Lausanne, Switzerland), Sheldon Goldstein (Rutgers University, USA), Thomas Müller (University of Konstanz, Germany), Mauricio Suarez (Universidad Complutense, Spain), Jos Uffink (University of Minnesota, USA), Christian Wüthrich (University of California, USA), Nino Zanghi (University of Genova, Switzerland)

5. Summer School on Mathematical Philosophy of Female Students

July 27th until August 2nd, LMU Munich

Organizer: Stephan Hartmann, Catherine Herfeld

The Munich Center for Mathematical Philosophy (MCMP) organized the first International Summer School on Mathematical Philosophy for Female Students. The summer school was open to excellent female students who want to specialize in mathematical philosophy. Due to a significant underrepresentation of women in philosophy generally and in formal philosophy in particular, the goal of this summer school was to encourage women to engage with

mathematical methods and apply them to philosophical problems. To this end, the summer school provided an infrastructure for developing expertise in some of the main formal approaches used in mathematical philosophy. We covered theories of individual and collective decision-making, agent-based modeling, and epistemic logic. Furthermore, the summer school allowed for studying formal methods in an informal setting, for lively debate, and for strengthening mathematical self-confidence and independence of female students. Finally, being located at the MCMP, the summer school also helped creating a stimulating and interdisciplinary environment to meet like-minded philosophers.

Invited Speaker: Helen Beebe (University of Manchester, UK), Rachael Briggs (Australian National University, Australia), Sonja Smets (University of Amsterdam, The Netherlands), Catrin Campbell-More, Sebastian Lutz, Conor Mayo-Wilson, Gil Sagi, Florian Steinberger

6. Bridges 2014: Philosophical Exchange in Inter-Theoretical Relations

September 2nd until September 3rd 2014, German House, New York, USA

Organizer: Stephan Hartmann, Hannes Leitgeb, Roland Poellinger

The 2-day trans-continental meeting in mathematical philosophy focused on inter-theoretical relations thereby connecting form and content of this philosophical exchange: We use theories to explain, to predict and to instruct, to talk about our world and order the objects therein. Different theories deliberately emphasize different aspects of an object, purposefully utilize different formal methods,

and necessarily confine their attention to a distinct field of interest. The desire to enlarge knowledge by combining two theories presents a research community with the task of building bridges between the structures and theoretical entities on both sides. Especially if no background theory is available as yet, this becomes a question of principle and of philosophical groundwork: If there are any – what are the inter-theoretical relations to look like? Will a unified theory possibly adjudicate between monist and dualist positions? Under what circumstances will partial translations suffice? Can the ontological status of inter-theoretical relations inform us about inter-object relations in the world? Our spectrum of interest included: reduction and emergence, mechanistic links between causal theories, belief vs. probability, mind and brain, relations between formal and informal accounts in the special sciences, cognition and the outer world.

Invited Speaker: Lucas Champollion (NYU, USA), David Chalmers (NYU, USA), Branden Fitelson (Rutgers University, USA), Alvin I. Goldman (Rutgers University, USA), Tim Maudlin (NYU, USA), Michael Strevens (NYU, USA), Stephan Hartmann, Hannes Leitgeb, Kristina Liefke, Sebastian Lutz, Thomas Meier, Roland Poellinger

7. Decisions, Groups and Networks

September 8th until September 9th 2014, Center for Advanced Studies (CAS), LMU

Organizer: Stephan Hartmann, Catherine Herfeld

In recent years, formal and empirical approaches have become central to study decision-making. Social network analysis, agent-based modeling and simulation techniques are meanwhile widely

used not only in sociology, political science, social psychology, and economics. Also philosophers increasingly point to the potentials of these approaches for addressing questions in political and moral philosophy, formal epistemology, and philosophy of science more generally. Whereas the importance of social dynamics and network structures for investigating into decision-making has been largely acknowledged, the application and results of these novel approaches raise a number of philosophical issues that have not yet been discussed in the literature. This workshop brought together social scientists, philosophers, decision theorists, and psychologists to explore and discuss the potentials and limitations of these approaches for scientific practice and philosophy alike.

Invited Speaker: Skyler Cranmer (UNC, USA), Ulrike Hahn (University of London, UK), Bernhard Kittel (University of Vienna, Austria), Martin Kocher (LMU, Germany), Friedericke Mengel (University of Essex, UK), Andreas Mojzisch (University of Hildesheim, Germany), Paul Thurner (LMU, Germany), Anja Tuschke (LMU, Germany), Stephan Hartmann, Catherine Herfeld, Aidan Lyon

8. Explanation Beyond Causation

October 23rd until October 24th 2014, Carl-Friedrich-von-Siemens-Stiftung, Schloss Nymphenburg

Organizer: Stephan Hartmann, Alexander Reutlinger

The presently received view regarding the question “what is a scientific explanation?” is the causal model of explanation. According to this model, the sciences explain by providing information about causes and causal mechanisms. However, in the

recent literature, an increasing number of philosophers argue that the explanatory practices in the sciences are considerably richer than the causal model suggests. These philosophers argue that there are non-causal explanations that cannot be accommodated by the causal model. Case studies of non-causal explanations come in a surprisingly diverse variety: for instance, the non-causal character of scientific explanations is based on the explanatory use of non-causal laws, purely mathematical facts, symmetry principles, inter-theoretic relations, renormalization group methods, and so forth. However, if there are non-causal ways of explaining, then the causal model cannot be the whole story about scientific explanation. The goal of the conference was to shed light on, by and large, unexplored philosophical terrain: that is, to develop a philosophical account of various aspects of non-causal explanations in the sciences.

Invited Speaker: Tim Maudlin (NYU, USA), Margaret Morrison (University of Toronto, Canada), Bradford Skow (MIT, USA), Jan Sprenger (Tilburg University, The Netherlands)

9. Existiert Gott?

December 8th 2014, LMU Munich, Public Evening Lecture

Organizer: Stephan Hartmann

Does god exist? If there is a question people cannot reach an answer for this is it. But why is it, that the existence of god divides us for centuries? Is it because you cannot rationally argue for an answer to this question? Or can we make rational arguments but we simply don't know which arguments are convincing and which aren't? If there is anybody giving any answer to these questions it is philosophers: our invited guests will give their point of view on the

question "Does god exist?" before they will discuss their point among themselves and with the audience.

Invited Speaker: Norbert Hoerster (University of Mainz, Germany), Winfried Löffler (University of Innsbruck, Austria)

10. Agent-Based Modeling in Philosophy

December 11th until December 13th 2014, Center for Advanced Studies (CAS), LMU

Organizer: Conor Mayo-Wilson, Lee Elkin and Stephan Hartman

In the past two decades, agent-based models (ABMs) have become ubiquitous in philosophy and various sciences. ABMs have been applied, for example, to study the evolution of norms and language, to understand migration patterns of past civilizations, to investigate how population levels change in ecosystems over time, and more. In contrast with classical economic models or population-level models in biology, ABMs are praised for their lack of assumptions and their flexibility. Nonetheless, many of the methodological and epistemological questions raised by ABMs have yet to be fully articulated and answered. For example, there are unresolved debates about how to test (or "validate") ABMs, about the scope of their applicability in philosophy and the sciences, and about their implications or our understanding of reduction, emergence, and complexity in the sciences. This conference aimed to bring together an interdisciplinary group of researchers aimed at understanding the foundations of agent-based modeling and how the practice can inform and be informed by philosophy. Topics of the conference included, but were not limited to: Advantages and disadvantages of agent-based models in relation to classical economic and biological

models; Testing and/or "validating" agent-based models; How agent-based models inform discussions of reduction and/or emergence in the sciences; Agent-based models and complexity; Applications of ABMs in philosophy, which may include, but is not limited to, investigating the evolution of norms and/or language, or the study of dynamics of scientific communities and theory/paradigm change.

Invited Speaker: Jason Alexander (LSE, UK), Rosaria Conte (Institute for Cognitive Science and Technology Rome, Italy), Scott Page (University of Michigan, USA), Michael Weisberg (University of Pennsylvania, USA), Kevin Zollman (Carnegie Mellon University, USA)

11. Irvine-Munich Workshop on the Foundations of Classical and Field Theories

December 14th 2014, MCMP, LMU

Organizer: Samuel Fletcher and Karim Thébault

Since its introduction in the nineteenth century, the concept of a field as an independent physical entity has become central to modern physics. Many highly successful classical theories, most notably electromagnetism and gravitation, were reformulated along field-theoretic lines, leading to advances in the understanding of their respective subject matters as well as enriching knowledge of field theory itself. The great development of these classical field theories influenced the founders of quantum mechanics, with the subsequent formulation of quantum field theories providing molds from which the Standard Model of particle physics has been cast. Yet the profound difficulties of finding a quantum field theory that incorporates gravitation have forced physicists and philosophers to

confront the foundations of field theory with more scrutiny. While the multifaceted nature of the difficulties with quantum field theory may have reopened inquiry into classical field theories in hopes of finding potent analogies, this study has developed a rich life of its own. This workshop brought together communities of researchers working from different viewpoints on the foundations of both classical and quantum field theory.

Invited Speaker: Benjamin Feintzeig (UC Irvine, USA), Sarita Rosenstock (UC Irvine, USA), James Weatherall (UC Irvine, USA), Michael Stöltzner (University of South Carolina, USA), Erik Curiel, Brian Padden, Samuel Fletcher, Karim Thébault

c. Additional Activities

1. Philosophy of Physics Reading Group

This reading group focuses on the foundations of modern physics and addresses conceptual, formal, and philosophical problems. We discuss contemporary papers from mathematics, physics, and philosophy of science journals that often relate to research that is conducted by some of the members of the group. In the winter 2014/5 semester, we focus on topics in the foundations of classical mechanics, especially different formulations of classical mechanics, their interrelations, and their physical and metaphysical presuppositions. Participants are encouraged to suggest interesting papers. The group holds usually bi-weekly meetings throughout the academic term, and all are welcome. The reading group convener for the winter 2014/5 semester was Samuel Fletcher. The Philosophy of Physics group at the MCMP also hosts the mailing list philphysmunich, maintained by Karim Thébault. The list is a subscription-based electronic mailing list for the announcement of

events relating to the foundations and philosophy of physics within Munich. In general, these will be talks, conferences, workshops or public lectures. The intended users of the list include physicists, philosophers and historians of physics.

2. Imprecise Probabilities Reading Group

This reading group focuses on the philosophical problems raised by imprecise probabilities. One motivation for using imprecise probabilities instead of precise probabilities is that former are more psychologically realistic — real people tend not to have precise, real-valued probabilities in their heads. However, this small dose of realism causes a number of interesting philosophical difficulties. The reading group will be focused on the lack of proper scoring rules for imprecise probabilities, how to define probabilistic independence in the context of imprecise probabilities, and methods of imprecise probability aggregation. The convener of the reading group is Aidan Lyon.

3. A reason-based Rational Choice Theory Reading Group

The goal of this reading group is to get acquainted with the core papers on the reason-based theory of rational choice that has recently been formulated by Christian List and Franz Dietrich. The idea behind List and Dietrich's approach is to fuse formal rational choice theory with the philosophical literature on reasons in order to develop a research program concerned with the role of reasons in rational agency more generally. List and Dietrich start from the observation that the philosophical literature on reasons rarely engages with formal approaches to decision-making, while formal rational choice theorists do not take seriously into account the role of reasons in making rational choices. List and Dietrich complement

formal rational choice theory with an account of preference formation, which embodies the idea that preferences are formed on the basis of one's motivating reasons and can be revised in light of such reasons. As such, their reason-based rational choice theory captures the relationship between deliberation about reasons and rational choices. The conveners of this reading group are Catherine Herfeld and Cédric Paternotte.

(IIX) Awards

Several MCMP members or MCMP related researchers have won awards or research programs in 2014. This is the list:

Catherine Herfeld was awarded a Fellowship as Junior Researcher in Residence from the Center for Advanced Studies (CAS) at LMU Munich, working on the project "How Theories Travel: Rational Choice Theories Between Mathematical Formalism, Normative Choice Rules and the Behavioral Sciences, 1944-1970".

She has also been awarded the 2014 Doctoral Dissertation Prize by the Wittener Universitätsgesellschaft of Witten/Herdecke University for her thesis entitled "The Many Faces of Rational Choice Theory".

At the History of Economics Society Conference in Montreal in June 2014 she has received the 2014 Joseph Dorfman Best Dissertation Prize.

Soroush Rafiee Rad successfully defended his PhD thesis "Four Essays in Mathematical Philosophy" at Tilburg University. From 1 October onwards, Soroush holds a postdoc position at the ILLC at the University of Amsterdam.

At this year's congress of the European Society for Analytic Philosophy (ESAP) in Bucharest, **Stephan Hartmann** was elected President of the society. The next congress of ESAP will take place in Munich in August 2017.

Juha Saatsi (Leeds), **Alexander Reutlinger** (MCMP) and Markus Schrenk (Muenster) received a fellowship grant from the Durham Emergence Project. Their project explores the impact of recent (metaphysical) accounts of laws of nature and causation on issues regarding emergence.

Kristina Liefke successfully defended her PhD thesis at Tilburg University on Friday 25 April. The title of her thesis is "A Single-Type Semantics for Natural Language."

Holger Andreas has received a Heisenberg grant from the German Research Foundation (DFG). His project addresses various topics in the area of paraconsistent reasoning. It centers around a modular semantics for axiomatic theories. Such a semantics draws on the structuralist approach by Sneed and Stegmüller, and will be developed using networks of partial structures.

(IV) We hosted LMU Faculty, Doctoral Fellows and Post-Doctoral Fellows:

Here is the list of LMU faculty, doctoral and postdoctoral fellows that were members of the MCMP during the period from January to December 2014:

Dr. Holger Andreas

Dr. Seamus Bradley

Dr. Michael Cuffaro

Dr. Curiel Erik

Radin Dardashti

Dr. PD Richard Dawid

Lee Elkin

Dr. Samuel Fletcher

Prof. Dr. Stephan Hartmann

Dr. Catherine Herfeld

Karolina Krzyzanowska

Josè Leyva

Dr. Kristina Liefke

Dr. Sebastian Lutz

Dr. Aidan Lyon

Dr. Conor Mayo-Wilson

Brian Padden

Patricia Palacios

Dr. Cédric Paternotte

Dr. Alexander Reutlinger

Dr. Karim Thébault

Dr. Gregory Wheeler

a) Dr. Holger Andreas

1. Type of Affiliation with the MCMP

Holger Andreas was assistant professor on MCMP funds until April 31st, when he was awarded a Heisenberg- Fellowship May 1st until September 30th. He left the MCMP to take up a position as 1st rank tenure track professor at the University of British Columbia, Canada.

2. Research Projects

Two projects have been pursued, which resulted into two submitted papers. The first was a Simple Ramsey-Test Semantics of Conditionals, exploiting the belief change formalism of N. Rescher/ G. Brewka. It could be shown that on this belief change model, the triviality result by Gärdenfors can be avoided. The second was about Understanding Dispositions by the Ramsey Test. Result from the simple Ramsey-Test Semantics have been used to give a novel, epistemic account of dispositions. It is claimed that, for the first time, a formal analysis of counterexamples to the simple conditional analysis of dispositions could be given. This analysis has been used to refine the conditional analysis, then.

3. Academic Output

Publications:

(2014): Carnapian Structuralism, *Erkenntnis*, Volume 79, pp 1373-1391.

(2014): Basic Concepts of Structuralism, *Erkenntnis*, Volume 79.

(2014): Perspectives on Structuralism, Special Issue in *Erkenntnis*, co-edited with Frank Zenker.

(201x): A Simple Ramsey Test Semantics of Conditionals.

(201x): Understanding Dispositions by the Ramsey Test.

(201x): A Finite Memory Argument for an Axiomatic Conception of Scientific Theories.

Presentations:

1. Networks of Partial Structures: Workshop on Structural Realism, Structuralism and Theory Change, MCMP Munich.

2. A Ramsey Test Counterfactual Theory of Causation: SPS, Lille, together with Lorenzo Casini.

SILFS, Rome 3, together with Lorenzo Casini.

3. A Paraconsistent Generalization of Carnap's Logic of Theoretical Terms: Conference on Paraconsistent Reasoning in Science and Mathematics, MCMP Munich.

Vienna Circle Institute, Vienna.

Further Activities:

Organizer Paraconsistent Reasoning in Science and Mathematics conference at the MCMP.

b) Dr. Seamus Bradley

1. Type of Affiliation with the MCMP

Seamus Bradley is a Postdoctoral Fellow at the MCMP.

2. Research Projects

Seamus Bradley's work was mainly on formal epistemology, in particular on "Imprecise Probability". He also worked on rationality in the context of theory choice in philosophy of science, and on objective chances. He recently started a collaboration with Karim Thébault and Alexander Reutlinger to work on the methodology of econophysics. He is currently writing up an Emmy Noether proposal

for a project titled "Philosophical Foundations of Imprecise Probability".

3. Academic Output

Publications:

(2014): Should subjective probabilities be sharp?, *Episteme*, vol. 11, pp. 277--289, together with Katie Steele.

(2014): Uncertainty, learning and the 'problem' of dilation, *Erkenntnis*, vol. 79, pp. 1287--1303, together with Katie Steele.

(2014): Imprecise Probabilities, *Stanford Encyclopedia of Philosophy*, <http://plato.stanford.edu/entries/imprecise-probabilities/>

(201x): Can free evidence be bad? Value of Information for the imprecise probabilist, together with Katie Steele.

(201x): Weak rationality and theory choice.

(201x): How to choose among choice functions.

In preparation:

(201x): A note on the "convex hull of valuations" argument.

(201x): Justification and omniscience.

(201x): Three routes to evidence dynamics.

(201x): Vague chances.

(201x): Modelling inequality, together with Karim Thébault and Alexander Reutlinger.

Presentations:

1. A general theory of updating beliefs: Philosophy of probability conference, Venice international university, March 31--April 04 2014.

2. Learning from dilation and belief inertia: Reasoning club conference, University of Kent, 23--24 June 2014.

Imprecise Probabilities in Statistics and Philosophy, Munich Centre for Mathematical Philosophy, 27--28 June 2014.

3. Rational theory choice: ECAP08, University of Bucharest, August 28--September 02 2014.

4. Nonprobabilistic chance?: Chance and conditionals workshop, Institute of Philosophy London, June 18--19 2014.

Work in progress seminar, MCMP, October 30 2014.

Further Activities:

Organizer Imprecise Probabilities in Statistics and Philosophy workshop 27--28 Jun 2014 at the MCMP.

Courses taught:

Fall 2013/2014: Practical Rationality (seminar).

Fall 2014/2015: Evidence and scientific method (seminar).

c) Dr. Michael Cuffaro

1. Type of Affiliation with the MCMP

Michael Cuffaro is a Postdoctoral Fellow at the MCMP.

2. Research Projects

The primary focus of Michael Cuffaro's research can be described as being at the intersection of the philosophy of physics and the philosophy of computer science. One of the projects he focused on in 2014 was that of investigating what can be said about the conceptual space occupied by classical computer simulations of quantum mechanical systems; i.e., whether or not these classical simulations can be conceived as similar in kind to alternative 'hidden variables' formulations of quantum mechanics. That they can be thought of in this way is illuminating for our understanding of the status of certain 'no-go theorems' in quantum mechanics, as well as for our understanding of the resources used in quantum computational systems.

A second project investigated the relation of these and other computational questions to more general problems in the philosophy of science. Specifically, he investigated whether reflecting on explanations of computational processes can help inform our general philosophical conception of scientific explanation. In particular the project is to show that certain questions involving computational processes are best thought of as so-called 'how-possibly' questions (i.e., 'how is it possible that X?'). Typically how-possibly questions are assigned only a secondary role in scientific research by philosophers of science. But in the cases he considers, they are at the forefront of inquiry. The ultimate goal of this project is to show that such questions are not limited to computer science, but that they can be found in physics and in many of the other special sciences as well.

A third focus of his research, which he began in 2014, was more historical in nature. The project is to consider, in detail, some of the various Neo-Kantian responses to the development of quantum mechanics that were put forward in the early part of the last century, both explicitly (Grete Hermann, Ernst Cassirer, and others) and implicitly (Niels Bohr, Werner Heisenberg, and others). The ultimate

aim of the project is to arrive at a philosophically more robust and defensible successor to the Copenhagen interpretation of quantum mechanics (which he favours).

3. Academic Output

Publications:

(201x): On the Significance of the Gottesman-Knill Theorem, *The British Journal for the Philosophy of Science*.

(201x): How-Possibly Explanations in Quantum Computer Science, *Philosophy of Science*.

(2014): Review of "Quantum Information Theory and the Foundations of Quantum Mechanics" by Christopher G. Timpson, *Philosophy of Science*, 81: 681-684.

In preparation:

(201x): Revised version of "Quantum Computation", *Stanford Encyclopedia of Philosophy*, together with Amit Hagar.

(201x): Reconsidering Quantum No-Go Theorems from a Computational Perspective.

(201x): When Explaining How-Possibly is Enough.

(201x): Kantian Frameworks for Quantum Mechanics.

Presentations:

1. The Kantian Framework of Niels Bohr's Philosophy of Science: The Electron as Noumenon: Concordia University Philosophy Department, Montréal, Québec, September 2014.

2. How-Possibly Explanations in Quantum Computer Science: Philosophy of Science Association (PSA) Biennial Meeting, Chicago, Illinois, November 2014.

Triennial International Conference of the Italian Society for Logic and Philosophy of Sciences (SILFS), Rome, Italy, June 2014.

3. Reconsidering Quantum No-Go Theorems from a Computational Perspective: University of Oxford, Philosophy of Physics Research Seminar, Oxford, UK, June 2014.

University of Bristol, Philosophy Department, Bristol, UK, June 2014.

4. The Physical and Computational Significance of the Bell Inequalities: Workshop: Entanglement and Speed-up: Philosophical Issues in Quantum Computing, Stuttgart, Germany, May 2014.

5. On the Significance of the Gottesman-Knill Theorem: Deutsche Physikalische Gesellschaft (German Physical Society) meeting, Working Group on Philosophy of Physics, Berlin, Germany, March 2014.

Further Activities:

Lead organiser of the interdisciplinary conference “Quantum Computation, Quantum Information, and the Exact Sciences” (www.qcompinfo2015.philosophie.uni-muenchen.de), a two-day conference that was eventually held in January 2015 at LMU Munich, organised in conjunction with the Max Planck Institute of Quantum Optics.

Lead organiser of the interdisciplinary reading group on the philosophy of quantum information theory, LMU Munich, April – July, 2014, organised in conjunction with members of the Max Planck Institute of Quantum Optics.

In 2014 Michael Cuffaro has taught the advanced seminars “Introduction to the Philosophy of Physics”, “Classical Concepts in the History and Philosophy of Physics” and “Philosophy of Quantum Computation”. He was also M.A. thesis co-supervisor for Cameron Beebe, studying in the MCMP master program.

Referee service (beginning in 2014): Journals: British Journal for the History of Philosophy, Philosophy of Science, Minds & Machines, Review of Symbolic Logic, Foundations of Physics, European Journal for Philosophy of Science, Croatian Journal of Philosophy. Papers contributed to edited volumes: 2013 European Philosophy of Science Association Conference Proceedings.

Michael Cuffaro is the area editor for the philosophy of quantum mechanics on PhilPapers.org.

d) Dr. Erik Curiel

1. Type of Affiliation with the MCMP

Erik Curiel is a Postdoctoral Fellow at the MCMP.

2. Research Projects

He conducted research primarily in three areas: 1. the thermodynamics of black holes and cosmological singularities; 2. the semantics of scientific theories; 3. several general issues in the foundations of classical general relativity (such as the existence of spacetime structure and counterfactuals).

3. Academic Output

(201x): On the Existence of Spacetime Structure, *British Journal for Philosophy of Science*.

(201x): The Thermodynamics of Classical Black Holes, in: *The Philosophy of Cosmology*, eds. K. Chamcham and S. Saunders, Cambridge University Press (part of their series "Philosophy and the Foundations of Physics").

(201x): A Primer on Energy Conditions, in: *Towards a Theory of Spacetime Theories*, eds. D. Lehmkuhl, G. Schiemann, and E. Scholz.

(2014): Classical Mechanics Is Lagrangian; It Is Not Hamiltonian, *British Journal of Philosophy of Science*, 2014, 65(2):269--321.

In Preparation:

(201x): The Delicacy of Counterfactuals in General Relativity (Or: If Metrical Structure Were Not Dynamical, Counterfactuals Would Be Easy)".

(201x): Measure, Topology and Probabilistic Reasoning in Cosmology.

(201x): Are Classical Black Holes Hot or Cold?.

(201x): Why Rigid Designation Cannot Stand on Scientific Ground.

On Geometric Objects, the Non-Existence of a Gravitational Stress-Energy Tensor, and the Uniqueness of the Einstein Field Equation.

On the Propriety of Physical Theories as a Basis for Their Semantics.

Presentations:

1. Classical Black Holes Are Hot: part of the symposium "Foundations of Gravity and Thermodynamics", organized by Erik

Curiel, with fellow speakers Robert Wald, Craig Callender, David Wallace and Karim Thébault, Philosophy of Science Association, Biennial Conference, Chicago, USA.

British Society for Philosophy of Science, Annual Conference, Cambridge, UK.

2. On Newton's Third Rule of Reasoning in Philosophy, "The Universal Qualities of Bodies" and the Speciation of Physical Systems: HOPOS, Annual Conference, Ghent, The Netherlands.

3. Carnot Cycles and Black Hole Entropy': Italian Society for Logic and Philosophy of Sciences, Triennial Conference, Roma TRE, Rome, Italy.

4. Possible Generalizations of Lagrangian Mechanics Based on Generalizations of Tangent-Bundle Geometry: Conference "Foundations of Classical Field Theory", MCMP Munich, Germany.

5. A Novel Characterization of Geometrical Objects: Jagiellonian University, Colloquia, Institute of Philosophy, Cracow, Poland.

6. On the Existence of Spacetime Structure: Jagiellonian University, Colloquia, Institute of Philosophy, Cracow, Poland.

7. Why Rigid Designation Cannot Stand on Scientific Ground: Jagiellonian University, Colloquia, Institute of Philosophy, Cracow, Poland.

8. The Thermodynamics of Classical Black Holes: Philosophy of Cosmology Programme, University of Oxford, Conference "Philosophy of Cosmology", Tenerife, Spain.

9. Probabilities in Cosmology: Second International Summer School in Philosophy of Physics, "Probabilities in Physics", Lenzkirch-Saig, Germany.

10. Some Puzzles and Theorems about Newtonian Gravitational Energy: Rotman Institute of Philosophy, Colloquium, University Of Western Ontario, London, Canada.

Further Activities:

Courses taught: "Einstein for Everyone" (undergraduate, graduate); "Foundations of General Relativity" (graduate, cross-listed in physics); "Kant and the Philosophy of Science" (graduate).

e) Radin Dardashti

1. Type of Affiliation with the MCMP

Radin Dardashti has been a MCMP Doctoral Fellow (funded by the MCMP) since October 2012.

2. Research Projects

Radin has been working on several topics relevant to his PhD thesis. These are divided into two main parts. First, Radin considers several challenges to ordinary scientific methodology that one can find in modern fundamental physics. Second, he analyses the significance of symmetries in particle physics for the metaphysical and epistemological discussions of structuralism.

3. Academic Output

Publications:

(201x): Confirmation via Analogue Simulation: What Dumb Holes Can Tell us About Gravity, together with Karim Thébault and Eric Winsberg, *the British Journal for the Philosophy of Science*.

In Preparation:

(201x): No Alternatives for What? Non-empirical Evidence in the Case of String Theory.

(201x): Combining Internal and External Symmetries in Particle Physics. A problem for Structuralism.

Presentations:

1. Confirmation via Analogue Simulation: What Dumbholes Could Tell Us About Gravity: Philosophy of Science Association Annual Meeting, Chicago, USA.

2nd International Summer School in Philosophy of Physics, Probabilities in Physics, Black Forest, Germany.

British Society for the Philosophy of Science Conference, Cambridge, UK.

2. The Distinction Between Internal and External Symmetries: Colloquium in Logic, Philosophy of Science and Philosophy, Munich Center for Mathematical Philosophy, Munich, Germany.

3. The Internal/External Distinction in the Light of Supersymmetry: 2nd Spring School in Particle Physics and Philosophy, Wuppertal, Germany.

DPG Frühjahrstagung, Berlin, Germany.

Further Activities:

Courses: "Einführung in die Wissenschaftstheorie" (Prof. Hartmann) SS2014, Teaching Assistant.

"Einführung in die Logik" (Prof. Leitgeb) WS 2014/15, Teaching Assistant

Conference Organization 2nd International Summer School in Philosophy of Physics: Probabilities in Physics, Lenzkirch/Saig, Germany

Refereeing: Studies in the History and Philosophy of Physics, Synthese, Erkenntnis

f) Dr. PD Richard Dawid

1. Type of affiliation with the MCMP

Richard Dawid has been working as a visiting fellow with an MCMP fellowship throughout 2014. He will have his own DFG project in 2015.

2. Summary of research

Richard Dawid has worked on the epistemology of the Higgs particle, aiming at a Bayesian perspective on the issue. He has also worked on two distinct projects in the philosophy of string theory.

One project compares the role of dualities in string theories with other cases of empirical equivalence between theories in the history of physics. The other project, carried out in cooperation with Michael Stöltzner from UC South Carolina, who is staying in Munich for the academic year 2014/15, investigates the role of the action principle in string theory. In cooperation with Stephan Hartmann, he wrote a paper on the base rate fallacy in the no miracles argument for scientific realism.

3. Academic output

(201x): NMA without Base Rate Fallacy, together with Stephan Hartmann.

(201x): Bayesian Perspectives on the Discovery of the Higgs Particle.

(201x): Turning Norton's Dome Against Material Induction, *PhilSci Archive 9637*.

(201x): Many Worlds: Decoherent or Incoherent?, *Synthese*, together with Karim Thébault, DOI 10.1007/s11229-014-0650-8, online first.

(201x): The No-Alternatives Argument, *British Journal of the Philosophy of Science*, together with Stephan Hartmann and Jan Sprenger, DOI 10.1093, online first.

(201x): Higgs Discovery and the Look Elsewhere Effect, *Philosophy of Science*.

(2014): Against the Empirical Viability of the Wallace Deutsch Approach to Quantum Mechanics, *Studies in the History and Philosophy of Physics* 47: 55-61, together with Karim Thébault.

Presentations:

1. String Theory and Empirical Equivalence: MCMP Munich Work in Progress Talk.
2. String Dualities and Empirical Equivalence: Workshop “Foundations of Dualities”, Florence, Italy.
3. Modelling Scientific Confirmation: Conference “Models and Inferences in Science”, Rome, Italy.
4. Probability and Confidence: What does it mean to have discovered the Higgs Boson?: Talk University of Tübingen, Germany.
5. Bayesian Perspectives on the Discovery of the Higgs Particle: Workshop “Evidence, Discovery, Proof: Measuring the Higgs Particle”, University of South Carolina, Columbia, SC, USA.
6. String Theory and the Scientific Method: the Academy of Science in Budapest, Hungary.

4. Other activities.

Guest editor of the special issue “Epistemology of the Higgs Search” for *Synthese*, forthcoming.

Co-Organizer of the Workshop “Evidence, Discovery, Proof: Measuring the Higgs Particle” at the University of South Carolina, Columbia, SC, April 2014.

Teaching winter term 2014/15: ‘Philosophy of Mind’, seminar, advanced BA and MA level, LMU Munich.

‘Classical Empiricists – Locke, Berkeley, Hume’, seminar, MA level, LMU Munich

‘Scientific Method and Knowledge’ lecture course, advanced BA and MA level, University of Vienna.

2nd PhD supervisor: Radin Dardashti, LMU Munich, ongoing.

Reviewer and Committee: Lukas Mairhofer, University of Vienna 2014 .

Master Examination Committee: Arne Traun, University of Vienna, August 2014.

Public Visibility: Interview by Luca Moretti for *The Reasoner*, Vol 8, Nr 8 (August 2014).

Interview by Richard Marshall for *3AM:Magazine*, (July 2014).

Presentation of the paper “The No Alternatives Argument” with Stephan Hartmann and Jan Sprenger on the Oxford University Press Blog (April 2014).

g) Lee Elkin

1. Type of Affiliation with the MCMP

Lee Elkin is a doctoral fellow since January 2014.

2. Research Projects

Lee Elkin has been working on belief revision models related to his PhD dissertation.

3. Academic Output

Presentations:

1. A Conciliation Model for Polarized Beliefs: The British Society for the Philosophy of Science, University of Cambridge, July 2014.
2. Disagreement and Imprecise Credal States: Pittsburgh Area Philosophy Colloquium, Washington & Jefferson College, September 2014.
3. Peer Disagreements: American Philosophical Association- Pacific Division, Vancouver, accepted for the April Meeting 2015, together with Gregory Wheeler.

h) Dr. Samuel Fletcher

1. Type of Affiliation with the MCMP

Samuel Fletcher has been a Marie Curie Fellow at the MCMP since July 2014.

2. Research Projects

Samuel Fletcher works primarily in philosophy of physics, philosophy of science, and philosophy of statistics. His main focus at the MCMP has been on expanding his dissertation work on intertheoretic reduction for theories of spacetime/gravitation, extending it as well to other physical theories. He is also working on topics concerning the foundations and interpretation of quantum mechanics (e.g., hidden variables, and quantum holism), and the nature of statistical evidence (e.g., the role of the likelihood principle).

3. Academic Output

Publications:

In preparation:

- (201x): The Topology of Intertheoretic Reduction.
- (201x): On the Reduction of General Relativity to Newtonian Gravitation.
- (201x): Global Spacetime Similarity.
- (201x): On the Local Flatness of Spacetime, together with James Weatherall.
- (201x): Holism and Synchronic Emergence: Quantum vs. Classical Mechanics.
- (201x): On Noncontextual, Non-Kolmogorovian Hidden Variable Theories, together with Ben Feintzeig.
- (201x): Theory and Intertheoretic Reduction.
- (201x): New Foundations for Physical Geometry?: A Critical Review.
- (201x): Model Verification and the Likelihood Principle.

Presentations:

1. The Topology of Intertheoretic Reduction: Department of Theoretical Philosophy, University of Bucharest, November 2014
Institute of Philosophy, Hungarian Academy of Sciences, Budapest, September 2014
Explanation and Reduction Seminar, Department of Philosophy, University of Cologne, July 2014

2. On the Reduction of General Relativity to Newtonian Gravitation: Theoretical Philosophy Forum, Eötvös University, Budapest, September 2014

3. Global Spacetime Similarity: DPG Physics School on General Relativity @ 99, Bad Honnef, Germany, September 2014 (poster presentation)

British Society for the Philosophy of Science Annual Meeting, University of Cambridge, July 2014

4. On the Local Flatness of Spacetime: Department of Philosophy, University of Salzburg, December 2014, together with James Weatherall

Philosophy of Physics Workshop, University of Bucharest, November 2014

Vienna Center for Quantum Science and Technology, October 2014.

Munich Center for Mathematical Philosophy, LMU Munich, October 2014

Sigma Club, London School of Economics, October 2014

3rd International Interdisciplinary Summer School: Arches and Scaffoldings, University of Tübingen, August 2014

5. Holism and Synchronic Emergence: Quantum vs. Classical Mechanics: The Metaphysics of Quantum Mechanics, Corpus Christi College, Oxford University, October 2014 (poster presentation)

6. Topological Methods for Intertheoretic Reduction in Physics: European and national funding opportunities for early career researchers, LMU Munich, October 2014 (poster presentation)

7. On Noncontextual, Non-Kolmogorovian Hidden Variable Theories: 2nd Budapest-Krakow Workshop on Probability, Causality and Determinism, Jagiellonian , together with Ben Feintzeig

University, Krakow, December 2014

2nd International Summer School in Philosophy of Physics: Probabilities in Physics, Lenzkirch/Saig, Germany, July 2014

8. Classical Field Theory and Intertheoretic Reduction: Irvine-Munich Workshop on Foundations of Classical and Quantum Field Theories, LMU Munich, December 2014

Further Activities:

Convener/Organizer of the Philosophy of Physics Reading Group: biweekly in winter term (10/14-1/15), focused on foundations of classical mechanics.

Co-organizer (with Karim Thébault) of Irvine-Munich Workshop on Foundations of Classical and Quantum Field Theories, 14 December.

Other conferences attended: Philosophy of Science Association Biennial Meeting, 6-9 November, Chicago, IL.

Workshop on Entanglement, 28-29 November, Université Paris-Diderot.

Grant applications (successful):

PSA/HSA travel grant (543 USD) for Philosophy of Science Association Biennial Meeting, in capacity as session chair.

i) Prof. Dr. Stephan Hartmann

1. Type of Affiliation with the MCMP

Stephan Hartmann is head of the Chair of Philosophy of Science and Co-Director of the MCMP.

2. Research Projects

Stephan Hartmann has been working in General Philosophy of Science, Bayesian Epistemology, Philosophy of Physics and Social and Political Philosophy.

3. Academic Output

Publications:

(2014): On the Emergence of Descriptive Norms, *Politics, philosophy and Economics* 13:3-22, together with Ryan Muldoon, Chiara Lisiciandra, Cristina Bicchieri, and Jan Sprenger (Journal Version).

(2014): Why Are there Descriptive Norms? Because We Looked for Them, *Synthese* 191:4409-4429, together with Ryan Muldoon and Chiara Lisiciandra (Journal Version).

In preparation:

(201x): Montague Reduction, Confirmation, and the Syntax Semantics Relation, together with Kristina Liefke.

(201x): Generalized Dicke States.

Presentations:

1. Bayesian Argumentation: Workshop Modèles de la Rationalité, Paris, France.

2. A New Solution to the Problem of Old Evidence: PSA 2014, Chicago, USA.

Institute of Philosophy, Hungarian Academy of the Sciences, Budapest, Hungary.

3. Anchoring in Deliberations: Workshop Decisions, Groups and Networks, LMU Munich, Germany.

4. Mathematical Philosophy, Science and Public Policy: Public Evening Lecture at the German Center for Research and Innovation, New York, USA.

5. Voting, Deliberation and Truth: Conference Bridges 2014: Philosophical Exchange on Inter-theoretical Relations, New York, USA.

Lecture Series *Frontiers of Science, Technology, and Philosophy* at the Carl von Linde-Akademie, TUM, Germany.

6. Learning Conditionals: Department of Philosophy, University of Salzburg, Austria.

Workshop Philosophy of Probability, Venice International University, Italy.

Department of Philosophy, University of Toronto, Canada.

7. The No-Alternative Argument: Department of Philosophy, University of Florence, Italy.

Department of Philosophy, University of Rome 3, Italy.

Sydney Centre for the Foundations of Science, Australia.

Faculty of Physics, RWTH Aachen, Germany.

8. Ordinary Reasoning, Scientific Reasoning, and the Underdetermination of Theories by Data: Seeon Abbey, Germany.

j) Dr. Catherine Herfeld

1. Type of Affiliation with the MCMP

Catherine Herfeld is a postdoctoral research fellow at the MCMP since June 2013.

2. Research Projects

In her months at the MCMP, Catherine is working on several projects. She has worked on two books, of which one is under contract with Cambridge University Press. For the second book, decision on a publisher will be made in March. Her larger area of expertise is philosophy of the social sciences, and more specifically philosophy and history of economics. She has also done extensive work on gathering quantitative and qualitative data for a project entitled 'Women in Philosophy', which she is currently analyzing and writing up for publication. Catherine was awarded a Fellowship as Junior Researcher in Residence from the Center for Advanced Studies (CAS) at the LMU Munich. Catherine will spend the summer term 2015 at the CAS working on a project 'How Theories Travel: Rational Choice Theories Between Mathematical Formalism,

Normative Choice Rules and the Behavioral Sciences, 1944-1970'. She will also be working closely with invited visiting researchers Thomas Sturm (UAB) and Chiara Lisciandra (TINT Helsinki).

3. Activities

Publications:

(201x): Conversations on Rational Choice Theory.

(201x): Philosophie der Politikwissenschaft, in: Reydon, Thomas/Lohse, Simon: *Philosophie der Einzelwissenschaften*.

(201x): Book review – Erickson, P. et al. (2013): *How Reason Almost Lost its Mind: The Strange Career of Cold War Rationality*, Chicago: University of Chicago Press, *Journal of Behavioral and Experimental Economics*.

(201x): Defining the Rules of Rationality: Marschak, Koopmans, and the Normative Shift in Economics, 1943-1954, *History of Political Economy*.

(201x): Explaining Principles and Predicting Patterns: The Problem of Modeling Complex Phenomena in Economics, *Journal of Economic Methodology*.

(2014): Rational Choice as a Toolbox for the Economist: An Interview with Itzhak Gilboa, *Erasmus Journal for Philosophy and Economics* 7 (2), pp. 116-141.

(2014): Book review – Steve Kates (2013): *Defending the History of Economic Thought*, Cheltenham: Edward Elgar, *Journal of Economic Literature* 52 (4).

(2014): Report on Workshop “Decisions, Groups, and Networks, 8-9 September, 2014”, *The Reasoner*, 8 (12), pp. 132-133.

In Preparation:

(201x): The Many Faces of Rational Choice Theory.

(201x): An Argument for Local Critique in Philosophy of Economics: The Case of Rational Choice Theory.

(201x): The Economist’s Persisting Commitment to Methodological Rationalism.

(201x): Conflicts of Interest in Science: Their Implications for Epistemic Peerhood and the Significance of Dissent, together with Lee Elkin and Stephan Hartmann.

(201x): The Diffusion of Scientific Theories: Network Topologies and the Role of the Translator, together with Malte Döhne (ZU Friedrichshafen).

(201x): Let’s Formalize Behavior: The Diffusion of Rational Choice Theory in American Social Sciences, 1944-1965, together with Malte Döhne (ZU Friedrichshafen).

(201x): Between Individual Calculation and Market Demand: The Ambiguous Status of W. S. Jevons’ Account of Human Behavior.

(201x): Hypothetical Experiments in Pure Economics: Ragnar Frisch and the First Attempt to Axiomatize Consumer Choice Theory.

(201x): Between the ‘Logic of Choice’ and the Behavioral Sciences: The Emergence of Rational Choice Theories in the 1950s.

(201x): Economics and the Behavioral Sciences Movement: Developing Rational Choice Theory at the Center for Advanced Study in the Behavioral Sciences, 1952-1967.

(201x): Realism in Economics: What was the Contribution of Behavioral Economics, together with Thomas Sturm (Universitat Autònoma de Barcelona).

(201x): Do Behavioral Choice Theories Replace Rational Choice Theories – And Should They? The Case of Modeling Pro-social Behavior, together with Chiara Lisciandra (TINT Helsinki).

Presentations:

1. The economist’s persisting commitment to methodological rationalism: 1st Witten Conference on Institutional Change: Money, Credit & Banking - The Austrian Economics Perspective on Financial Crises, Witten/Herdecke University.

2. Let’s formalize behavior: The diffusion of rational choice theories in the American social sciences, 1944-1965: Decisions, Groups, and Networks, MCMP and CAS at LMU Munich, together with Malte Döhne.

3. Between economics and the behavioral sciences: Marschak and the emergence of rational choice theories in the 1940s and 1950s: British Society for the History of Science Annual Conference, University of St. Andrews.

4. Defining the rules of rationality: Jacob Marschak and the normative turn in economics, 1943-1954: Research Colloquium: Perspektiven in der Wissenschaftsgeschichte, Chair for the History of Science, LMU.

History of Economics Society Annual Conference, Université du Québec à Montréal;

5. The many faces of rational choice theory: History of Economics Society Annual Conference, Université du Québec à Montréal; plenary talk for the Joseph Dorfman Best Dissertation Prize.

6. Has there been a normative turn in early post-war economics? Jacob Marschak and the Cowles Commission, 1944-1954: History of Recent Economics Conference (HISRECO), University of Siena.

Lunch Seminar at the Center for the History of Political Economy, Duke University, Durham.

Research Seminar in the History and Methodology of Economics, Utrecht School of Economics and the Nijmegen School of Management.

Further Activities:

Since 2013 Mentee of the Program LMUMentoring in support of highly qualified young female scientists in their scientific career on the road to professorship (financial support for conference and workshop attendance, external university visits, student assistance in support of specific projects, etc.).

History of Economics Society, young scholar award (500\$).

German Academic Exchange Service, conference travel grant.

Joseph Dorfman Prize for the Best Dissertation in the History of Economics, History of Economics Society, USA.

Best Doctoral Dissertation Prize, Wittener Universitätsgesellschaft of Witten/Herdecke University, Germany (2000 EUR).

Organizer Workshop: Decisions, Groups, and Networks, MCMP and CAS at LMU Munich, together with Stephan Hartmann and Paul Thurner.

Organizer Summer School: Mathematical Philosophy for Female Students, MCMP, LMU Munich, together with Stephan Hartmann, Hannes Leitgeb and Kristina Liefke.

Tutor (only for female students): Philosophy of science (MCMP); in German.

Organization of reading groups: Reduction and Emergence (with Sebastian Lutz and Alexander Reutlinger); A Reason-based Rational Choice Theory (with Cédric Paternotte).

Since 2014 Program Committee Member for conferences: 'Agent-based Modelling in Philosophy' (MCMP/LMU Munich); 'Explanation without Causation' (MCMP/LMU Munich); 'Objectivity in Science' (8th Munich-Sydney-Tilburg Conference at Tilburg Center for Logic, General Ethics and Philosophy of Science).

Since 2013 Search Committee Member for PhDs, postdoctoral positions, assistant professorships, and visiting fellows at the MCMP.

Since 2013 Overseas postgraduate ambassador for the British Society for the History of Science.

Since 2012 Referee for Erasmus Journal for Philosophy and Economics, History of Political Economy, Studies in the History and

Philosophy of Science, International Studies in the Philosophy of Science, European Journal of the History of Economic Thought.

03/2014 Visiting Scholar, Center for History and Philosophy of Science, Stanford University, USA.

k) Karolina Krzyzanowska

1. Type of Affiliation with the MCMP

Karolina Krzyzanowska is a Postdoctoral Fellow at the Munich Center for Mathematical Philosophy since the 1st of October 2014.

2. Research Projects

Her research is mostly concerned with topics at the intersection of philosophy of language and psychology of reasoning. In particular, she has been interested in indicative conditionals. Additionally, in November 2014 a collaboration with a visiting fellow at the MCMP, Paula Quinon (Lund), on the relationship between number cognition and the approximate interpretation of numerals was started.

3. Activities

Co-Organizer for the Causal and Probabilistic Reasoning conference (to be held at the MCMP in June 2015).

l) Josè Leyva

1. Type of Affiliation with the MCMP

José Leyva has been an MCMP doctoral student on his own funds since October 2014.

2. Research Projects

He has been working on topics relevant to his PhD thesis in philosophy of science.

3. Academic Output

He attended the Agent-Based Modeling conference in Philosophy, organized by the MCMP, Munich, Germany.

m) Dr. Kristina Liefke

1. Type of Affiliation with the MCMP

Kristina Liefke was a Doctoral Fellow at the MCMP from January to April 2014. Since her dissertation defense (in April 2014), she has been an MCMP Postdoctoral Fellow (partly supported by a grant from the Bayerische Gleichstellungsförderung, BGF).

2. Research Projects

Kristina Liefke has been working on the foundations of formal natural language semantics, on the philosophy of linguistics, and on intertheoretic relations in the philosophy of science. Her current research projects include a unification of the different intensional models for natural language semantics, the identification of linguistic evidence for a semantics with a single type of primitive (joint with Markus Werning), and the development of a new, type-theoretic, model of intertheoretic relations (joint with Stephan Hartmann).

3. Academic Output

Publications:

(201x): Codability and Robustness in Formal Natural Language Semantics, *Lecture Notes in Artificial Intelligence*. (This paper is an extended version of the LENLS 11-proceedings).

(2014): A Single-Type Semantics for Natural Language, PhD dissertation. Tilburg Center for Logic and Philosophy of Science.

(2014): Codability and Robustness in Formal Natural Language Semantics, *Proceedings of Logic and Engineering of Natural Language Semantics 11* (LENLS 11).

(2014) Solving Partee's Temperature Puzzle in an EFL-Ontology, Joint Proceedings of the Second Workshop on Natural Language and Computer Science and the First International Workshop on Natural Language Services for Reasoners.

(2014) A Single-Type Semantics for the PTQ*-Fragment, *Proceedings of Sinn und Bedeutung 18*.

In preparation:

(201x): Empirical Support for Single-Type Semantics, together with Markus Werning.

(201x): Montague Reduction, Confirmation, and the Syntax-Semantics Relation, together with Stephan Hartmann.

Presentations:

1. Codability and Robustness in Formal Natural Language Semantics: Logic and Engineering of Natural Language Semantics 11 (LENLS 11), Tokyo, Japan, November 2014.

2. A Simple Solution to Partee's Temperature Puzzle: Associates: LENLS 11 Satellite Workshop, Tokyo, Japan, November 2014.

3. Intertheoretic Relations in Linguistics: Montague's model of the syntax-semantics relation: Tokyo Forum for Analytic Philosophy, Tokyo, Japan, November 2014.

Bridges 2014: Philosophical exchange on inter-theoretical relations, New York City, USA, September 2014.

4. Logical Approaches to Natural Language Semantics: 1st Summer School on Mathematical Philosophy for Female Students, Munich, Germany, July 2014.

5. Solving Partee's Temperature Puzzle in an EFL-Ontology: Second Workshop on Natural Language and Computer Science, Vienna, Austria, July 2014

6. Logic, Grammar, and Meaning: a conference on philosophy, logic, and linguistics, University of East Anglia, UK, June 2014.

7. Reverse Formal Semantics: Ochanomizu University, Tokyo, Japan, February 2014.

Further Activities:

Research visit to Ochanomizu University, Tokyo, Japan, February and November 2014 (both times supported by the LMUMentoring Program).

Grant applications (successful):

1. Research project ("Eigene Stelle") of the Deutsche Forschungsgemeinschaft (DFG) (for Jan. 2015 to Dec. 2016).

2. Postdoctoral grant of the Bayerische Gleichstellungsförderung, BGF (for Fall 2014).

Courses taught:

Spring 2014: Saul Kripke, "Naming and Necessity" (BA seminar),
Introduction to Philosophy of Science (BA tutorial)

Fall 2014: Introduction to Ontology (BA seminar).

n) Dr. Sebastian Lutz

1. Type of Affiliation with the MCMP

Sebastian Lutz is Postdoctoral Fellow at the MCMP.

2. Research Projects

Sebastian Lutz has been working in General Philosophy of Science,
Philosophical Methodologies, and the History of Logical Empiricism.

3. Academic Output

Publications:

(201x): Choosing the Analytic Component of Theories.

(201x): What Was the Syntax-Semantics Debate in the Philosophy of
Science About?.

(201x): Partial Model Theory as Model Theory, *Ergo*.

(201x): Carnap on Empirical Significance, *Synthese*.

(2014): Empirical Adequacy in the Received View, *Philosophy of
Science*, 81: 1171–1183.

(2014): What's Right With a Syntactic Approach to Theories and
Models?, *Erkenntnis*, 79: 1475–1492.

(2014): Generalizing Empirical Adequacy I: Multiplicity and
Approximation, *Synthese*, 191: 3195–3225.

(2014): The Semantics of Scientific Theories, in: *Księga pamiątkowa
Marianowi Przełęckiemu w darze na 90-lecie urodzin* [Festschrift for
Marian Przełęcki in celebration of his 90th birthday], Anna Brożek
and Jacek Jadacki (eds.), Norbertinum.

Presentations:

1. Abstraction, Idealization, and the Application of Mathematics:
British Society for the Philosophy of Science Annual Conference.
Cambridge, UK.

2. Zum Verhältnis von Philosophie und Wissenschaft: Von der
Metaphysik zum Intelligent Design [On the Relation of Philosophy
and Science: From Metaphysics to Intelligent Design]:
Institutskolloquium Philosophie. Regensburg, Germany.

3. Reduction and the Ontology of Physical Theories: Bridges 2014,
New York, NY, USA.

4. Structural Realism as a Reducibility Claim: Structural Realism,
Structuralism and Theory Change. Munich, Germany.

Further Activities:

Instructor (with Catrin Cambell-Moore): Introduction to Probability
Theory, Algebra, and Set Theory. Lecture and practice session in the
Summer School on Mathematical Philosophy for Female Students,
Munich, Germany, July 2014.

Instructor: Philosophical Methodologies. Advanced seminar.

Teaching assistant: Einführung in die Wissenschaftstheorie [Introduction to the Philosophy of Science].

Organizer (with Alexander Reutlinger and Catherine Herfeld): Reduction and Emergence in the Sciences (reading group), Munich, Germany.

Curator: Reduction and Emergence (MCMP Curated Collections)

Reviewer: *Mind*; *Theoria: An International Journal for Theory, History and Foundations of Science*; *Synthese*; *European Journal for Philosophy of Science*.

Member of the program committee: 1st Munich Graduate Workshop in Mathematical Philosophy: Philosophy of Physics, Munich, Germany, 2015.

Member of the program committee: Eighth European Conference of Analytic Philosophy, University of Bucharest, Romania, 2014.

Grant recipient: Schwerpunkt grant (continuation), Center for Advanced Studies, Ludwig-Maximilians-Universität München, 2014 (with Stephan Hartmann and Karim Thébault).

Grant applicant: Durham Emergence Project (with Karim Thébault and Alexander Reutlinger).

Award applicant: Wolfgang-Stegmüller-Award 2015 (through Thomas Müller).

o) Dr. Aidan Lyon

1. Type of Affiliation with the MCMP

Aidan Lyon was a Visiting Fellow January 1st until February 28th on MCMP funds and September 1st 2014 until December 31st 2014 on his Alexander von Humboldt Research Stipend, the first of several research stays.

2. Research Projects

He works to research into collective wisdom and the foundations of imprecise probabilities.

3. Academic Output

(201x): Kolmogorov's Axioms and its Discontents, in: A. Hajek and C. Hitchcock (eds.), *The Oxford Handbook of Probability and Philosophy*.

(201x): Open-Intelligence Gathering and Analysis for Biosecurity, in: T. Walshe (ed.), *Risk-Based Decisions for Biological Threats*, together with G. Grossel and A. Nunn.

(201x): Collective Wisdom: A Study of Some Simple and Complex Methods of Confidence Interval Aggregation, *Journal of Business Research*, together with B. Wintle and B. Burgmann.

(2014): The Wisdom of Crowds: Methods of Human Judgement Aggregation, *Springer Handbook for Human Computation*, together with E. Pacuit.

p) Dr. Conor Mayo-Wilson

1. Type of Affiliation with the MCMP

Conor Mayo-Wilson was assistant professor until August 1st 2014. He left the MCMP to take up a position as assistant professor at Washington University. Nevertheless he will stay associated with the MCMP through several research projects.

2. Research Projects

In the past year, his work has been focused on three different projects. Project 1: In a series of papers, Conor Mayo-Wilson is exploring the relationship between classical statistics and philosophical theories of knowledge. The thesis of the project is the statistical methods used by scientists produce knowledge according to several different philosophical theories, and hence, defenses and criticisms of particular theories of knowledge can be translated into defenses and criticisms of particular statistical methods and vice versa. Project 2: With Gregory Wheeler, he is investigating the limits of epistemic decision theory (EDT), which is a relatively new philosophical discipline that attempts to justify epistemological theses using tools from rational choice theory. They argue that many of the arguments justifying the use of decision theory in economics do not extend to its use in epistemology and that some philosophers working on EDT embrace assumptions that are nearly contradictory. Project 3: Stephan Hartmann, Malte Doehne, and Christoph Merdes and Conor Mayo-Wilson have recently begun working on a project investigating the evolution of bullying behavior.

3. Academic Output

(201x): Scientific Collaboration and Collective Knowledge, Eds. Thomas Boyer, Conor Mayo-Wilson, and Michael Weisberg.

(201x): Structural Chaos, *Philosophy of Science*.

(201x): Scoring Imprecise Credences: A Mildly Immodest Proposal, *Philosophy and Phenomenological Research* together with Gregory Wheeler.

In preparation:

(201x): Epistemic Decision Theory's Reckoning.

(201x): Knowledge in a Statistical World.

(201x): Epistemic Closure in Classical Statistics.

(201x): An Epistemic Defense of Interval Estimation.

Presentations:

1. Structural Chaos: Mathematizing Science, University of East Anglia. Norwich, 2014.

British Society for Philosophy of Science, Cambridge University, 2014.

Philosophy of Science Association, Chicago, Illinois, USA 2014.

2. Knowledge in a Statistical World: Venice International University, 2014.

University of Victoria, Canada, 2014.

3. Epistemic Closure in Classical Statistics: Formal Epistemology Workshop, University of Southern California, 2014.

Western Canadian Philosophical Association, 2014.

4. An Epistemic Defense of Interval Estimation: Society for Exact Philosophy, California Institute of Technology (CalTech) 2014.

5. Computational Modeling: A Tool for Philosopher: The Van Leer Jerusalem Institute 2014.

Further Activities:

Conference Organizer: Agent-Based Modeling in Philosophy at the MCMP, December 11th until December 13th 2014.

Job Talks/Interviews at the University of Washington.

Course Development: The last academic year in Munich saw the development of four new courses: a logic/set theory course entitled "Mathematical Methods in Philosophy", two courses on models and simulations in philosophy, and a course on philosophy of statistics. The course materials are available on Conor Mayo-Wilson's website: www.mayowilson.org

q) Brian Padden

1. Type of Affiliation with the MCMP

Brian Padden is a MCMP doctoral student since November 2013.

2. Research Projects

His research focuses on his doctoral thesis, whose goal is to elaborate the implications of the Feynman path integral for various

current topics in the philosophy and foundations of quantum mechanics. In-depth technical analysis of the Feynman path integral in its (1) basic formulation as a particle theory and handling of the basic problems of quantum mechanics including wavefunction collapse, (2) application to multiple identical particles, (3) relativistic formulation for scalar particles, and (4) application to systems with spin were done.

3. Academic Output

In Preparation:

(201x): Interpretation and the Feynman Path Integral I: Two-Slit Experiment.

(201x): Interpretation and the Feynman Path Integral II: Entanglement and Nonlocality.

(201x): The Feynman Path Integral on Identical Particles: a Topological View.

Presentations:

1. Relativistic Quantum Particles the Feynman Way: Irvine-Munich Workshop on the Foundations of Classical and Quantum Field Theories, Munich, Germany.

Further Activities:

Co-Organizer 1st Munich Graduate Workshop in Mathematical Philosophy: Philosophy of Physics, to be held in Munich, Germany in 2015.

Teaching Assistant to Stephan Hartmann: Central Topics in the Philosophy of Science, winter term 2013/2014; Einführung in die Wissenschaftstheorie summer term 2014; Hannes Leitgeb: Logik I, winter term 2014/2015.

r) Patricia Palacios

1. Type of Affiliation with the MCMP

Patricia Palacios has been an MCMP Doctoral Fellow since November 2014.

2. Research Projects

Patricia Palacios has been working on topics concerning general philosophy of science and philosophy of physics. Her current projects include: proposing an explanatory model for phase transitions, investigating the role of idealizations in physics.

3. Academic Output

Publications:

(201x): Book review of "Chance and Temporal Asymmetry", by Alastair Wilson, *International Studies in the Philosophy of Science*.

Presentations:

1. On the role of infinite idealizations in quantum field theory: accepted for presentation at the workshop "Rethinking foundations of physics", Dorfgastein, Austria, 2015.
2. Does renormalization group methods explain continuous phase transitions?: accepted for presentation at the 15th Congress of

Logic, Methodology and Philosophy of Science, CLMPS, Helsinki, Finland, 2015.

Further Activities:

Conference Organizing Committee, "1st Munich Graduate Workshop in Mathematical Philosophy: Philosophy of Physics", Munich, Ongoing.

s) Dr. Cédric Paternotte

1. Type of Affiliation with the MCMP

Cédric Paternotte has been an MCMP Postdoctoral Fellow since October 2012.

2. Research Projects

Cédric Paternotte's research deals with definitions and explanations of cooperation and related social phenomena, and more precisely with the links between their analyses in different fields, for instance in philosophy and in the social sciences. He is particularly interested in the rational (e.g. team reasoning) and evolutionary (e.g. group selection) explanations of cooperative behaviour. At the MCMP, Cédric focuses on the compatibility and structural similarities of rational/intentional and evolutionary explanations of cooperation, and on the possibility of a unified multilevel theory of rational behaviour; as well as on the respective role of uniformity and diversity in human collectives, scientific and biological groups.

3. Academic Output

(201x): Parallels between joint action and biological individuality, in: T. Pradeu and A. Guay (eds.): *Individuals Across the Sciences*.

(201x): Review of Brian Skyrms's *Social Dynamics*, *Notre Dame Philosophical Reviews*.

(201x): The epistemic core of joint action, *Philosophical Psychology*.

(2014): Coopération et altruisme, in: T. Howuet and F. Merlin (eds): *Précis de Philosophie de la biologie*.

(2014) Adaption, fitness and the selection-optimality links, *Biology and Philosophy* 19(2):225-232.

(2014): The formal Darwinism project: editors' introduction, *Biology and Philosophy* 19(2):153-154, together with S. Okasha.

(2014): Review of "Cooperation and its Evolution", K. Sterelny, R. Joyce, B. Calcott and B. Fraser (eds.), *Acta Biotheoretica* 62(1):109-114.

(2014): Constraints on Joint Action, in: M. Gallotti and J. Michaels (eds.): *Perspectives in Social Ontology and Social Cognition*.

(2014): Minimal Cooperation, *Philosophy of the Social Sciences* 44(1):45-73.

In Preparation:

(201x): Robustness and evolutionary explanations, together with J. Grose.

(201x): Scientific virtues as catalysts, together with M. Ivanova.

(201x): Cooperative outcomes.

(201x): Information and the evolution of social preferences.

(201x): Connaissance commune et sens commun.

(201x): Expliquer la coopération.

(201x): The fragility of common knowledge.

(201x): Team reasoning and joint intentions.

(210x): Survival of the scrappiest? High-level adaption and low-level selection.

(201x): The efficiency of team reasoning.

(201x): Rational pluralistic ignorance.

(201x): Dynamic cooperation: how many utility functions?.

t) Dr. Alexander Reutlinger

1. Type of Affiliation with the MCMP

Alexander Reutlinger is an Assistant Professor at the Chair of Philosophy of Science.

2. Research Projects

His research was focused on the following areas in philosophy of science: (i) non-causal explanations in physics, (ii) *ceteris paribus* laws, (iii) the relation between emergence, explanation and idealisation, and (iv) philosophy of econophysics.

3. Academic Output:

Publications:

(201x): Are Causal Facts Really Explanatorily Emergent? Ladyman and Ross on Higher-level Causal Facts and Renormalization Group Explanation, *Synthese*.

(2014): Why Is There Universal Macro-Behavior? Renormalization Group Explanation As Non-causal Explanation, *Philosophy of Science* 81: 1157-1170.

(2014): Thinking About Non-Universal Laws", *Erkenntnis* 79: 1703-1713, together with Matthias Unterhuber.

(2014): Do Statistical Laws Solve the 'Problem of Provisos'?, *Erkenntnis* 79: 1759-1773.

(2014): Better Best Systems - Too Good to Be True, *Dialectica* 68: 375-390, together with Marius Backmann.

(2014): Ceteris Paribus Laws Revisited, Special Issue of *Erkenntnis*, Volume 79, Issue 10, co-edited with Matthias Unterhuber.

In Preparation:

(201x): Against the Abstractness View, with Holly Andersen.

(201x): Modeling Inequality, with Seamus Bradley and Karim Thébault.

(201x): Understanding (with) Toy Models, with Dominik Hangleiter and Stephan Hartmann.

(201x): What Makes Non-Causal Explanations Explanatory?.

(201x): Explanation Beyond Causation, proposal for edited volume to Oxford University Press.

Presentations:

1. Laws and Non-causal Explanation: Workshop Explaining Laws, University of Luxemburg, Luxemburg.

2. Causal and Non-Causal Explanations in Physics: Causation in Physics, University of Bern, Switzerland.

3. Agent-based Simulations in the Sciences: Explanation without Understanding: Conference Agent-Based Modeling in Philosophy, MCMP Munich, Germany.

4. What's Explanatory About Non-causal Explanations?: Biennial Meeting of the Philosophy of Science Association (PSA), Chicago, USA, Symposium Non-causal Explanations in the Sciences; Organizer: Alexander Reutlinger.

Annual Meeting of the British Society for Philosophy of Science (BSPS), Cambridge University, UK.

5. Non-causal Explanations and the Goals of Science: Conference Explanation Beyond Causation, MCMP Munich, Germany.

Work-in-progress Talk, MCMP Munich, Germany.

6. A Theory of Non-causal Explanation: Conference of the DGPhil, University of Muenster, Germany.

Further Activities:

Fellowship Grant of the Durham Emergence Project (funded by the Templeton Foundation), research project “Emergence and Laws”, with Juha Saatsi (Leeds) and Markus Schrenk (Duesseldorf).

Submission of a research proposal for an Emmy Noether group to the DFG, project: Explanation and the Epistemic Goals of Science.

Member of the Program Committee of the conference “Agent-based Modeling in Philosophy” (December 11-13, 2014), Munich Center for Mathematical Philosophy (MCMP).

Organizer of the symposium “Non-causal Explanations in the Sciences”, Biennial Meeting of the Philosophy of Science Association (November 2014, Chicago, USA).

Organizer of the conference “Explanation Beyond Causation” (October 23-24, 2014), Munich Center for Mathematical Philosophy (MCMP); co-organizer: Stephan Hartmann.

Organizer of the conference “Causality and Complexity in the Sciences” (September 8-11, 2014, Cologne); co-organizer: Marie I. Kaiser; part of the conference series Causality in the Sciences.

Courses taught: Winter term 2014/2015: Philosophy of Simulation (MA seminar) and Why Philosophy of Science Matters (BA seminar); Summer term 2014: Explanation Beyond Causation (MA seminar) and Science and Society (BA seminar).

Co-organizer reading group on Explanation and Emergence.

First reader of Johanna Griebhammer's master thesis and the second reader of Hannah Ochner's bachelor thesis.

Committee member for the PhD Student Admission Committee (Neurophilosophy, LMU Munich), the coordination of the Visiting Fellowship Program of the MCMP, Member of the committee of several faculty search committees.

u) Dr. Karim Thébault

1. Type of Affiliation with the MCMP

Karim Thébault is an Assistant Professor at the Chair of Philosophy of Science.

2. Research Projects

Karim Thébault has been working in Philosophy of Physics, General Philosophy of Science and Theoretical Physics.

3. Academic Output

Publications:

(201x): Many worlds: incoherent or decoherent?, *Synthese*, together with Richard Dawid.

(201x): Confirmation via analogue simulation: what dumb holes could tell us about gravity, *The British Journal for the Philosophy of Science*, together with Radin Dardashti and Eric Winsberg.

(201x): Time remains, *The British Journal for the Philosophy of Science*, together with Sean Gryb.

(201x): Quantization as a guide to ontic structure, *The British Journal for the Philosophy of Science*.

(2014): Against the empirical viability of the Deutsch-Wallace-Everett approach to quantum mechanics, *Studies in the History and*

Philosophy of Modern Physics, 47: 55-61, together with Richard Dawid.

(2014): Symmetry and evolution in quantum gravity, *Foundations of Physics*, 44(3):305-348, together with Sean Gryb.

Presentations:

1. Confirmation via analogue simulation: what dumb holes could tell us about gravity: Biannual Meeting of the Philosophy of Science Association, Chicago, November 2014.

Rotman Institute of Philosophy, University of Western Ontario, London Ontario, September 2014

Department of Philosophy, University of Toronto, Toronto, September 2014

European Congress of Analytic Philosophy, Bucharest, August 2014.

2. A New Proposal for Observables and Change in Quantum Gravity: Quantum Gravity Seminar, Perimeter Institute for Theoretical Physics, September 2014.

Sydney Foundations of Physics Seminar, University of Sydney, March 2014

Further Activities:

Workshop Organizer, "Irvine-Munich Workshop on the Foundations of Classical and Quantum Field Theories", Munich, December 2014.

Working Group Leader "2nd International Summer School in Philosophy of Physics: Probabilities in Physics", Lenzkirch-Saig, July 2014

Convener, "Colloquium in Logic, Philosophy of Science and Philosophy", Munich, Ongoing.

v) Dr. Gregory Wheeler

1. Type of Affiliation with the MCMP

Gregory Wheeler is an Assistant Professor at the Chair of Philosophy of Science.

2. Research Projects

Gregory Wheeler works on foundations of probability, formal epistemology, bounded rationality, philosophy of science, and agent based modeling. His current research project is "The Notion of Mathematical Proof", funded by the Portuguese Science Foundation.

3. Academic Output

Publications:

(201x): Scoring Imprecise Credences: A Mildly Immodest Proposal. *Philosophical and Phenomenological Research*, together with Conor Mayo-Wilson.

(201x): Is there a Logic of Information?, *Journal of Experimental and Theoretical Artificial Intelligence*.

(2014): Demystifying Dilation. *Erkenntnis*, 79(6): 1305-1342, together with Arthur Paul Pedersen

(2014): Character Matching and the Locke Pocket of Belief, in: Franck Lihoreau and Manuel Rebuschi (Eds.): *Epistemology, Context, and Formalism*, 185-94.

(2014): Defeat Reconsidered and Repaired, *The Reasoner*, 8(2): 15.

Presentations:

1. Fast, Frugal, and Focused: Munich Center for Mathematical Philosophy Colloquium, June 2014.

Inductive Logic and Confirmation II, Department of Philosophy, University of Utah, Salt Lake City, USA, October 2014.

2. Beware of BI! Colloquium Logicum 2014 (CL2014), Neubiberg, Germany, September 2014.

3. The Rise and Fall of Accuracy First Epistemology: University Seminar on Logic, Probability, and Games, Columbia University, New York, October 2014.

Munich Center for Mathematical Philosophy Colloquium, November 2014

Further Activities:

Member of the Program Committee for the International Association of Computing and Philosophy (IACAP 2014)

Member of the Program Committee for Imprecise Probabilities in Statistics and Philosophy (IPSP14), Munich

Co-organizer of the Agent-Based Modeling in Philosophy Conference, Munich Center for Mathematical Philosophy and LMU Center for Advanced Studies (2014).

Gregory Wheeler is Editor in Chief of Minds and Machines and member of the Synthese editorial board.

Gregory Wheeler taught Philosophy of Cognitive Science (S 2014), and Selected Topics in Formal Epistemology and Models and Simulations II (W 2014).

Gregory Wheeler began co-supervising Lee Elkin's, a PhD student.

He applied for an ERC Consolidation grant.

He is co-coordinator of the MA program in Logic and Philosophy of Science.

He is member of the new LMU Quantitative Network Science Consortium (QCSSC), which won a CAS Research Focus on Quantitative Network Science, "Q-NetS," to begin in 2015.

(V) We also hosted several visitors:

This is the list of visitors at the MCMP during the period from January to December 2014:

Soroush Rafiee Rad	01.11.2013-31.10.2014
Roman Frigg (LSE, UK)	01.01.2014-17.02.2014
Kevin Zollman (Carnegie Mellon University, USA)	13.01.2014-10.02.2014 24.03.2014-21.04.2014
Thomas Sturm (University of Barcelona, Spain)	20.01.2014-20.02.2014
Luca Moretti (University of Aberdeen, Scotland)	01.02.2014-31.08.2014
Adam Caulton (University of Cambridge, UK)	01.05.2014-30.05.2014
Tom Pashby (University of Pittsburgh, USA)	01.05.2014-31.05.2014
Andreas Bartels (University of Bonn, Germany)	02.05.2014-30.05.2014
Gregor Schiemann (University of Wuppertal, Germany)	26.05.2014-30.05.2014

Otavio Bueno (University of Miami, USA)	11.06.2014-11.07.2014
Mathias Frisch (University of Maryland, USA)	16.06.2014-12.08.2014
Neil Dewar (University of Oxford, UK)	23.06.2014-19.07.2014
Katie Steele (LSE, UK)	01.07.2014-30.07.2014
Meinhard Kuhlmann (University of Mainz, Germany)	02.07.2014-19.07.2014
Manfred Stöckler (University of Bremen, Germany)	01.09.2014-30.09.2014
Michael Esfeld (University of Lausanne, Switzerland)	01.09.2014-30.06.2015
Michael Stöltzner (University of South Carolina, USA)	01.09.2014-15.12.2015
Rossella Marrano (Scuola Normale Superiore Pisa, Italy)	06.10.2014-31.07.2015
Juha Saatsi (University of Leeds, UK)	15.10.2014-22.10.2014
Remco Heesen (Carnegie Mellon University, USA)	04.12.2014-31.12.2014

a) Soroush Rafiee Rad

Soroush Rafiee Rad was a visiting fellow at the MCMP from 1st November 2013 till the end of October 2014 with MCMP funds. During this period he finalized his PhD thesis and continued his research particularly on two topics related to his doctoral research, namely, "learning conditionals" and "reasoning with conflicting evidence". Part of his research at the MCMP was also focused on gaining a better understanding of quantum structures and the quantum logic. There are two papers finalised during his visit to MCMP that formed two chapters of my thesis and are both under review at the moment. These works have been presented in several occasions. During this period he attended two workshops on quantum logic at University of Oxford and University of Amsterdam and attended reading groups on imprecise probabilities, homotopy type theory and a course on general relativity and black holes. In the winter semester of 2014, he taught a course on introduction to political philosophy. By the end of his visit, Soroush Rafiee Rad received a job offer for a postdoctoral position at the Institute for Logic, Language and Computation at the University of Amsterdam.

b) Roman Frigg

Roman Frigg visited the MCMP from 6th January until 18th January 2014 on his own funding from the LSE. He worked on the philosophy of statistical mechanics, more precisely on the following project: In Boltzmannian statistical mechanics macro-states supervene on micro-states. This leads to a partitioning of the state space of a system into regions of macroscopically indistinguishable micro-states. The largest of these regions is singled out as the equilibrium region of the system. What justifies this association? We review currently available answers to this question and find them

wanting both for conceptual and for technical reasons. We propose a new conception of equilibrium and prove a mathematical theorem which establishes in full generality -- i.e. without making any assumptions about the system's dynamics or the nature of the interactions between its components -- that the equilibrium macro-region is the largest macro-region. We then turn to the question of the approach to equilibrium, of which there exists no satisfactory general answer so far. In our account, this question is replaced by the question when an equilibrium state exists. We prove another -- again fully general -- theorem providing necessary and sufficient conditions for the existence of an equilibrium state. This theorem changes the way in which the question of the approach to equilibrium should be discussed: rather than launching a search for a crucial factor (such as ergodicity or typicality), the focus should be on finding triplets of macro-variables, dynamical conditions, and effective state spaces that satisfy the conditions of the theorem. The project resulted in two papers, both co-authored with Charlotte Werndl. The references are:

- (201x): Rethinking Boltzmannian Equilibrium, *Philosophy of Science*, with Charlotte Werndl.
- (2015). Reconceptualising Equilibrium in Boltzmannian Statistical Mechanics and Characterising its Existence, *Studies in History and Philosophy of Modern Physics* 49(1), 19–31, together with Charlotte Werndl.

He also gave the following lecture while in Munich: "Chaos Beyond the Butterfly Effect: The Poison Pill of Structural Model Error" Center for Advanced Studies (CAS), Ludwig Maximilians Universität München, January 2014.

c) Kevin Zollman

Kevin Zollman visited the MCMP from February 13th to March 10th and then again from April 23rd to May 22nd 2014 on MCMP funds. He was also supported by the Center for Advanced Studies (CAS). During his time at the MCMP he worked on two research projects. The first research project focused on issues in social epistemology. Social epistemology is the study of how groups come to learn about the world through social interaction. His research considered what effects communication between individuals can have for learning. He investigations questions like: should individuals trust one another unconditionally, or should they attempt to determine the veracity of other's statements? If individuals are to communicate, what patterns of communication would be most effective? His second research project concerned the philosophy of biology. In biology, there is significant interest in understanding why there is honest communication in the presence of strong incentives for deception. Why do two competing animals, for instance, honestly communicate their fighting ability to one another? This problem has been approached through the lens of game theory, and there exists a sort of "paradigmatic" answer to the question. With another visitor to the MCMP, Simon Huttegger, he investigated the plausibility of this paradigmatic answer and developed a potential alternative. As results of his research within these month the following publications can be named:

(201x): Modeling the Social Consequence of Testimonial Norms, *Philosophical Studies*.

(201x): The handicap principle is an artifact, *Philosophy of Science*, together with S. Huttegger and J. Bruner.

(201x): Robustness and dynamic stability of hybrid equilibria in costly signaling games, *Dynamic Games and Applications*, together with S. Huttegger.

(201x): Learning to collaborate.

(201x): Peer Agreement.

(201x): The propriety rule and the economic rationality.

Furthermore he gave the talk "Computer Simulation as a Tool for the Philosopher" at the workshop "Computational Methods in Philosophy" at the MCMP April 11th 2014 and the colloquia talk "A systems oriented approach to the problem of testimony" January 22nd 2014.

d) Thomas Sturm

Thomas Sturm visited the MCMP from January 20th until February 20th on MCMP funds. During the time of his stay he did research on psychological theories of rationality and their philosophical implications and problems. While he worked on several topics, such as the evolutionary psychology of reasoning or the role of metacognition in reasoning, his main focus during the stay was on the concept of intuition in the Kahneman and Tversky's heuristics-and-biases approach, which departs strikingly from a number of traditional philosophical understandings such as those deriving from Aristotle, Descartes, or Kant. He investigated two important 20th-century backgrounds of current debates, namely Egon Brunswik's metaphor of the perceiving organism as an "intuitive statistician", and its –rather unreflective – transfer and expansion into the whole area of judgment and decision making during the 1960s. Up until the 1970s, heuristics have not played a role in the concept of

intuition. This only came with Kahneman and Tversky's theory of heuristics and biases. He then analyzed central problems of their account of intuition. Not only does it imply changes from a view such as Brunswik's that have not been sufficiently reflected on; partly due to this neglect, their account also suffers from serious deficiencies in all of its major aspects. This reveals a lack of clear conceptual thinking in Kahneman and Tversky's works. He gave an MCMP colloquia talk on "Intuition in Kahneman and Tversky's Psychology of Rationality" January 29th. He also took up collaboration with Catherine Herfeld, being interested in her specialization on the history and philosophy of rational choice. Further research stays are being organized and Catherine Herfeld will visit the UAB in Barcelona while Thomas Sturm is coming to the Center for Advanced Studies at LMU in the year 2015. The aim of this collaboration is a paper on the issue of scientific realism as applied to economic models of rational choice. As results of his research within this month the following publications can be named:

- (2014): Intuition in Kahneman and Tversky's psychology of rationality. *Rational Intuition: Philosophical Roots, Scientific Investigations*, S.257-286.
- (201x): Naturalized epistemology and adaptive accounts of rationality.
- (201x): Metacognition and rationality.

For Thomas Sturm the stay at the MCMP was highly fruitful and helped him to obtain his new position as ICREA research professor at the UAB, which he took up in October 2014.

e) Luca Moretti

Luca Moretti visited the MCMP from February to May on MCMP funds and continued his stay June to August 2014 on his own. As results of his research within these seven months the following publications can be named:

- (201x): Special issue of *Synthese* on "Defeaters in current epistemology", together with Tommaso Piazza. (The project has been accepted by the Editors in Chief of *Synthese*.)
- (201x): Epistemic defeat: the current state of debate (introduction to the special issue), *Synthese*, together with Tommaso Piazza.
- (201x): Phenomenal conservatism and Bergmann's dilemma, *Erkenntnis*, together with Tommaso Piazza.
- (201x): Phenomenal conservatism, *Analysis*.
- (201x): Phenomenal conservatism, *The Oxford Bibliographies Online*.
- (2015): In defence of dogmatism, *Philosophical Studies* 172(1), pp. 261-282.
- (2014): Antirealism and the conditional fallacy: the semantic approach, *Journal of Philosophical Logic* 43(4), pp. 761-783, together with Girard, P.
- (2014). Global scepticism, underdetermination and metaphysical possibility, *Erkenntnis* 79(2), pp. 381-403.

- (2014): The dogmatist, Moore's proof and transmission failure". *Analysis* 74(3), pp. 382-389.
- (2014): Editorial, *The Reasoner* 8(8), pp. 85-86.
- (2014): Interview with Berit Brogaard, *The Reasoner* 8(8), pp. 86-87.
- (2014): Interview with Richard Dawid, *The Reasoner* 8(8), pp. 87-89.
- (201x): Skepticism and epistemic closure: two Bayesian accounts, under review, together with Tomoji Shogenji.
- (201x): Evidence of expert's evidence is evidence, under review.

f) Adam Caulton

Adam Caulton visited the MCMP May 1st until May 31st on a stipend fund by the British Academy. During his stay at the MCMP, he was engaged in a research project concerning relativistic quantum theory; in particular the possible introduction of space-time "position" operators through the development of a four-dimensional approach. He gave the colloquia talk "Adventures off the mass-shell" on this topic on the 21st May 2014). While at the MCMP, he also attended a weekly reading group (on the semantic view of theories), departmental seminars and Dr Erik Curiel's classes on spacetime. He also gave talks at the London School of Economics (14th May 2014) and the University of Roma Tre (28th May 2014).

g) Tom Pashby

Tom Pashby visited the MCMP May 1st to May 31st 2014 on MCMP funds. At that time he was exploring possibilities for extending his novel account of (non-relativistic) quantum mechanics in terms of histories of events into relativistic quantum mechanics and relativistic quantum field theories. Along with Adam Caulton (also visiting at the time), he explored an alternative way for relativistic quantum theories to represent location in spacetime by means of a state space that includes time on the same footing as space. This led him to a new approach to thinking about localization in relativistic quantum mechanics, and some insights for the histories approach. While at the MCMP he gave a talk at the MCMP on relativistic localization on May 28th called: "Against Dogma: Locality, Conditionalisation, and Collapse in Relativistic Quantum Mechanics." Currently he has a paper in preparation that makes use of some of the research presented in this talk. Research began at the MCMP is also the subject of his talk on March 13th 2015 at Time in Quantum at UCSD (<http://beyondspacetime.net/2015-conference/>). The title of the talk is: "Making Time for Quantum Gravity". During my time at the MCMP he attended the Philosophy of Time Society conference at Gargnano, Italy. He received funds to attend through the Society. This led to a recent publication in *Studies in the History and Philosophy of Modern Physics*. Meeting Sebastian Lutz and Thomas Meier at the MCMP led to a successful joint proposal for a symposium at the 2015 biannual meeting of the European Philosophy of Science Association on Newman's Problem for Structural Realism. He further took up an invitation to edit PhilPapers.org as a result of contact with Mike Cuffaro during my visit. Tom Pashby also helped referee papers for the MCMP grad

conference in philosophy of physics, at the invitation of Brian Padden.

h) Andreas Bartels

Andreas Bartels visited the Munich Centre for Mathematical Philosophy 2nd May to 30th May 2014 on MCMP funds. The research he has done during his stay in Munich was almost exclusively devoted to his book project on natural laws (the book will be published in autumn 2015). In particular, he worked on his critique on the so called quidditism argument. A version of that critique was presented in his MCMP colloquia talk on April 7th 2014. The discussion following the talk as well as a lot of personal communication that he had with the fellows at the MCMP helped a lot to improve that preliminary version. A couple of weeks after the visit in Munich the talk „How to bite the Bullet of Quidditism – Why Bird's Argument against Categoricism in Physics fails“, based on that improved version was given for the international conference of the Italian society of philosophy of science in Rome. In addition to the work on chapters of his book, he worked on the revision of his paper "How Fundamental Physics Represents Causality" (together with Daniel Wohlfarth) for publication in the proceedings of EPSA 13. He enjoyed the weekly talks given at the MCMP and the opportunity to get in contact with the guest speakers, and he most appreciated the informal and everyday opportunity to discuss problems in connection with his book project with different fellows of the MCMP. That has brought the book project an important step further, in part due to the many critical comments and inspirations that were gained during the visit at the MCMP.

i) Gregor Schiemann

Gregor Schiemann visited the MCMP May 26th until May 30th 2014 on MCMP funds. During his stay at the MCMP his research concentrated on the concept of a lifeworld. It is meant as a contrast concept to science and defines an experience consisting of actions, social relationships and a lack of professionalism. He also gave the talk "Persistence of the lifeworld? On the relation of lifeworld and science" at the MCMP colloquia March 28th 2014. He also talked with several MCMP researchers about research projects and options for collaborations.

j) Otavio Bueno

Otavio Bueno visited the MCMP from mid June to mid July 2014 on MCMP funds. During that period he developed various research projects: one project, developed in collaboration with Thomas Meier, was concerned with the philosophical significance of neutralism: a proposal that avoids commitment to particular metaphysical views, and emerges, in part, from Carnap's work. The project also involved the analysis of the particular commitments made by various meta-theoretical frameworks in philosophy of science, in particular, the partial structures approach (da Costa, French, and Bueno) and the structuralist meta-theory (Stegmüller, Moulines, and Balzer). A second project, developed in collaboration with Holger Andreas, involved the implications of a particular stipulative analysis of theoretical terms to the understanding of reference in mathematics (in particular, arithmetic). A third project, developed in collaboration with Scott Shalkowski, addressed the development of a modalist meta-philosophy: an examination of the philosophical implications of the adoption of a primitive notion of logical possibility and contrasted it with traditional a priorist approaches to metaphysics.

Finally, a fourth project, developed in collaboration with Ed Zalta, involved a defense of object theory against recent criticism raised by modal neo-Meinongians. As results of his research the following publications can be named:

(201x): Empirically Grounded Philosophical Theorizing, in: C. Daly (ed.), *The Palgrave Handbook of Philosophical Methods*, together with S. Shalkowski.

(201x): Is Neutralism Possible?, together with Thomas Meier.

(201x): A Defense of Object Theory, together with Ed Zalta.

(201x): Mathematics and Theoretical Terms, together with Holger Andreas.

(201x): Neutralism and Formal Frameworks: Partial Structures and Structuralist Meta-Theory, together with Thomas Meier.

(210x): Pragmatic Structural Realism and the Newton Objection, together with Thomas Meier.

(210x): Philosophy of Science, for *Oxford Bibliographies*, together with Thomas Meier.

He further presented his work at the Structural Realism Workshop at the MCMP July 3rd 2014, where he gave the talk "Pragmatic Structural Realism and the Newman Objection", as well as at the Paraconsistent Reasoning in Science and Mathematics Conference June 11th until June 13th 2014 with the talk "Science: From Inconsistency to Partial Truth". Furthermore he gave the talk "Why the Notion of Logical Consequence Cannot be Analyzed" at the MCMP colloquia talk on June 30th 2014.

Otavio Bueno has played an advisory role in the organization of both workshops he attended during his time at the MCMP. He also supervised the successful PhD dissertation of Thomas Meier as a member of the dissertation committee.

k) Mathias Frisch

Mathias Frisch visited the MCMP in June and July 2014 on external funding. During that time he was working on the final states of a book on the role of causal reasoning in physics. While at the MCMP he compiled an index for the book, proofread the copy-edited manuscript and the page proofs. He also wrote a paper on the calibration of climate models and Bayesian theories of confirmation and gave the talk “users, Structures, and Representation” at the Workshop on Structural Realism at the MCMP. While at the MCMP he had an interview at the Karlsruhe Institute for Technology (KIT) for a professorship in philosophy of science. As a result of his work the following publications can be named:

- (2014): Causal Reasoning in Physics, Cambridge University Press.
- (201x): Tuning climate models, predictivism, and the problem of old evidence, *European Journal for Philosophy of Science*, forthcoming.

l) Neil Dewar

Neil Dewar visited the MCMP between the June 22nd and July 10th. His stay was funded in part by a travel grant from his home college (University College Oxford), and in part by his own funding. During his stay he worked on two main problems. One was the issue of whether Lagrangian and Hamiltonian formulations of classical mechanics (two different formalisms for approaching problems in

classical mechanics) should be considered equivalent or not. The other was to work on the Problem of Time (an issue arising from the nature of symmetries in General Relativity, which has implications for how one can go about quantising gravity). His research on the Problem of Time formed the basis for a presentation given towards the end of his time at the MCMP on July 18th 2014: “The Grammar of the Problem of Time”. It will (eventually!) be incorporated into work he hope to do on general covariance, as part of a general project on clearly understanding the representational significance of formalisms in mathematical physics. His visit made it clear that the MCMP is an environment in which he would be very happy to spend a longer period of time. As a result, Neil Dewar has applied for the following scholarships which, if successful, would grant him funds towards a year at the MCMP: DAAD Research Grant for Doctoral Candidates and Young Academics and Scientists, Leverhulme Study Abroad Studentship, Charterhouse European Bursary, Hanseatic Scholarship, Jenkins Memorial Scholarship, Michael Foster Scholarship, Theodor Heuss Scholarship funded by the Alexander-von-Humboldt foundation.

m) Katie Steele

Katie Steele visited the MCMP July 24th until July 31st on MCMP funds. She helped the organizers of the Summer School for Female Students and presented a seminar on “Philosophy of Climate Science”. During her stay she also completed a paper with Seamus Bradley, which is currently under review at *Philosophy of Science*.

n) Meinhard Kuhlmann

Meinhard Kuhlmann visited the MCMP July 2nd until July 23rd 2014 on MCMP funds. During his stay he prepared a couple of talks, of

which he presented "A Trope Bundle Interpretation of Algebraic Quantum Field Theory" at the MCMP Colloquium December 10th 2014. He also attended many talks offered by the MCMP during his stay and used the environment of the center for fruitful conversation. He could also be congratulated to a successful job talk at the University of Mainz.

o) Manfred Stöckler

Manfred Stöckler visited the MCMP from September 1st to September 27th 2014 on MCMP fund. At the time of his stay he worked on a project on "levels of nature". Since a couple of years there have been vivid methodological discussions on levels of explanation, especially in neuroscience. He tried to use the insights of this debate for a new look at classical concepts of levels of nature. He defends the view that classical concepts of levels can be understood best in the light of pragmatics of explanations: A new level is introduced when a new kind of explanations provides better and more efficient understanding of the phenomena. This approach seems to be adequate reconstruction of received ontological conceptions of levels in nature. But there are still some puzzling and undesirable consequences. This subject of his research was represented by the talk "Classical concepts of levels of nature revisited", given at the meeting of the German Society for Philosophy (DGPhil), September 30th 2014 in Muenster. He also enjoyed several intensive discussions with MCMP PhD students on their current work.

p) Michael Esfeld

Michael Esfeld visited the MCMP on his own funds (AvH Research Award) October 1st until December 31st 2014. He collaborated with

various MCMP members to further his research project on "The metaphysics of physics: natural philosophy". Its aim is to develop both a methodology that treats physics and philosophy as inseparable in the enquiry into nature and an ontology of matter that covers classical and quantum physics. This research shall result in the publication of a book. Michael Esfeld is also teaching a master seminar in the philosophy of physics at LMU in the winter term 2014/2015 and will be organizing the third summer school on the ontology of physics in the black forest, supported by the MCMP

q) Michael Stöltzner

Michael Stöltzner visited the MCMP during his Fellowship at the Center for Advanced Studies, September 15th until December 15th 2014. His research aimed to better understand the historical and epistemological aspects of the axiomatic method and the development of mathematical physics in the 20th century. This involves a detailed study of the inner-scientific reflections on the axiomatic method as practiced by the Hilbert school and the discussions of the axiomatic method and related programs within the emerging philosophy of science. His approach both focused on specific research fields, such as variational principles, and specific philosophical discussions, among them the debate about Carnap's general axiomatics in the late 1920s and 1930s. During his stay he interacted with MCMP graduate students in philosophy of physics, especially with Brian Padden, and the process of coauthoring a paper with Richard Dawid in the role of variational principles in string theory was started. As results of his research the following papers and talks can be named:

- (2014): Higgs Models and other Stories about Mass Generation, *Journal for the General Philosophy of Science* 45, 369-384.

- (201x): Hilbert's Axiomatic Method and Carnap's General Axiomatics, *Studies in History and Philosophy of Science*, forthcoming.

- (201x): The Varieties of Explanations in the Higgs Sector, special issue of *Synthese*.

Presentations:

Best Possible Worlds and Random Walks: The Principle of Least Action as a Thought Experiment: Utrecht University, The Netherlands.

Irvine- Munich Workshop on the Foundations of Classical and Quantum Field Theories, Munich Center for Mathematical Philosophy, Munich, Germany.

The Varieties of Explanations in the Higgs Sector: Munich Center for Mathematical Philosophy, Colloquium Talk October 19th 2014, Munich, Germany.

On Virtues and Vices of Axiomatic Quantum Field Theory. Remarks on the Fraser-Wallace Debate: Biennial Meeting of the Philosophy of Science Association, Chicago, USA.

r) Rossella Marrano

Rossella Marrano has visited the MCMP for three months starting from October 2014 to December 2014. This visiting has been funded by her home university Scuola Normale Superiore in Pisa. During her stay she has been working on the relation between degrees of truth and degrees of belief. The aim of this research is to argue that the formal analogies and the conceptual differences between these

two concepts can be jointly justified by interpreting graded truth as the objective counterpart of graded belief. She focuses on two possible instantiations of this interpretation: (i) graded truth as objective indeterminacy as captured by the notion of chance, (ii) graded truth as intersubjective graded belief as modelled in the framework of Objective Bayesianism. She claims that this interpretation meets our intuitions on truth and belief, triggers a positive philosophical feedback on the notions involved and sheds new light on the relation between real-valued logics and probability. The project resulted in a paper in preparation, "Graded truth as objective probability".

s) Juha Saatsi

Juha Saatsi visited the MCMP during his stay at the LMU Center for Advanced Studies (CAS) October 15th until October 22nd in connection with the CAS Research Focus "Reduction and Emergence in the Sciences" by Stephan Hartmann. He gave the talk "Emergence and Laws of Nature: The Case of Weak Metaphysica" on October 16th. He also attended the conference "Explanation Beyond Causation" and presented the paper "Explanations from "Geometry of Motion"". His main collaboration took place with Alexander Reutlinger and will result in an edited collection on the topic of causation beyond explanation.

t) Remco Heesen

Remco Heesen came to the MCMP on December 5th for a longer visit which will continue in 2015. He is funded by the MCMP to work on his PhD dissertation, which investigates the tradeoff between speed and accuracy in scientific research and the priority rule. He gave a talk at the MCMP "Vindicating Methodological Triangulation"

as a joint work with Liam Kofi Bright and Andrew Zucker and participated with the presentation “Three Ways to Become an Academic Superstar” at the Agent-based Modeling conference on December 13th 2014.

(VI) Visiting Fellowships

In addition the Chair of Philosophy of Science invited applications for visiting fellowships for one to three months in the academic year 2014/15 (15 October 2014 to 15 February 2015 or 15 April to 15 July 2015) intended for advanced Ph.D. students (“Junior Fellowships”) and postdocs or faculty (“Senior Fellowships”). Candidates should work in general philosophy of science, the philosophy of one of the special sciences, formal epistemology, or social epistemology and have a commitment to interdisciplinary and collaborative work. We also encouraged groups of two to four researchers, which may also include scientists, to jointly apply for fellowships (“Research Group Fellowships”) to work on an innovative collaborative project from the above-mentioned fields which is of relevance for the research done at the MCMP and which ideally includes a member of the MCMP as a collaborator. We received a fair number of interesting applications from different countries. This is the list of fellowships holders we have decided upon and who visited the MCMP in 2014:

Alessandra Basso (University of Helsinki, Finland)	15.10.2014-15.12.2014
Jason Konek (University of Bristol, Uk)	15.10.2014-15.11.2014
Paula Quinon (Lund University, Sweden)	01.11.2014-30.11.2014

a) Alessandra Basso

Alessandra Basso visited the MCMP October 15th 2014 until Dezember 15th 2014 as a Junior Visiting Fellowship Stipend Holder and extended her stay on a DAAD personal grant. During her visit her research focused on assessment practices in the context of scientific measurement. In particular, she examined the widespread practice of using different methods of measuring the same target to validate measurement procedures and their results. She inquired into the epistemological justification of such practice and into the conditions under which its use is legitimate. A secondary research focus was on scientific modelling, particularly with respect to the debates about their epistemological functions and their employment for the purposes of explanation, prediction and intervention. She gave the MCMP colloquia talk "The triangulation of measurement procedures". As results of her research within these two months the following publications can be named:

- (201x): The triangulation of measurement procedures.
- (201x): Philosophical issues on model-based social science, in: Magnani and Bertolotti (eds.). *Handbook of Model-Based Science*, together with Chiara Lisciandra and Caterina Marchionni.
- (2015): I modelling in Economia, www.aphex.it, 11, together with Caterina Marchionni.

b) Jason Konek

Jason Konek visited the MCMP October 15th 2014 until November 15th 2014 as a Senior Visiting Fellowship Stipend Holder. Additional funding came from the ERC Starting Grant "Epistemic Utility

Theory: Foundations and Applications". During his time at the MCMP, his work centred around sorting out what epistemic reasons we have to adopt imprecise credences. He proved that if we measure epistemic utility using a conservative Levi-style scoring rule, then a popular family of decision rules recommend imprecise credences. In particular, a range of conservative Hurwicz decision rules recommend imprecise credences. He also attended a variety of reading groups the MCMP offers and gave the colloquia talk "A Hurwicz-Style Epistemic Utility Argument for Imprecise Credences" October 29th 2014. As a result of his research at that time the following publication, which has won the Young Epistemologist Prize, can be named:

- (201x): Epistemic Conservativity and Imprecise Credence, *Philosophy and Phenomenological Research*.

Jason Konek had applied for a number of jobs in the fall of 2014 and was offered a tenure track position from Kansas State University.

c) Paula Quinon

Paula Quinon visited the MCMP November 1st until November 30th 2014 as a Senior Visiting Fellowship Stipend Holder. Her research during that time was devoted to three topics: she conducted interdisciplinary study on systems of numbers underlying cognitive basis foremergence of the concept of natural number. More exactly: Together with Karolina Krzyzanowska she was looking at semantics for Approximate Number System based on vague-exact quantifiers. A first result will be presented at the 16th Workshop on the Roots of Pragmasemantics in Szklarska Poreba in February 2015. In addition, during her stay she worked on a joined paper with Barbara Sarnecka (UCI) devoted to conceptual differences in understanding concepts

in philosophy of mathematics and in cognitive sciences. Some results from this study were presented in the colloquia talk "Natural numbers in philosophy of mathematics and cognitive science" on November 27th 2014. She also worked on philosophical problems related to the version of neo-psychologism in philosophy of mathematics, which involves results from studies on number-cognition. Furthermore she worked on modelling of non-rational reasonings for a grant proposal submitted to John Björkhems Minnesfond during her stay in Munich (together with Katarzyna Kasia (ASP Warszawa) and Staffan Angere (Lund University)). She had opportunity to discuss this topic on several occasions with Stephan Hartmann.

Further fellowship holder will visit the MCMP until the end of the academic year 2014/2015: Gabriel Tarziu (Romanian Academy, Romania), Greg Gandenberger (University of Pittsburgh, USA), Berna Kilinc (Bogazici University, Turkey), Borut Trpin (University of Ljubljana, Slovenia), Ben Levinstein (University of Bristol, UK), Miklos Redei (LSE, UK), Robert Rynasiewicz (Johns Hopkins, USA), Gabor Hofer- Szabo (Hungarian Academy of Sciences, Hungary), Neil Dewar (University of Oxford, UK) and Rainer Hegselmann (University of Bayreuth, Germany).

(VII) Center for Advanced Studies (CAS)

Since April 1st 2013 the MCMP runs a CAS research focus programme about Reduction and Emergence in the Sciences. The program went into its second half in 2014 and has given the MCMP the opportunity to host several events and visitors in the years 2013 and 2014:

21.06.2013 - 22.06.2013 Reduction and Emergence in Physics (International Workshop)

14.11.2013 – 16.11.2013 Reduction and Emergence in the Sciences (International Conference)

13.11.2013 Reduction and Emergence in Physics (Evening Lecture Prof. Dr. Stephan Hartmann, Dr. Sebastian Lutz and Dr. Karim Thébault)

10.12.2013 String Theory and the Scientific Method (Evening Lecture Dr. Richard Dawid)

08.09.2014-09.09.2014 Decisions, Groups, and Networks (International Conference)

11.12.2014-13.12.2014 Agent-based Modeling (International Conference)

Philip Koralus (01.06.-31.07.2013)

Eric Winsberg (07.05.-30.06.2013)

Richard Dawid (01.09.-31.12.2013)

Juha Saatsi (15.10.-22.10.2014)

There are also a number of publications resulting from the project:

Colombo, Matteo, Stephan Hartmann and Robert van Iersel (201x): Models, Mechanisms and Coherence, *The British Journal for the Philosophy of Science*.

Colombo, Matteo and Stephan Hartmann (201x): Bayesian Cognitive Science, Unification and Explanation, *The British Journal for the Philosophy of Science*.

Dardashti, Radin, Karim Thebault and Eric Winsberg (201x): Confirmation via Analogue Simulation: What Dumb Holes Could Tell Us about Gravity, *The British Journal for the Philosophy of Science*.

Dawid, Richard, Stephan Hartmann and Jan Sprenger (201x): The No Alternatives Argument, *The British Journal for the Philosophy of Science*.

Dawid, Richard and Karim Thebault (201x): Many Worlds: Incoherent or Decoherent? *Synthese*.

Lutz, Sebastian (201x). Partial Model Theory as Model Theor, *Ergo*.

Lutz, Sebastian (201x). Carnap on Empirical Significance. *Synthese*.

Lutz, Sebastian (2014). Empirical Adequacy in the Received View, *Philosophy of Science* 81(5):1171–1183.

Reutlinger, Alexander (2014): Are Causal Facts Really Explanatorily Emergent? Ladyman and Ross on Higher-level Causal Facts and Renormalization Group Explanation, *Synthese*.

Reutlinger, Alexander (2014): Why Is There Universal Macro-Behavior? Renormalization Group Explanation As Non-causal Explanation, *Philosophy of Science* 81: 1157-1170.

The CAS research focus program continues until 31st March 2015.