Academic Report for 2015 (01.01.2015- 31.12.2015)

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April 30, 2016

2015 was again a very successful year for the Munich Center for Mathematical Philosophy (MCMP). Our research is recognized worldwide (e.g. in the recent "Leiter report" as the only research center in our fields in Continental Europe). The graduates of our master program in *Logic and Philosophy of Science* have gone on to enroll in PhD programs in Philosophy at Harvard, Stanford, University of Southern California, Carnegie Mellon, and several other universities. We hosted a large number of very successful conferences, including the conference "Why Trust a Theory?", which got a huge attention in the media and in social networks. We also hosted many academic visitors who started to collaborate with us or intensified existing research links. Finally, we are very proud (but also a bit sad) that our postdocs get offers from excellent universities (esp. from the anglo-saxon world) where they started tenure-track positions. This report will provide more details about all this.

Our research remains organized in three research groups, focusing on (i) the **foundations of physics**, (ii) the application of **modeling and simulation methods in philosophy**, and (iii) solving problems from **general philosophy of science and formal epistemology**. We also started a new research group on the **Philosophy of Pharmacology**, supported by an ERC Starting Grant to Dr. Barbara Osimani. Finally, we intensified our relations with other LMU departments, esp. Business Administration, Economics, Geology, Physics, Political Science, Psychology, and Statistics as well as with the Munich Center for Neurosciences (MCN) and the Graduate School for Systemic Neurosciences (GSN). Besides organizing joint events (and supervising joint PhD students in the case of the GSN), we are also preparing joint grant proposals with colleagues from some of these departments.

(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 continually kept the website up-to-date. By the high-click count we can tell that our website really is an important go-to resource for researchers in our field. Among the most popular pages is our front page, of course, which shows upcoming events, recent news and since this year 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. By the end of 2015 we are now providing access to almost 600 video recordings on virtually any kind of philosophical problem. Our current channels

do appear in "great" or "recommended" collections on iTunes U quite regularly.

3. MCMP on Coursera

The MOOC (= Massive Open Online Course) "Introduction to Mathematical Philosophy" already held in 2013 and updated in 2014 by elaborated lecture notes on each unit is still online and well sought after. In 2015 we expanded our material and created three additional lectures by Ole Hjortland on Truth and nonclassical Logic, Olivier Roy on Epistemic Game Theory and Seamus Bradley on Imprecise Probabilities.

4. MCMP @ Facebook

The MCMP regularly posts news and events on Facebook. Currently we have more than 2.300 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. 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".

Furthermore the workshop "Why trust a theory", December 7th – 9th 2015 gave us the opportunity to present the MCMP in various magazines and on blogs and websites. Here is a list of selected media coverage: magazines: *Quanta Magazine*, "A fight for the Soul of Science", *The Atlantic*, "Physicists and Philosophers hold Peace Talks", *New Scientist*, "Beyond experiment: Why the scientific method may be and old hat", *Forbes Magazine*, "Why trust a Theory? Physicists and Philosophers Debate the Scientific Method, *Quartz*, "Philosophers want to know why physicists believe theories they can't prove", *Social News Daily*, "Can physicists and philosophers be friends?", *Nature*, "Feuding Physicists turn to Philosophy for Help" and reprinted in *Scientific American*, "Is String Theory Science?" as well as *Spektrum*, "Die Philosophie soll der Physik aus der Patsche helfen"; blogs: *Plato's Footnote* by Massimo Pigliucchi, *The Reference Frame* by Lubos Motl, *Not Even Wrong* by Peter Woit; websites: Graham Farmelo

8. 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 the past two years. By the end of 2015 we managed to transfer 300 MCMP publications into the new system with great care to consolidate all research output in a unified repository. Our papers are now accessible through: LMU's Open Access server; Our personal online profile pages; Our own publication search function on our homepage; And through Google Scholar as well as on BASE (Bielefeld Academic Search Engine). We are continually working to improve the usability of our database. One of the things we have been evaluating are cross-links from papers to video recordings on our LMUcast servers.

9. Video Search

In 2015 we also kept improving our very own online video search function. This not only gives our website's visitors quick access to our archive of almost 600 recordings, it also allows you to search for related content and group recorded talks thematically. If a First Sight video abstract exists for a long recording, our search function will give you access

10. Curated Video Collections

In cooperation with LRZ's multimedia unit we turned our researchers into curators! The combination of LRZ's video streaming server, a customized cross- platform HTML5 player, our LMUcast meta-database, and a newly developed design language with unique color coding made this novel format possible. The simple idea: In our "Curated Collections" MCMP team members highlight a group of research talks from our vast video archives in their area of expertise. Personal comments complete those personal selections and make them a starting point for anyone interested in what's hot in formal philosophy.

(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 2015:

07.01.2015	Gabriel Tarziu (Romanian Academy)
07.01.2015	Lucas Champollion (NYU)
14.01.2015	Susanne Hahn (Duesseldorf)
14.01.2015	Gia Dvali (LMU)
21.01.2015	Uljana Feest (Hannover)
21.01.2015	Aidan Lyon (Maryland and MCMP)
28.01.2015	Gregory Wheeler (MCMP)
28.01.2015	Elena Castellani (Florence)
15.04.2015	David Wallace (Oxford)
22.04.2015	Milena Ivanova (MCMP/LMU Munich)
22.04.2015	Gregory Gandenberger (Pittsburgh)
29.04.2015	Martin Kusch (Vienna)
29.04.2015	Richard Dawid (MCMP)
04.05.2015	Carlo Martini (TINT)
06.05.2015	Holger Lyre (Magdeburg)
06.05.2015	Ben Levinstein (Bristol)
11.05.2015	Bernard Grofman (Irvine)

13.05.2015 Karolina Krzyżanowska (MCMP)
13.05.2015 Miklos Redei (LSE)
20.05.2015 Casey McCoy (UCSD)
20.05.2015 Hartry Field (NYU)
03.06.2015 Wolfgang Pietsch (TU Munich)
03.06.2015 Berna Kilinç (Boğaziçi University)
10.06.2015 Peter Pickl (LMU)
10.06.2015 Robert Rynasiewicz (Johns Hopkins)
17.06.2015 David Ludwig (Amsterdam)
17.06.2015 Elke Brendel (Bonn)
22.06.2015 Michael Morreau (Maryland) and Aidan Lyon (Maryland&MCMP)
24.06.2015 Ana-Maria Cretu (Edinburgh)
29.06.2015 Ignacio Ojea (Columbia)
29.06.2015 Justin Bruner (ANU)
08.07.2015 Johanna Wolff (Hong Kong)
15.07.2015 Laurie Paul (UNC Chapel Hill)
14.10.2015 Lena Zuchowski (Salzburg)
14.10.2015 Aidan Lyon (University of Maryland)
21.10.2015 Chrysostomos Mantzavinos (Athens)
28.10.2015 Rohit Parikh (CUNY)
28.10.2015 Gregory Wheeler (MCMP)
04.11.2015 Elena Tatievskaya (Universität Augsburg)
11.11.2015 Anne Meylan (Fribourg)
18.11.2015 Sara Uckelman (Durham University)
25.11.2015 Peter Evans (University of Queensland)
02.12.2015 Daisuke Bekki (Ochanomizu University)
02.12.2015 Nick Tosh (NUI Galway)
16.12.2015 Hanoch Ben-Yami (Central European University)
16.12.2015 Anna Mahtani (LSE)

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 2015:

08.01.2015 Remco Heesen (Carnegie Mellon)
08.01.2015 Irina Starikova (University of Bristol)
15.01.2015 Aviv Keren (Hebrew University of Jerusalem)
15.01.2015 Tom Sterkenburg (Amsterdam/Groningen)
22.01.2015 Catarina Dutilh-Novaes (Groningen)
22.01.2015 Otávio Bueno (Miami)
29.01.2015 Vasco Brattka (Universität der Bundeswehr München)
05.03.2015 Roberto Fumagalli (University of Bayreuth)
19.03.2015 Shawn Stendefer (Pittsburgh)
16.04.2015 Sam Sanders (Ghent University)
16.04.2015 Peter Verdée (Université catholique de Louvain)
23.04.2015 Alexander Paseau (Oxford)
23.04.2015 Jack Woods (Bilkent)
30.04.2015 Michael Strevens (NYU)
30.04.2015 Denis Bonnay (Paris)
07.05.2015 Marc Artiga (MCMP)
07.05.2015 Paolo Busotti (San Marino in Storia della Scienza)
21.05.2015 Theresa Kouri (Ohio State University)
21.05.2015 Hartry Field (NYU)
28.05.2015 Gábor Hofer-Szabó (Hungarian Academy of Sciences)
28.05.2015 Alexandra Zinke (Konstanz)
11.06.2015 Jose Ferreiros (Sevilla)
25.06.2015 Thomas Ede Zimmermann (Frankfurt)
25.06.2015 Dirk Kindermann (Graz)
02.07.2015 Tim Button (Cambridge)
02.07.2015 Koji Nakatagowa (Tokyo)
06.07.2015 Danny November (Jerusalem)
06.07.2015 Kenny Easwaran (California)

09.07.2015 Georg Schiemer (University of Vienna)
09.07.2015 Mihir Chakraborty (Kolkata)
16.07.2015 Thomas Schindler (MCMP)
16.07.2015 John Wigglesworth (MCMP)
26.10.2015 Rohit Parikh (CUNY)
29.10.2015 Graham Oddie (Boulder)
29.10.2015 Rafal Urbaniak (Ghent)
02.11.2015 Darren Bradley (Leeds)
05.11.2015 Arthur Pedersen (Max Planck Institute/MCMP)
12.11.2015 Walter Dean (Warwick)
12.11.2015 Lev Beklemishev (Russian Academy of Sciences)
19.11.2015 Jan Heylen (Leuven)
23.11.2015 Sara Negri (Helsinki)
26.11.2015 Sam Sanders (MCMP)
26.11.2015 Vincenzo Crupi (Turin)
03.12.2015 Wilfried Hinsch (Köln)
03.12.2015 Ole Hjortland (Bergen/MCMP)
10.12.2015 Michela Massimi (Edinburgh)
10.12.2015 Paul Teller (UC Davis)
14.12.2015 Steve Awodey (Carnegie Mellon/MCMP)
17.12.2015 Ethan Jerzak (Berkeley)

3. Work in Progress

The MCMP is also scheduling an intern Work in Progress session, offering MCMP members and Visiting Fellows 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 2015:

08.01.2015 Aviv Keren (Hebrew University of Jerusalem)
15.01.2015 Molly Kao (MCMP)
22.01.2015 Sebastian Lutz (MCMP)
29.01.2015 Alexander Reutlinger (MCMP) & Holly Andersen (Simon Fraser University)
16.04.2015 Andrea Oldofredi (Lausanne)
23.04.2015 Erik Curiel (MCMP)
30.04.2015 Sam Fletcher (MCMP)
07.05.2015 Catrin Campbell-Moore
21.05.2015 Pascal Ströing (MCMP)
28.05.2015 Michael Cuffaro (MCMP)
11.06.2015 Erik Curiel (MCMP)
18.06.2015 Gil Sagi (MCMP)
25.06.2015 Gregory Gandenberger (Pittsburgh)
09.07.2015 Richard Dawid (MCMP) and Michael Stoeltzner (MCMP & South Carolina)
16.07.2015 Catherine Herfeld (MCMP)
29.10.2015 Johannes Findl (University of Barcelona)
05.11.2015 Morten Langfeldt Dahlback (NTNU)
12.11.2015 Michael Miller (University of Pittsburgh)
19.11.2015 Andreas Kapsner (MCMP)
26.11.2015 James Fraser (University of Leeds)
03.12.2015 Bobby Vos (Utrecht University)
10.12.2015 Seamus Bradley (MCMP)

4. 3rd Munich Philosophical Colloquia (MPK)

The MCMP's Chair of Philosophy of Science organized and hosted the 3rd Munich Philosophical Colloquia (MPK) in the winter term 2015/2016. Stephan Hartmann and Alexander Reutlinger invited speakers on the topic of Philosophy, Philosphy of Science and Society and gave an accompanying seminar for LMU students. The colloquia talks took place the following dates:

21.10. 2015 Roman Frigg (London School of Economics)

„Climate Change and Intergenerational Justice"

18.11. 2015 Sally Haslanger (Massachusetts Institute of Technology)

„Racial Ideology and Racist Practices: Moving Beyond Critique?“

25.11. 2015 Ansgar Beckermann (Universität Bielefeld)

„Gibt es empirische Belege für die Existenz des Übernatürlichen?“

09.12. 2015 Kärin Nickelsen (LMU München)

„Wie viel Schicksal liegt in den Genen? Genetischer Determinismus und seine Folgen“

20.01. 2016 Martin Kusch (Universität Wien)

„The Functions of the Social Sciences in Liberal Democracy“

b. Workshops and Conferences

From the total of fifteen MCMP events in 2015 the Chair of Philosophy of Science with the support of event manager Sabine Beutlhauser was able to host thirteen workshops and conferences throughout the year:

1. Quantum Computation, Quantum Information and the Exact Sciences

January 30-31 2015, MCMP, LMU

Organizer: Michael Cuffaro

Quantum computation and quantum information theory (QCIT) are two burgeoning fields which are concerned with the ways in which the resources of quantum mechanics can be used to develop algorithms and protocols for handling information faster and more efficiently than is possible using conventional means. Since quantum computation and information theory combine and connect concepts from physics, mathematics, computer science, and information theory, they promise to illuminate the foundations of all of these sciences. The aim of this conference was to explore these connections; i.e., between the philosophy and foundations of quantum computation and information theory, and more traditional philosophical and foundational questions in these and other of the so-called “exact sciences.” Some of the particular topics we aimed to consider included: QCIT's relevance for our understanding of the structure and axiomatics of quantum theory; QCIT's relevance for our understanding of physical conceptions of computation and/or information; Alternative formalisms and mathematical frameworks for characterising QCIT; Methodological differences and commonalities between QCIT and more traditional approaches to the exact sciences; The metaphysical significance (or lack thereof) of the concepts and operational definitions of QCIT.

Invited Speakers: Hans Briegel (Innsbruck), Leah Henderson (Carnegie Mellon), Rüdiger Schack (University of London), Chris Timpson (University of Oxford).

2. Book Symposium on Mathias Frisch’s “Casual Reasoning in Physics”

February 6 2015, MCMP, LMU

Organizer: Alexander Reutlinger

In philosophy of science, scientific methodology, and metaphysics, much has been written on the role of causal notions and causal

reasoning in the so-called 'special sciences' and in common sense contexts. However, the most recent debate on causation focuses on whether causal reasoning also plays a role in physics. The majority view is that causation plays no role in physics (e.g. influentially articulated in Russell 1913, Price and Corry 2007). In his forthcoming book "Causal Reasoning in Physics" (Cambridge University Press), Mathias Frisch opposes this received view. Frisch argues that causal reasoning does play a crucial role in physics. More precisely, he argues that time-asymmetric causal structures are as integral a part of the representational toolkit of physics as a theory's dynamical equations. Frisch develops his argument partly through a critique of anti-causal arguments and partly through a detailed examination of actual examples of causal notions in physics, including causal principles invoked in linear response theory and in representations of radiation phenomena. We took this symposium as an opportunity to discuss Frisch's claims about causation and causal reasoning in physics. The commentators in this symposium explored the consequences of Frisch's view for the epistemology and metaphysics of causation; and they critically evaluated Frisch's arguments in favor of the central role assigned to causation and causal reasoning in physics.

Invited Commentators: Andreas Hüttemann (University of Cologne), and Phyllis Illari (University College of London).

3. 1st Munich Graduate Workshop in Mathematical Philosophy: Philosophy of Physics

April 9-11 2015, MCMP, LMU

Organizer: Karim Thébault and Brian Padden

The Munich Center for Mathematical Philosophy (MCMP) was organizing the first Munich Graduate Workshop in Mathematical Philosophy from 9th - 11th April 2015. The theme of the 2015 workshop was the philosophical foundations of physics and we invited submissions from masters and doctoral students interested in presenting a paper on this topic. In addition to student presentations and keynote lectures, the workshop featured three 'working groups' focused upon open questions at the forefront of contemporary research. The themes of the working groups were the foundations of: gravitational physics, statistical physics and quantum physics (all broadly construed). Each of the three invited speakers lead one session, with the remainder lead by internal lecturers. See the program for more details.

Invited Speakers: Harvey Brown (University of Oxford), Rüdiger Schack (University of London), Charlotte Werndl (University of Salzburg)

4. Salzburg-Irvine-Munich Workshop

April 23-24 2015, Salzburg, Irvine and LMU, MCMP

Organizer: Charlotte Werndl, Stephan Hartmann und Hannes Leitgeb

In cooperation with the University of Salzburg the Salzburg-Irvine-Munich Workshop in Logic and Philosophy of Science took place the University of Salzburg and LMU with one day of seminar lectures each.

Invited Speakers: Jeff Barrett (UC Irvine), Richard Dawid (MCMP), Stephan Hartmann (MCMP), Simon Huttegger (UC Irvine), Hannes Leitgeb (MCMP), Sebastian Lutz (MCMP), Julien Murzi (University of

Salzburg), Brian Skyrms (UC Irvine), Charlotte Werndl (University of Salzburg), Lena Zuchowski (University of Salzburg).

5. Workshop "New Work on Explanation and Understanding"

May 1 2015, LMU, MCMP

Organizer: Alexander Reutlinger

Lectures on the following topics provided an up-to-date picture on works in the field of explanation and understanding: Do renormalization group methods explain continuous phase transitions; Euler's Königsberg: the explanatory power of mathematics; Understanding (with) toy models; Truth and understanding; modelling inequality.

Invited Speakers: Seamus Bradley (MCMP), Dominik Hangleiter (MCMP), Stephan Hartmann (MCMP), Patricia Palacios (MCMP), Tim Räz (University of Konstanz), Michael Strevens (New York University), Karim Thébault (MCMP)

6. Just Playing? Toy Models in the Sciences

May 8-9 2015, LMU, MCMP

Organizer: Alexander Reutlinger und Dominik Hangleiter

Toy models are ubiquitous in the natural and social sciences – prominent examples include the Ising model in physics, the Lotka-Volterra model in the life sciences, and the Schelling model in the social sciences. It is characteristic of toy models that they simplify radically and often succeed in identifying the crucial features that produce a phenomenon. Toy models play an important and, though, insufficiently appreciated role in philosophy of science. This workshop addressed the following questions regarding the epistemic functions of toy models in the natural and social sciences: Do toy models represent 'real' target systems? Or do scientists just play around with models? Do toy models provide reliable predictions? How should one interpret the idealized assumptions in toy models? Which role do toy models play as a tool of argument/consensus-finding in the scientific community? How are simple toy models related to complex simulations? Are toy models explanatory? Do toy models yield scientific understanding?

Invited Speakers: Claus Beisbart (University of Bern), Erwin Frey (LMU), Till Grüne-Yanoff (Royal Institute of Technology Stockholm), Ulrike Hahn (Birkbeck University of London), Dominik Hangleiter (LMU), Stephan Hartmann (LMU), Rainer Hegselmann (University of Bayreuth), Sabina Leonelli (University of Exeter), Margaret Morrison (University of Toronto), Ulrich Schollwöck (LMU), Robert Sugden (University of East Anglia)

7. Causal and Probabilistic Reasoning

June 18-20 2015, LMU, MCMP

Organizer: Stephan Hartmann, Karolina Krzyzanowska, Michael Waldmann, Greg Wheeler

2015 marked the 15th anniversary of the publications of Judea Pearl's Causality and the second edition of Peter Spirtes, Clark Glymour, and Richard Scheines' Causality, Prediction, and Search, which together are the foundations for the mathematical theory of causal modeling. During this period, the theory of causal Bayesian networks has been applied to a variety of topics in the special sciences, including the

brain and cognitive sciences. This conference focused on the applications of probabilistic and causal modeling in cognitive science, with an emphasis on assessing both the power and limitations of these tools in our understanding of cognition. Topics of the conference included, but were not limited to: Causal reasoning, probabilistic reasoning, models of bounded rationality, probabilistic causal models in cognitive psychology, models of Judgment and Decision Making, learning and Decision Making, group Decision Making, social Norms and Networks, foundations of Causal Bayesian Networks

Invited Speakers: Ulrike Hahn (University of Salzburg), Ralph Hertwig (Berlin), Wolfgang Spohn (University of Konstanz).

8. The Problem of Time in Perspective

July 3-4 2015, LMU, MCMP

Organizer: Karim Thébault

Whilst there is broad agreement that the canonical quantization of general relativity leads to an acute problem relating to time, there is not uniform consensus regarding either the nature of this 'problem of time in quantum gravity', or the requirements for a satisfactory solution. Questions remain, for example, with regard to interpretation of the timeless Wheeler-de Witt formalism, the canonical representation of the spacetime diffeomorphism group, the formal and empirical status of observables and the relevance of the problem of time to other approaches to gravity. The aim of this workshop was to bring together experts on the problem of time for discussion of both formal and philosophical issues. Participants included both physicists working at the forefront of quantum gravity research, and specialists in the historical and philosophical foundations of the subject.

Invited speaker: Bianca Dittrich (University of Waterloo), Sean Gryb (University of Radboud), Philipp Hoehn (Perimeter Institute Waterloo), Tim Koslowski (University of New Brunswick), Brian Pitts (University of Cambridge), Oliver Pooley (University of Oxford), Carlo Rovelli (Universite de la Mediterranee), Donald Salisbury (Austin College), Kurt Sundermeyer (University of Berlin).

9. 3rd International Summer School in Philosophy of Pysics

July 20-25 2015, Lenzkirch Saig, Black Forest, Germany

Organizer: Department of Philosophy of the University of Lausanne, Department of Mathematics of Ludwig-Maximilians-University Munich and the Munich Center for Mathematical Philosophy

Physics is the science of physis, the Greek word for nature. But what does today's physics tell us about nature? To answer this question, the summer school enquired into the ontology of physics. The need for an ontology is particularly evident in the ongoing debate about the interpretation of quantum physics. We approached the problem of ontology both from a general philosophical perspective as well as by going into concrete proposals with respect to the most advanced physical theories. The topics covered included: philosophical introduction to ontology, the ontology of classical and quantum physics, the ontology of quantum field theory, entanglement and the quantum measurement problem, the ontology of space and time, the ontological status of laws of nature.

Inivited Speakers: Jeff Barrett (Irvine), Claus Beisbart (Bern), Dirk-André Deckert (LMU), Michael Esfeld (Lausanne), Sheldon Goldstein (Rutgers), Anna Marmodoro (Oxford), Tim Maudlin (New York), Lev

Baidman (Tel Aviv), Christian Wüthrich (Geneva), Nino Zanghi (Geneva).

10. Summer School on Mathematical Philosophy for Female Students 2016

Organizer: Catherine Herfeld, Milena Ivanova

The Summer School on Mathematical Philosophy for Female Students is planned to take place at the MCMP every year in the summer. Each year, we will have a different line-up of speakers and a respective change in the specific topics. What will remain constant over the years is that all topics will have the general focus of the summer school, namely to study and apply formal and empirical methods to address problems in different areas of philosophy. As outlined in our statement of motivation, the main goal of the summer school is to support young and ambitious female students to get into contact with mathematical methods and acquire the respective skills that will prepare them for their graduate work and ultimately for an academic career in mathematical philosophy. The second Summer School on Mathematical Philosophy for Female Students in 2015 was as exciting as the first. Following a general introduction into the basics of probability theory and elementary logic, participants were given an overview of three different topic streams from which they were free to choose one for further study. The streams were on: attitudes in epistemology, by Julia Staffel from the University of Washington in St. Louis; networks in philosophy, by Kevin Zollman from Carnegie Mellon University and the context-dependence and the semantics-pragmatics interface, by Isidora Stojanovic from the Jean Nicod Institute in Paris. Sessions consisted of lectures and interactive tutorials, in which participants actively engaged with the materials by way of solving problem sets. Furthermore, they had the chance to participate in various talks by PhD students and Postdoctoral Research Fellows of the MCMP as well as external lecturers, who gave overviews of their work. The idea behind a program of such a broad range of topics was to expose participants to the various possible topics and methods that the field of mathematical philosophy has to offer. Carla Fehr from the University of Waterloo gave an evening lecture on the importance of diversity and justice in philosophy as a discipline that led to a constructive discussion about gender issues in the academy. To check out the line-up of speakers, the program, the video abstracts, and the recorded lectures please click on the links below.

Invited Speakers: Catrin Campbell-Moore (MCMP), Carla Fehr (University of Waterloo), Stephan Hartmann (MCMP), Hannes Leitgeb (MCMP), Sebastian Lutz (MCMP), Gil Sagi (MCMP), Julia Staffel (Wasington University), Florian Steinberger (University of Paris I), Isidora Stojanovic (Jean Nicode Institute Paris), Kevin Zollman (Carnegie Mellon).

11. Remembering Patrick Suppes

September 9 2015, LMU, MCMP

Organizer: Stephan Hartmann

Patrick Suppes (1922-2014) was a true polymath. The list of scientific disciplines to which he significantly contributed ranges from philosophy (esp. the philosophy of science) and logic to psychology (esp. learning and measurement theory), computer science, physics, and neuroscience. After graduating from New York's Columbia University in 1950, where he had worked under the supervision of Ernest Nagel, Suppes spent the next 64 years at Stanford University.

During this time, he published 34 books, including the monumental Representation and Invariance in Scientific Structures, which won the Lakatos Award in 2002, as well as hundreds of papers. Suppes' research has always been driven by a special combination of empiricism and pragmatism. He has always insisted on taking details seriously, and has always had an eye on practical applications. For example, in 1967, he founded the Computer Curriculum Corporation. This company was the first to focus on interactive computer-assisted learning in the classroom. Suppes also founded and, from 1990 to 2010, directed Stanford's Education Program for Gifted Youth, which has been a huge success. For the last 15 years his main focus was running the Suppes Bain Lab research program, which focused on three main areas: (I) The continued study of language in the brain, (II) the psychological and neural interactions of couples in psychotherapy, in music experiments, and in neural economic games and (III) continual theoretical research on the applications of weakly coupled phase oscillators, as models of brain computations to current experiments. The goal of this event was to celebrate the life and work of Patrick Suppes, who has had close ties to LMU Munich for many years.

Invited Speakers: Michelle U. Nguyen (Stanford), Colleen Crangle (Stanford/Louisville), Aimee Drolet (UCLA), Sam Sanders (Ghent University/MCMP).

12. What Do You Want To Do With That? Answers from Philosophers Outside the Academy

October 23-24 2015

Organizer: Stephan Hartmann, Gregory Wheeler

Philosophers are everywhere—in private industry, nonprofit organizations, government, the arts, and even universities. If ours is indeed the age of information, where knowledge is, as Fritz Machlup argued, itself an economic resource, it should come as no surprise to find philosophers thriving throughout all corners of society. What is surprising, and what this conference is conceived to respond to, is the degree to which philosophers inside the academy remain isolated from those outside of it. This two-day conference brought together a distinguished group of philosophers who know of life inside and outside the academy, and who shared their insights and experiences navigating the transitions from one realm to another; what insights and experiences translate well, and which do not; and what habits and best practices the broader community of philosophers can and should adopt to create opportunities for philosophers at all stages of their careers, but especially for philosophy undergraduate and graduate students.

Invited Speakers: Jeffrey Helzner – is Head of the Behavioral Sciences Group at AIG, New York, and was previously Associate Professor of Philosophy at Columbia University; Zachery Ernst – is a Software Engineer at Narrative Science, Chicago, and was previously Associate Professor of Philosophy at the University of Missouri; Andreas Edmüller – is an Entrepreneur and co-founder of Projekt Philosophie, a Business Consultant firm specializing in strategic advice, value-based management, and conflict management, who is also affiliated with the Munich Center for Mathematical Philosophy at the LMU Munich; Rebekka Reinhard – is a Philosophical Counselor in private practice (philosophy works!) and at the Ludwig Maximilian University of Munich Clinic for Psychiatry and Psychotherapy, a key note speaker, editor at Hohe Luft and a bestselling author.

13. Why trust a Theory? Reconsidering Scientific Methodology in Light of Modern Physics

December 7-9 2015, LMU, MCMP

Organizer: Radin Dardashti, Richard Dawid, Dieter Lüst, Karim Thebault,

Fundamental physics today faces increasing difficulties to find conclusive empirical confirmation of its theories. Some empirically unconfirmed or inconclusively confirmed theories in the field have nevertheless attained a high degree of trust among their exponents and are de facto treated as well established theories. This situation raises a number of questions that are of substantial importance for the future development of fundamental physics. Can a high degree of trust in an empirically unconfirmed or inconclusively confirmed theory be scientifically justified? Does the extent to which empirically unconfirmed theories are trusted today constitute a substantial change of the character of scientific reasoning? Might some important theories of contemporary fundamental physics be empirically untestable in principle? The workshop centred around an in-depth discussion of these and other related questions, with a particular focus on the methodological and philosophical aspects. As such, it was an interdisciplinary event, involving physicists and philosophers of science. It brought together main exponents of important theories in fundamental physics, physicists who have expressed criticism of the current strategies of theory assessment in fundamental physics and philosophers who have thought about those issues.

Invited Speakers: Peter Achinstein (John Hopkins University), Elena Castellani (University of Florence), Radin Dardashti (MCMP), Gia Dvali (LMU), George Ellis (University of Cape Town), David Gross (UC Santa Barbara), Sabine Hossenfelder (Nordic Institute for Theoretical Physics Stockholm), Gordon Kane (University of Michigan), Helge Kragh (Copenhagen University), Dieter Lüst (LMU), Viatcheslav Mukhanov (LMU), Massimo Pigliucci)City College of New York), Joseph Polchinski (UC Santa Barbara), Fernando Quevedo (University of Cambridge/ICTP), Carlo Rovelli (University of Aix Marseilles), Björn Malte Schäfer (Heidelberg University), Joseph Silk (Johns Hopkins University), Chris Smeenk (Western University London, Ontario), Karim Thébault (University of Bristol), Christ Wüthrich (University of Geneva).

c. Additional Activities

1. Reading Group on Philosophy of Physics

This reading group focused on the foundations of modern physics and addresses conceptual, formal, and philosophical problems. We discussed contemporary papers from mathematics, physics, and philosophy of science journals that often relate to research conducted by members of the group. In the summer semester 2015, we focused on the topic: Renormalization Group (RG) Methods. RG methods have played an important role in the theory of fundamental interactions at the microscopic scale and the theory of continuous macroscopic phase transitions. Apart from their importance in physics, RG methods have been regarded as a crucial case to look at in the philosophical debates about reduction, emergence, explanation and the role of idealizations and models in physics. The reading group aimed to explore these and other related debates by discussing physical and philosophical papers. The idea was to discuss RG methods not only as they are used in the theory of phase transitions but also in QFT and Quantum Gravity.The group holds usually bi-

weekly meetings throughout the academic term and is organized by Patricia Palacios.

The Philosophy of Physics group at the MCMP also hosts the mailing list philphysmunich. 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. Speakers interested in giving talks at the MCMP related to philosophy of physics should contact Karim Thébault.

(IIX) Awards

Several MCMP members or MCMP related researchers have won awards or research programs in 2015. This is the list:

Barbara Osimani was interviewed by the research journal *Einsichten. Das Forschungsmagazin*, telling them about her project PhilPharm within her ERC Starting Grant. A german version of the aricle can be found in *Einsichten. Das Forschungsmagazin* by LMU, Edition 2, 2015, pages 8-9.

Catherine Herfeld and Ivan Moscati (Insubria University/LSE) receive the 2015 ESHET grant by the European Society for the History of Economic Thought for their projects "Explorations in the recent history of decision theory, 1945 to 1990".

During the General Assembly at EPSA15 in Düsseldorf elections for the Presidency, Vice-presidency and Steering Committee of the European Philosophy of Science Association (EPSA) have taken place and **Stephan Hartmann** has been re-elected President of EPSA for the period 2015-2017.

Prof. Felix Brodbeck, Prof. **Stephan Hartmann**, Prof. Martin Kocher, Prof. Paul Thurner and Prof. Anja Tuschke from the planned DFG Research Group "Decisions, Groups, and Networks" received support through an Investment Fund, an LMUexcellent program.

The research network "The Scientific Approach to Epistemology" with nodes in Bristol (Bristol University, Richard Pettigrew), Groningen (the Rijksuniversiteit, Jan-Willem Romeijn, Lund (Lund University, Erik Olsson) Munich (**LMU/MCMP**, **Stephan Hartmann**), Pittsburgh (CMU, Kevin Zollman) and Tilburg (Tilburg University, Jan Sprenger) received a Leverhulme Trust Grant. The project aims to bring together researchers who employ a variety of different mathematical and scientific techniques in epistemology. The scientific approach to epistemology is a novel and exciting methodology. It supplements traditional methods by means of three innovative techniques: (i) formal mathematical modeling; (ii) empirical experimentation; (iii) computer simulations.

(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:

a) Dr. Seamus Bradley

b) Dr. Michael Cuffaro

c) Dr. Curiel Erik

d) Radin Dardashti

e) Dr. PD Richard Dawid

f) Lee Elkin

g) Dr. Samuel Fletcher

h) Dr. Ulrike Hahn

i) Prof. Dr. Stephan Hartmann

j) Dr. Catherine Herfeld

k) Dr. Milena Ivanova

l) Karolina Krzyzanowska

m) Dr. Jürgen Landes

n) Josè Leyva

o) Dr. Kristina Liefke

p) Dr. Sebastian Lutz

q) Dr. Aidan Lyon

r) Dr. Alexander Mebius

s) Christoph Merdes

t) Dr. Barbara Osimani

u) Brian Padden

v) Patricia Palacios

w) Dr. Cèdric Paternotte

x) Dr. Roland Poellinger

y) Dr. Alexander Reutlinger

z) Pascal Ströing

ä) Dr. Karim Thébault

ö) Dr. Giovanni Valente

ü) Dr. Gregory Wheeler

ß) Dr. Johanna Wolff

a) 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 also collaborates with Karim Thébault and Alexander Reutlinger to work on the methodology of econophysics. He recently submitted an Emmy Noether proposal for a project titled "Philosophical Foundations of Imprecise Probability".

3. Academic Output

Publications:

(2015): How to choose among Choice Functions. *Proceedings of the International Symposium on Imprecise Probabilities.*

(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): Constraints on rational Theory Choice. Forthcoming in *British Journal for the Philosophy of Science*.

(201x): Nonclassical Probability and Convex Hulls. Forthcoming in *Erkenntnis.*

(201x): Modelling Inequality, together with Karim Thébault and Alexander Reutlinger. Forthcoming in *British Journal for the Philosophy of Science.*

In preparation:

(201x): Criteria of Adequacy for an Imprecise Decision Theory.

(201x): Determinism, Determinacy and Chance.

(201x): Vague Chance.

(201x): Migration and Imperialism: two ways scientific Models can travel. Together with Karim Thébault.

Presentations:

1. A general Theory of updating Beliefs: Philosophy of probability conference, Venice International University, Italy.

2. Learning from Dilation and Belief Inertia: Reasoning club conference, University of Kent, UK.

Imprecise Probabilities in Statistics and Philosophy, Munich Centre for Mathematical Philosophy, Munich, Germany.

3. Rational Theory Choice: ECAP08, University of Bucharest, Serbia.

4. Nonprobabilistic Chance?: Chance and conditionals workshop, Institute of Philosophy London, UK.

Work in progress seminar, MCMP, Munich, Germany.

5. The Logic of Evidence and its Relation to rational Belief: PROGIC University of Kent. UK.

6. Confidence from robustness: a cautionary Tale: Munich Salzburg seminar, University of Salzburg, Austria.

Uncertainty in climate science and its impact on decision-making, Paris Sorbonne, France.

7. How to choose among Choice Functions: International Symposium on Imprecise Probablities. Pescara, Italy.

Bristol imprecise credences conference, University of Bristol, UK.

8. Modelling Inequality: Studying Knowledge Transfer and its Contexts, Centre for Advanced Study Munich, Germany.

British Society for the Philosophy of Science, University of Manchester, UK.

9. Symposium on Imprecise Probabilities: European Philosophy of Science Association conference, Universität Düsseldorf, Germany.

Further Activities:

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

Organiser Symposium on Imprecise Probabilities at EPSA Düsseldorf September 23—26 2015.

Organiser MCMP Graduate Workshop in Formal Epistemology April 7—9 2016.

Organiser Physics of Society conference July 22—23 2016.

Courses taught:

Fall 2013/2014: Practical Rationality (seminar).

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

b) Dr. Michael Cuffaro

1. Type of Affiliation with the MCMP

From September 2013 to October 2015, Michael Cuffaro was a Postdoctoral Fellow at the MCMP. Since that time, he is affiliated with the MCMP as an external member.

2. Research Projects

Michael Cuffaro's philosophical interests are mainly in the philosophy of physics, the philosophy of computing, and the interrelations between them. He also has philosophical interests in the History of Philosophy of Science (especially physics) and in General Philosophy of Science. His current research projects are: the fact that certain "no-go" results in quantum mechanics (Bell's theorem, etc.) take on a different significance when we view them from a computational point of view, and he is currently investigating whether reflecting on this fact can help to enlighten philosophical debates over the aim and subject matter of fundamental physics; A second research project concerns the history of the philosophy of quantum mechanics. In particular he is investigating whether reconsidering the views of some of the theory's founders, as well as some of its lesser known early commentators, can help to clarify modern debates over the theory's interpretation and over whether and how the theory explains quantum phenomena; He is also interested in the philosophical debate over the nature of scientific explanation in general, and he is currently investigating whether considering the nature of computational algorithms can help to illuminate this debate, as well as the related debate over the proper characterisation of mechanisms and mechanistic explanation; A fourth research project concerns the science of computational complexity theory. Cuffaro is investigating the philosophical significance that the science of quantum computation has for our understanding of computational complexity theory's basic concepts.

3. Academic Output

Publications:

(201x): Reconsidering No-Go Theorems from a Practical Perspective, *The British Journal for the Philosophy of Science*.

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

(2015): How-Possibly Explanations in Quantum Computer Science, *Philosophy of Science*.

(2015): Quantum Computation, *Stanford Encyclopedia of Philosophy*, together with Amit Hagar.

In preparation:

(201x): *Physical Perspectives on Computation, Computational Perspectives on Physics*. Under contract with Cambridge University Press. Planned for summer 2017, together with Fletcher, S.C.

(201x): Quantum Reflections on Computational Complexity. (invited chapter for a book on the philosophy of mathematics and technology, planned for publication with Springer.

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

(201x): On Some Early (Neo-)Kantian Responses to Quantum Theory.

(201x): A Critique of Pragmatist Interpretations of Quantum Mechanics.

Presentations:

1. A Different Perspective on the Quantum-Classical Divide: Università Degli Studi Firenze, Florence, Italy.

2. On the Limits of Classical Computational Systems: Nordic Network for Philosophy of Science annual meeting, Helsinki, Finland.

3. Commentary on Corrado Matta's "Qualitative Research and Confirmation": Nordic Network for Philosophy of Science annual meeting, Helsinki, Finland.

4. The Copenhagen Interpretation(s) of Quantum Mechanics: 1st Munich Graduate Workshop in Mathematical Philosophy, Munich, Germany.

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 held in January 2015 at LMU Munich, organised in conjunction with the Max Planck Institute of Quantum Optics.

In 2015 Michael Cuffaro has taught the advanced seminars "Introduction to the Philosophy of Physics", and "Survey of the Philosophy of Computing and Computer Science". He was the co-supervisor for the M.A. thesis of Cameron Beebe, a student in the MCMP master program. He also assisted in the supervision of Omid Charrakh, a master's student in physics at LMU.

Referee service: *Philosophy of Science, Synthese, European Journal for Philosophy of Science, Studies in History and Philosophy of Modern Physics, Foundations of Physics, Minds & Machines, Review of Symbolic Logic, Dialectica, British Journal for the History of Philosophy, Philosophical Quarterly, Croatian Journal of Philosophy*.

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

c) 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 uniqueness of the Einstein field equation, the character of counterfactuals in the theory and the status of the Principle of Equivalence).

3. Academic Output

Publications:

(201x): Singularities, Black Holes and Thermodynamics in Relativistic Spacetimes, forthcoming in *The Stanford On-Line Encyclopaedia of Philosophy*, ed. Edward N. Zalta .

(201x): On Geometric Objects, the Non-Existence of a Gravitational Stress-Energy Tensor, and the Uniqueness of the Einstein Field Equation, *Studies in History and Philosophy of Modern Physics*, forthcoming.

In preparation:

(201x): A Simple Proof of the Uniqueness of the Einstein Field Equation in All Dimensions, *Classical and Quantum Gravity.*

(201x): On the Meaning, Role and Status of the Principle of Equivalence in General Relativity, *Philosophy of Science.*

(201x): Are Classical Black Holes Hot or Cold?, *Studies in History and Philosophy of Modern Physics.*

(201x): Measure, Topology and Probabilistic Reasoning in Cosmology, *British Journal for the Philosophy of Science.*

(201x): If Metrical Structure Were Not Dynamical, Counterfactuals in General Relativity Would Be Easy, *Erkenntnis.*

(201x): Operationalizing Metric Structure in Geometrized Newtonian Gravity, *Foundations of Physics.*

(201x): Classical Black Holes Are Hot, *General Relativity and Gravitation.*

(201x): On the Propriety of Physical Theories as a Basis for Their Semantics", *Nous.*

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

(201x): On the Structure of Phronesis and the Character of Practical Reasoning in Nicomachean Ethics, *Oxford Studies in Ancient Philosophy.*

Presentations:

1. The Delicacy of Counterfactuals in General Relativity (Or: If Metrical Structure Were Not Dynamical, Counterfactuals in General Relativity Would Be Easy): European Philosophy of Science Association, Biannual Conference, Dusseldorf, Germany.

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

2. Measure, Topology and Probabilistic Reasoning in Cosmology: 15th Congress of Logic, Methodology and Philosophy of Science, Triennial Conference, Helsinki, Finland.

3. Hot and Cold Cosmological Singularities: Radboud University, Department of High Energy Physics, Colloquium, Nijmegen, The Netherlands.

4. On the Use and Abuse of Scientific Examples in the Philosophy of Science: Sarton Center for History of Science, Colloquium, University of Ghent, Belgium.

5. The Physical and Philosophical Significance of Energy Conditions in Spacetime Theories: Oxford University, Colloquium, Faculty of Philosophy, Oxford, UK.

Further Activities:

Courses Taught: "The Philosophy of Space, Time and Spacetime" (undergraduate, graduate); "The Semantics of Scientific Theories " (graduate).

Conferences Organized: "The Semantics of Theories", co-organized with Sebastian Lutz, 23-25 June 2016, MCMP

Grants Applied for:

1. DFG Einzelförderung Research Grant for three years, for a position as senior research fellow at MCMP; grant proposal: "Gravitation, Thermodynamics and Quantum Field Theory: The Cross-Roads of Contemporary Physics".

2. FQXi Grant for their RFP "Physics of the Observer", applied for USD 80.000 over two-years; grant proposal: "Understanding the Representation of the Observer in Physical Theory".

d) Radin Dardashti

1. Type of Affiliation with the MCMP

Radin Dardashti has been a MCMP Doctoral Fellow since October 2012.

2. Research Projects

Radin has been working on finishing his PhD thesis. The thesis is divided into two main parts, both offering challenges to ordinary scientific methodology. Radin considers the possibility to confirm theories based on evidence, which is not implied deductively or inductively from theories. In the first part he discusses the viability of so-called non-empirical theory assessment. In the second part he analyses the viability of confirming theories by using analogue experiments, which do not fall under the domain of applicability of the theory.

3. Academic Output

Publications:

(2016): Confirmation via Analogue Simulation: What Dumb Holes Can Tell us About Gravity, together with Karim Thébault and Eric Winsberg, forthcoming in *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): The Epistemology of No-Go Theorems.

(201x): Confirmation via Analogue Simulation: A Bayesian Analysis; together with Stephan Hartmann, Karim Thébault and Eric Winsberg.

Presentations:

1. Physics without Experiments: Why Trust a Theory? Conference LMU Munich, Germany.

2. Non-empirical Evidence in the Case of the No Alternatives Argument: European Philosophy of Science Association Meeting, Düsseldorf, Germany.

15th Congress of Logic, Methodology and Philosophy of Science, Helsinki, Finland.

British Society for the Philosophy of Science Annual Conference, Manchester, UK.

3. What Do No-go Theorems in Physics Imply: 4th Tübingen Summer School in the History and Philosophy of Science, Forum Scientiarium, Tübingen, Germany.

Further Activities:

Courses: "Central Topics in Philosophy of Science" (Prof. Hartmann) WS2015, Teaching Assistant.

Conference Organization: Why Trust a Theory? – Reconsidering Scientific Methodology in Light of Modern Physics

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

Assistant Editor Quantum Mechanics Section of online article database PhilPapers.org.

e) Dr. PD Richard Dawid

1. Type of affiliation with the MCMP

Richard Dawid has been working as a Visiting Fellow funded by his own DFG project in 2015.

2. Research Projects

Richard Dawid has 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 was staying in Munich for the academic year 2014/15, investigates the role of the action principle in string theory. He wrote a survey paper on the concept of non-empirical theory confirmation. He also wrote a paper on the scientific realism debate from a high energy physics perspective. He worked on three resubmissions of papers: on Norton's dome and material induction; on a Bayesian perspective on the Higgs discovery, and, in cooperation with Stephan Hartmann, on the base rate fallacy in the no miracles argument for scientific realism.

3. Academic output

(201x): Duality, empirical Equivalence and free Parameters, *Studies in the History and Philosophy of Science* (Special Issue on Dualities).

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

(201x): High Energy Physics and Scientific Realism, written for *Scientific Realism,* Routledge, forthcoming.

(201x): Bayesian Perspectives on the Discovery of the Higgs Particle, *Synthese*, forthcoming.

(201x): Modelling Non-Empirical Confirmation, *Models and Inferences in Science,* forthcoming.

(2015): Turning Norton's Dome Against Material Induction, *Foundations of Physics* 45(9), 1-9.

(2015): Many Worlds: Decoherent of Incoherent?, *Synthese*, 192(5): 1559-1580, together with Karim Thébault.

(2015): The No-Alternatives Argument, *British Journal of the Philosophy of Science* 66(1), 213-234, together with Stephan Hartmann and Jan Sprenger.

(2015): Higgs Discovery and the Look Elsewhere Effect, *Philosophy of Science* 82(1): 76-96.

Presentations:

1.Non-empirical Theory Confirmation - what it is and what it is not: IUC, Dubrovnic, Croatia.

University of Bielefeld invited talk, Germany.

Workshop Why trust a theory?, LMU Munich, Germany.

2. NMA without the Base Rate Fallacy: Salzburg Irvine Munich workshop on logic and philosophy of science, Salzburg, Austria.

Objectivity 2015, Tilburg, The Netherlands.

EPSA 2015, Düsseldorf, Germany.

3. Bayesian Perspectives on the Discovery of the Higgs particle: LMU Munich, Germany.

CLMPS 2015 Helsinki, Finland.

5. String Action: WIP talk, LMU Munich, Germany, together with Michael Stöltzner.

9. Wann ist eine Theorie mehr als Spekulation: invited talk Moritz Schlick Symposium 2015, Rostock, Germany.

Further activities:

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

Head of the organizing Committee of the Workshop "Why trust a theory?", Dec.7-9 2015 at the LMU Munich.

Teaching summer term 2015: Scientific Realism, VO, LMU Munich.

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

Masters Supervision: Annegret Irrgang, ongoing.

Public Interaction:

Interviews with journalists from *Nature, New Scientist, Quanta Magazine, Quartz Magazine* and *Scientific American*, in connection with the Workshop "Why trust a Theory?".

Radio Interview for Ö1 (Austria) for the program "Von Tag zu Tag" about the debate among physicists on the status of empirically unconfirmed theories.

Interview with a British team for a film about the role of falsificationism in modern physics.

f) Lee Elkin

1. Type of Affiliation with the MCMP

Lee Elkin is a Doctoral Fellow since January 2014.

2. Research Projects

Lee Elkin is working on applying imprecise probability theory to the philosophical issues of peer disagreement, confirmation, and complete ignorance for his PhD dissertation.

3. Academic Output

Publications:

(2015) An Epistemically Modest Response to Disagreement, *The Reasoner*, 9(9), pp.76-77.

Presentations:

1. Imprecise Bayesian Confirmation Theory: University of Calgary 4th Annual Graduate Conference, Calgary, Canada.

2. Resolving Peer Disagreements Through Imprecise Probabilities The 2015 Pacific Division of the American Philosophical Association, Vancouver, Canada, together with Gregory Wheeler.

3. Disagreement and Belief Revision, Summer School on Mathematical Philosophy for Female Students, Munich, Germany.

4. Confirmation Theory with Imprecise Probabilities: Research Seminar in Epistemology and Philosophy of Science, Tilburg University, Tilburg, The Netherlands.

g) 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 Noncontectual, 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.

(201x): Counterfactuals within Scientific Theories.

(201x): Limits of Nagelian Reduction.

Presentations during his Marie Curie Fellowship:

1. The Topology of Intertheoretic Reduction: Institute for History and Philosophy of Science and Technology, Paris.

Department of Philosophy, Communication and Media Studies, University of Rome 3, Italy.

Department of Theoretical Philosophy, University of Bucharest, Serbia.

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

Explanation and Reduction Seminar, Department of Philosophy, University of Cologne, Germany.

2. On the Reduction of General Relativity to Newtonian Gravitation: Astronomical Observatory of Belgrade, March 2015.

Space-time Structuralism, Erasmus University Rotterdam, March 2015.

Gravitation and Relativity Group, Institute for Theoretical Physics, University of Cologne, January 2015.

Theoretical Philosophy Forum, Eötvös University, Budapest, September 2014

3. Global Spacetime Similarity: Theoretical High Energy Physics Lunch Seminar Series, Radboud University Nijmegen, The Netherlands.

DPG Physics School on General Relativity @ 99, Bad Honnef, Germany.

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

3. Global Spacetime Similarity: DPG Physics School on General Relativity @ 99, Bad Honnef, Germany.

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

4. On the Local Flatness of Spacetime: 42nd Annual Philosophy of Science Conference, Inter-University Centre Dubrovnik, Croatia.

Department of Philosophy, University of Salzburg, UK, together with James Weatherall.

Philosophy of Physics Workshop, University of Bucharest, Romania.

Vienna Center for Quantum Science and Technology, Austria.

Munich Center for Mathematical Philosophy, LMU Munich, Germany.

Sigma Club, London School of Economics, UK.

3rd International Interdisciplinary Summer School: Arches and Scaffoldings, University of Tübingen, Germany.

5. Holism and Synchronic Emergence: Quantum vs. Classical Mechanics: The Metaphysics of Quantum Mechanics, Corpus Christi College, Oxford University, UK.

The Metaphysics of Quantum Mechanics, Corpus Christi College, Oxford University, UK.

6. Topological Methods for Intertheoretic Reduction in Physics: European and national funding opportunities for early career researchers, LMU Munich, Germany.

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

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

8. Classical Field Theory and Intertheoretic Reduction: 79th Annual Meeting of the Deutsche Physikalische Gesellschaft, TU Berlin, Germany.

Irvine-Munich Workshop on Foundations of Classical and Quantum Field Theories, LMU Munich, Germany.

9. The Physical Basis of Computation and Computational Complexity: Department of Philosophy, University of Belgrade, Serbia.

Descartes Centre, Utrecht University, The Netherlands.

Quantum Computation, Quantum Information, and the Exact Sciences, LMU Munich, Germany.

10. How to Be Rational Without Really Trying: Who's In Town Lecture Series, Amsterdam University College, The Netherlands.

11. Model Verification and the Likelihood Principle: Chance Encounters, University of Groningen, The Netherlands.

12. Counterfactuals within Scientific Theories: 9th Principia International Symposium: Possible Worlds and their Applications in Philosophy and the Sciences, Florianópolis, Brazil.

15th Congress of Logic, Methodology and Philosophy of Science, University of Helsinki, Finland.

5th World Congress and School on Universal Logic, University of Istanbul, Turkey.

Work in Progress Seminar, Munich Center for Mathematical Philosophy, LMU Munich, Germany.

3rd Meeting of the Nordic Network for Philosophy of Science, University of Helsinki, Finland.

Formal Methods and Science in Philosophy, Inter-University Centre Dubrovnik, Croatia.

13. Rethinking Relativistic Propagation: 3rd Budapest-Krakow Workshop on Probability, Causality and Determinism, Institute of Philosophy, Hungarian Academy of Sciences, Budapest, Hungary.

Rethinking Foundations of Physics, Dorfgastein, Austria.

14. Limits of Nagelian Reduction: 4th International Interdisciplinary Summer School: Idealizations in Physics, University of Tübingen, Germany.

British Society for the Philosophy of Science Annual Meeting, University of Manchester, UK.

15. Definitions and Contextualism for Topologies on the Space of Spacetimes: Logic, Relativity, and Beyond: 2nd International Conference, Rényi Institute, Budapest, Hungary.

Further Activities:

Search Committee, Munich Center for Mathematical Philosophy, LMU Munich, for Assistant Professor in philosophy of physics, 2015.

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

Other conferences attended:

Munich-Salzburg Joint Seminar, University of Salzburg, Austria.

Just Playing? Toy Models in the Sciences, Munich Center for Mathematical Philosophy, LMU Munich.

New Work on Explanation and Understanding, Munich Center for Mathematical Philosophy, LMU Munich.

Book Symposium on Mathias Frisch's "Causal Reasoning in Physics", Munich Center for Mathematical Philosophy, LMU Munich.

Philosophy of Science Association Biennial Meeting, Chicago, IL, USA.

Explanation Beyond Causation, Munich Center for Mathematical Philosophy, LMU Munich

Workshop on Entanglement, Université Paris-Diderot.

Structural Realism, Structuralism and Theory Change, Munich Center for Mathematical Philosophy, LMU Munich.

Grant applications (successful):

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

h) Ulrike Hahn

1. Type of Affiliation with the MCMP

Ulrike Hahn is a Visting Fellow via a Anneliese Maier Research Award from the Humboldt Foundation for the years 2015 and 2016.

2. Research Projects

Human rationality from both a normative and a descriptive perspective: in particular, argumentation, judgment and decision making.

3. Academic Output

Publications:

(2015): A normative Framework for Argument Quality: Argumentation Schemes with a Bayesian Foundation. *Synthese*, together with Hornikx, J..

(2015): The Kind of Group You Want to Belong to: Effects of Group Structure on Group Accuracy. *Cognition*, 142, 191-204, together with Joensson, M. and Olsson, E..

(2015): The Appeal to Expert Opinion: Quantitative support for a Bayesian Network Approach. *Cognitive Science*, together with Harris, A.J.L., Hsu, A. and Madsen, J.K.

(2015): Public Reception of Climate Science: Coherence, Reliability, and Independence. *Topics in Cognitive Scienc*e, together with Harris, A.J.L. and Corner, A.J.

(2015): The Bi-directional Relationship Between Source Characteristics and Message Content. *Proceedings of the 37th Annual Meeting of the Cognitive Science Society*, together with Collins, P.J., von Gerber, Y. and Olsson, E.J.

(2015): Individual Belief Revision Dynamics in a Group Context. *Proceedings of the 37th Annual Meeting of the Cognitive Science* Society, together with Volzhanin, I., Jonsson, M. and Olsson, E.J.

(201x): Causal Argument. In, M. Waldmann (ed.) *The Oxford Handbook of Causal Cognition*, together with Blum, R. and Zenker, F.

(201x): Fallacies of argumentation. In. Thompson, V. and Ball, L. (eds.) *International Handbook of Thinking and Reasoning*, together with Collins, P.J..

(201x): Arguments and their sources. In Paglieri, F. (ed.) The psychology of argument: cognitive approaches to argumentation and persuasion. *Studies in Logic and Argumentation*, together with Collins, P.J.

Presentations:

1. Fallacies in Legal and Everyday Reasoning: A Bayesian Account of Argument Strength: Workshop: Models of Rational Proof in Criminal Law, ZiF Bielefeld, Germany, together with Frank Zenker.

2. Causal Argument: Keynote, Causal and Probabilistic Reasoning 2015, Munich, Germany.

3. Multi-disciplinary Approaches to Reasoning with imperfect Information and Knowledge - a Synthesis and a Roadmap of Challenges: "Reasoning and argumentation under inconsistency.", Dagstuhl Seminar, Germany.

4. Why Toy Models are best: Workshop "Toy models: Just Playing?", Munich Centre for Mathematical Philosophy, Germany.

5. Critical Thinking: what Bayesian Argumentation has to offer: Reasoning, Argumentation and Critical Thinking (RACT 2015), Lund, Sweden.

Honours and Awards:

2015 Elected to the German National Academy of Science, Leopoldina.

2015 Elected Fellow of the Association for Psychological Science.

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:

(2015): A New Garber-Style Solution to the Problem of Old Evidence, *Philosophy of Science* 82(4): 712-717, together with Branden Fitelson (Journal Version).

(2015): The No Alternatives Argument, *The British Journal for the Philosophy of Science* 66(1):213-234, together with Richard Dawid and Jan Sprenger (Journal Version).

(2015): Model, Mechanisms and Coherence, *The British Journal for the Philosophy of Science* 66(1):181-212, together with Matteo Colombo and Robert van Iersel (Journal Version).

(2015): Imprecise Probabilities in Quantum Mechanics, in: C. Crangle et al., *Foundations and Methods from Mathematics to Neuroscience.* Essays inspired by Patrick Suppes. Stanford: CSLI Publications.

In preparation:

(201x): Bayesian Cognitive Science, Unifaction and Explanation, together with Matteo Colombo. To appear in *The British Journal for the Philosophy of Science.*

(201x): Simulating Trends in Artifial Influence Networks, together with Hannah Übler. To appear in *Journal of Artificial Societies and Social Simulation*.

(201x): Confirmation via Analogue Simulation: A Bayesian Analysis, together with Radin Dardashti, Karim Thébault, and Eric Winsberg.

(201x): The No Miracles Argument without the Base Rate Fallacy, together with Richard Dawid.

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

(201x): Generalized Dicke States.

Presentations:

1. Transdisziplinarität und die Zukunft der Einzelwissenschaften: Tagung des Instituts für interdisziplinäre Forschung der Görres-Gesellschaft, Munich, Germany.

2. Assessing Scientific Reasoning: International Symposium on Karl Popper and Problem Change, Ankara, Turkey.

Department of Logic and Philosophy of Science, University of California at Irvine, USA.

3. Bayesian Philosophy of Science: 15th Congress of Logic, Methodology and Philosophy of Science, Helsinki, Finland.

4. Understanding Toy Models: 4th Tübingen Summer School in the History and Philosophy of Science, Tübingen, Germany.

Department of Philosophy, University of Washington, Seattle, USA.

IHPST, Paris, France.

5. Bayesian Argumentation: "If, Then, Otherwise: A symposium on Conditionals", 23rd Annual Meeting of the European Society for Philosophy and Psychology, Tartu, Estonia.

6. The No Miracles Argument without Bayes Rate Fallacy, Salzburg-Irvine-Munich Workshop 2015: Logic and Philosophy of Science, Salzburg, Austria.

7. Learning Conditionals and the Problem of Old Evidence: Seminar on Logic, Pobability, and Games, Columbia University, New York, USA.

8. A New Solution to the Problem of Old Evidence: 2015 Annual Meeting of the Central Division of the American Philosophical Association, St. Louis, USA.

j) Dr. Catherine Herfeld

1. Type of Affiliation with the MCMP

Catherine Herfeld is s Postdoctoral Fellow at the MCMP since June 2013.

2. Research Projects

In 2015, Catherine is working on several projects. She has worked on two books, both are under contract with Cambridge University Press and several paper project. She has given 14 (invited) talks at multiple conferences, workshops and colloquia within the larger field of expertise, i.e. philosophy of the social sciences, and more specifically philosophy and history of economics. She published a review article on the field of Philosophy of Political Science in an edited volume, an interview as a 'teaser' for her interview book, and two book reviews. She also worked on a project entitled 'Women in Philosophy', which was presented at the first conference of the Society for Women in Philosophy, Germany at LMU and which she is currently writing up in two publications. Catherine has submitted 5 articles for publication and received 2 requests for revise and resubmit them. The other 3 are currently under review. Catherine was awarded a DFG-grant for her workshop "Knowledge Transfer and Its Context", which she organized at the Center for Advanced Study at the LMU Munich. She also organized the "Second Summer School on Mathematical Philosophy for Female Students". Together with her colleague Ivan Moscati she received a Research Grant from the European Society for the History of Economic Thought for a project on the history and appraisal of decision theory in economics. Catherine also has prepared a DFG grant proposal for a Research Unit that will be submitted in early March. She taught 4 courses in 2015/16, one on philosophy of economics with Seamus Bradley at LMU Munich, two on philosophy of the social sciences at LMU Munich and at Witten/Herdecke University, and one on the history of rational choice theories in economics at Bayreuth University.

3. Academic Output:

Publications:

(2015): 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.

In preparation:

(201x): Conversations on Rational Choice Theory, Cambridge University Press.

(201x): The Many Faces of Rational Choice Theory, Cambridge University Press.

(201x): Invited Book Review: Thomas, William (2015): Rational Action: The Sciences of Policy in Britain and America, 1940–1960, *Isis, Journal of the History of Science Society.*

(201x) Invited Book Review: Julie Zahle and Finn, Colin (eds.) (2014) Rethinking the Individualism/Collectivism Debate: Essays in the Philosophy of Science, Berlin; Springer, *Philosophy of the Social Sciences.*

(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*.

(201x): The Economist's Persisting Commitment to Methodological Rationalism, *Oeconomia.*

(201x): The Diffusion of Scientific Theories: A Role Typology, together with Malte Döhne.

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

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

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

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

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

(201x): Imagination Rather than Observation in Econometrics: The Case of Ragnar Frisch's Hypothetical Experiments.

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

(201x): Realism in Economics – But Which One?, together with Thomas Sturm (Universitat Autónoma de Barcelona).

(201x): An Empirical Investigation of Current Hypotheses about Explaining the Gender Gap in Philosophy (with Elizabeth Rosas – LMU psychology).

Presentations:

1. Do Female Only Events have a (Positive) Effect in Mathematical Philosophy? Results from a Summer School (presenter: Elizabeth Rosas): Society for Women in Philosophy Germany Meeting, LMU Munich, Germany.

2. Die Theorie rationalen Entscheidens: Ausprägungen und Nutzen in der Geschichte der Volkswirtschaftslehre: Research Seminar, Faculty of Philosophy at the University of Hannover, Germany.

3. How theories travel: The case of the Theory of Games, 1944-1970: Research Seminar, Erasmus Institute for Philosophy and Economics, University of Rotterdam, Belgium.

4. The adoption, diffusion and spread of scientific theories: The case of The Theory of Games, 1944-1970: Workshop, CAS at LMU Munich, Germany.

Work in Progress Seminar, MCMP, Germany.

5. The diffusion of scientific theories: Network topologies and the role of the translator (presenter: Malte Döhne): Congress on Logic, Methodology, and Philosophy of Science, University of Helsinki, Finland.

6. Flexible concepts, unsettled axioms: How rational choice theories entered the social sciences in the Post War era: Lunch talk, CAS at LMU Munich, Germany.

7. Shall we collaborate and if so, with whom? Jacob Marschak and the early years of the Behavioral Sciences Movement, 1950-56: History of Economics Society Annual Conference, Michigan State University, USA.

École Normale Supérieure de Cachan, France.

8. The many faces of rational choice theory: Ringvorlesung, Wittener Institut für Institutionellen Wandel, Witten/Herdecke University, Germany.

9. Economics and the 'Behavioral Sciences Movement': Jacob Marschak's year at the Center of Advanced Study in the Behavioral Sciences: Center for the History of Political Economy, Duke University, UK.

10. Interessenkonflikte in der Wissenschaft: Implikationen für Konsensbildung und ‚epistemic peerhood': Arbeitstagung on Independence in Research, University of Hannover, Germany, together with Lee Elkin and Stephan Hartmann.

11. Between the 'logic of choice' and the behavioral sciences: The emergence of rational choice theories in the 1950s: Research Seminar, Economics Department, Université Paris 1 Panthéon-Sorbonne, Germany.

Annual Meeting of the Allied Social Science Associations, Boston, USA.

12. "Let's formalize behavior": The diffusion of rational choice theories in the American social sciences, 1944-1965 (co-author and presenter: Malte Döhne)*:* Workshop on Social Simulation, University of Bayreuth, Germany.

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.).

ESHET Grant from the European Society for the History of Economic Thought (13.000 EUR); together with Ivan Moscati.

German Academic Exchange Service, conference travel grant (1,660 EUR).

Grant of the German Research Council (DFG) in support of the workshop 'Knowledge Transfer and Its Contexts' (5,400 EUR).

Junior Researcher in Residence at the Center for Advanced Studies at LMU Munich (semester-long research fellowship awarded for academic excellence).

Organizer Workshop (June 2016): "First Principles in Science: Their Epistemic Status and Justification", MCMP; (with Milena Ivanova).

Organizer Workshop: "Studying Knowledge Transfer and its Contexts"; CAS at LMU

Editor Special Issue on *Knowledge Transfer and Its Contexts,* with Chiara Lisciandra (University of Groningen).

Organizer Summer School: Mathematical Philosophy for Female Students, MCMP, LMU Munich, together with Milena Ivanova and Kristina Liefke.

Teaching: Philosophy of the social sciences, Witten/Herdecke University (lecturer); in English.

Teaching: Philosophy of the social sciences, MCMP (lecturer); in English.

Teaching: Philosophy of economics, MCMP (lecturer; with Seamus Bradley); in English.

Teaching: The history of rational choice theories, University of Bayreuth (lecturer); in English.

First examiner: Master theses of Sarah Espinosa, Toni Queck, and Ray Zhang, MCMP.

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); "Evidence, Inference, and Risk" (9th Munich-Sydney-Tilburg Conference at Tilburg Center for Logic, General Ethics, and Philosophy of Science), "Idealizations in Science" (MCMP/LMU Munich), "2nd MCMP Graduate Workshop -- Formal Epistemology" (MCMP/LMU Munich).

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, Erkenntnis, European Journal of the History of Economic Thought, History of Political Economy, International Studies in the Philosophy of Science, Studies in the History and Philosophy of Science.*

02/2015 Visiting Researcher, Department for Philosophy, Universitat Autónoma de Barcelona.

k) Dr. Milena Ivanova

1. Type of Affiliation with the MCMP

Milena Ivanova is a Postdoctoral Fellow at the MCMP.

2. Research Projects

Milena Ivanova has been working in General Philosophy of Science, History of Philosophy of Science and Epistemology.

3. Academic Output

Publications:

(2015) Conventionalism, Structuralism and neo-Kantianism in Poincaré's Philosophy of Science, *Studies in the History and Philosophy of Modern Physics*, Vol. 52, pp. 114-122.

(2015) Conventionalism About What? Where Duhem and Poincaré Part Ways, *Studies in the History and Philosophy of Science*, Volume 54, pp. 80-89.

(2015) Conventional Principles in Science: On the foundations and development of the relativized a priori, *Studies in the History and Philosophy of Modern Physics*, Vol. 52, pp. 111-113, together with Matt Farr.

In preparation:

(201x): Poincaré's Aesthetics of Science, *Synthese.*

(201x): Virtues and Vices in Scientific Practise, *Synthese*, together with Cédric Paternotte.

(201x): Aesthetic Values in Science, in preparation for a special issue on Neo-Kanian Perspectives on the Exact Sciences.

(201x): The A Priori in Science, *Australian Journal for Philosophy*.

(201x): Convention and Structure: New Perspectives on Duhem's and Poincaré's Philosophy of Science, Chicago University Press.

Presentations:

Poincaré's Aesthetics of Science: 15th Congress of Logic, Methodology and Philosophy of Science, CLMPS 2015 University of Helsinki, Finland.

The 89th Joint Session of the Aristotelian Society and the Mind, University of Warwick, UK.

Colloquium in Logic, Philosophy of Science and Philosophy, MCMP, Germany.

Philosophy of Science Seminars, University of Rome, Italy.

I) Karolina Krzyżanowska

1. Type of Affiliation with the MCMP

Karolina Krzyżanowska 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, and their role in reasoning and decision making. Recently, she has been working on learning conditional information and the effect of positive and negative framing on conditionals' persuasiveness (jointly with Peter Collins, Ulrike Hahn, and Stephan Hartmann), implicatures and the semantics-pragmatics interface (with Igor Douven and Henrik Singmann), and the relationship between number cognition and the approximate interpretation of numerals (with Paula Quinon).

3. Academic Output

Publications:

In preparation:

(201x): Deliberationally Useless Conditionals.

(201x) Approximate Interpretation of Numerals: Number Sense and semantics/pragmatics Interface, together with Paula Quinon.

(201x) Learning negatively- and positively-Framed Conditionals, together with Ulrike Hahn and Peter Collins.

(201x) Implicatures and their Effect on People's Assertability, Believability, and Truth Value Judgments, together with Igor Douven and Henrik Singmann.

(201x) What Psychology of Reasoning can and cannot tell us about Semantics of Conditionals.

Presentations:

1. A new Kind of Metalinguistic Theory of Conditionals: Do Conditionals have Truth Conditions? Dynamic and Pragmatic Aspects of Conditionals, GAP.9 congress, Osnabrück, Germany.

2. What's wrong with the Ramsey Test and why we should care: MCMP Colloquium in Philosophy, Logic and Philosophy of Science, LMU Munich, Germany.

3. Between "if" and "then." What do we learn when we learn a Conditional?: Symposium If, Then, Otherwise: A Symposium on Conditionals. 23rd Annual Meeting of the European Society for Philosophy and Psychology (ESPP2015), Tartu, Estonia.

4. The Ramsey Test and Conditionals of a Bad Advice: Annual Meeting of the Priority Program "New Frameworks of Rationality" (SPP1516), Etelsen, Germany.

5. Exact Numerals as Vague Quantifiers: 16th Szklarska Poreba Workshop on the Roots of Pragmasemantics, Szrenica, Szklarska Poreba, Poland.

Further Activities:

Visit in the Department of Psychological Sciences, Birkbeck College, University of London, March 2015.

Co-Organizer for the "Causal and Probabilistic Reasoning" conference at the MCMP, together with Stephan Hartmann and Gregory Wheeler).

Organiser of "If, Then, Otherwise: A Symposium on Conditionals" contributed to the 23rd Annual Meeting of the European Society for Philosophy and Psychology (ESPP2015) held in Tartu, in July 2015 (together with Stephan Hartmann and Gregory Wheeler.

Co-Organizer of the Third Summer School in Mathematical Philosophy for Female Students (to be held at the MCMP in July 2016, together with Milena Ivanova and Samuel Fletcher).

m) Dr. Jürgen Landes

1. Type of Affiliation with the MCMP

Jürgen Landes is a Postdoctoral Fellow with the ERC Starting Grant PhilPharm Projekt led by Dr. Barbara Osimani. He joined the MCMP on 01.10.2015.

2. Research Projects

Jürgen Landes has been working in General Philosophy of Science, Bayesian Epistemology, Philosophy of Medicine and Philosophy of Statistics.

3. Academic Output

Publications:

In Preparation:

(201x): Epistemology of Causal Inference in Pharmacology, together with Roland Poellinger and Barbara Osimani.

(201x): Objective Bayesian nets from consistent datasets: Theory and Matlab Implementation, together with Jon Williamson.

(201x): An Evidence-Hierarchical Decision Aid for Ranking in Evidence-Based Medicine.

(201x): Invariant Equivocation, *Erkenntnis*, together with George Masterton.

Presentations:

1. Epistemology of Causal Inference in Pharmacology: LogiCIC, Amsterdam, The Netherlands.

Further Activities:

Assessment of a Ph.D. thesis at the University of Manchester submitted by Tahel Ronel.

n) Josè Leyva

1. Type of Affiliation with the MCMP

José Leyva has been an MCMP Doctoral Fellow 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

Further Activities:

He attended the following conferences/workshops organized by the MCMP, Munich, Germany: "Quantum Computation", "Quantum Information, and the Exact Sciences"; "New Work on Explanation and Understanding"; "Just Playing? Toy Models in the Sciences".

Teaching Assistant: Theoretische Philosophie I: Einführung in die Wissenschaftstheorie, Stephan Hartmann;

Logik I, Hannes Leitgeb.

o) Dr. Kristina Liefke

1. Type of Affiliation with the MCMP

Since January 2015, Kristina Liefke has been a Postdoctoral Fellow at the MCMP in her DFG-sponsored project Unity and Unification in Intensional Semantics (2015-2018). From May 2015 until December 2015, she has been on maternity leave.

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:

(2015): Codability and Robustness in Formal Natural Language Semantics, in *New Frontiers in Artificial Intelligence*. Lecture Notes in Artificial Intelligence 9067. New York: Springer, 6-22.

(2015): A Single-Type Logic for Natural Language, *Journal of Logic and Computation* 25(4): 1111-1131.

In preparation:

(201x): Montague Reduction, Confirmation, and the Syntax-Semantics Relation, *Journal of Logic, Language and Information*, together with Stephan Hartmann.

(201x): Evidence for Single-Type Semantics – An alternative to *e*/*t*-based dual-type semantics, *Journal of Semantics*, together with Markus Werning.

(201x): A Computable Solution to Partee's Temperature Puzzle, together with Sam Sanders.

(201x): Between Intensions and Hyperintensions: The right level of granularity for the content of propositional attitudes.

Presentations:

1. Evidence for Single-Type Semantics – An alternative to *e*/*t*-based dual-type semantics: Gap.9, Osnabrück, Germany, held during my maternity leave my Markus Werning.

2. Codability and Robustness in Formal Natural Language Semantics: Logisch-Semantisches Kolloquium, Johann Wolfgang Goethe-University, Frankfurt am Main, Germany.

Courses taught:

Winter Semester 2014/15: Introduction to Ontology (BA seminar).

p) 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): What Was the Syntax-Semantics Debate in the Philosophy of Science About? *Philosophy and Phenomenological Research*.

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

(2015): Partial Model Theory as Model Theory, *Ergo*. 2(22): 563–580.

Presentations:

1. Newman's Objection is Dead, Long Live Newman's Objection!:

2015 Salzburg-Irvine-Munich Workshop in Logic and Philosophy of Science: Inductive Inferences in the Sciences, University of Salzburg, Austria.

Contribution to the symposium Newman's Objection to Structural Realism: New Approaches, epsa 15, Heinrich-Heine-Universität Düsseldorf, Germany.

2. Die Wahl analytischer Sätze und ihre Rolle in der Realismus-Debatte [The Choice of Analytic Sentences and its Role in the Realism Debate]:

Workshop Schwerste Unfälle im Erkenntnisgeschäft. Insignifikanz, Scheinproblemschaft, Sinnlosigkeit Ernst-Moritz-Arndt-Universität Greifswald, Germany.

4. Empirically Adequate but Observably False Theories: GAP.9, Osnabrück University, Germany.

5. Choosing How Far Concepts Travel. Knowledge Transfer and Its Context: Ludwig-Maximilians-Universität München, 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.

Instructor (with Karim Thébault): Philosophy of Physics Survey Course. Advanced seminar.

Instructor: Philosophy of Physics Survey Course. Advanced seminar.

Organizer (with Thomas Meier): "Newman's Objection to Structural Realism: New Approaches". Symposium at the EPSA15 conference, Heinrich-Heine-Universität Düsseldorf, Germany, September 2015.

Organizer (with Erik Curiel): "The Semantics of Theories". Ludwig-Maximilians-Universität Munich, Germany, June 2016.

Editor: Alternatives to Scientific Realism, PhilPapers.org.

Reviewer: *Journal of Philosophical Logic, Philosophical Studies, Synthese, Prolegomena: Journal of Philosophy, Disputatio.*

Member of the program committee: MuST9: Evidence, "Inference, and Risk", Ludwig-Maximilians-Universität München, Germany, 2016.

Member of the program committee: "Infinite Idealizations in Science", Ludwig-Maximilians-Universität Munich, Germany, 2016

Member of the program committee: "2nd Munich Graduate Workshop in Mathematical Philosophy: Formal Epistemology", Ludwig-Maximilians-Universität Munich, Germany, 2016

Member of the program committee: "The Semantics of Theories". Ludwig-Maximilians-Universität Munich, Germany, 2016.

Grant applicant: ERC Starting Grant.

Grant applicant: DFG support for the international scientific conference "The Semantics of Theories".

Award applicant: Heinz Maier-Leibnitz-Preis 2016 (through Stephan Hartmann).

q) 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 2015 until December 31st 2015 on his Alexander von Humboldt Research Stipend, one 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.

r) Dr. Alexander Mebius

1. Type of Affiliation with the MCMP

Dr. Alexander Mebius is a Postdoctoral Fellow within the ERC Starting Grant of Dr. Barbara Osimani to investigate the formal arguments supporting the epistemic value of mechanisms.

2. Research Projects

Alexander Mebius has been working in General Philosophy of Medicine, Philosophy of Evidence-Based Research, and Clinical Epidemiology.

3. Academic Output

Publications:

(2015): Effects of Practitioner Empathy and Patient Expectations in Health Consultations for all Conditions, *Cochrane Database of Systematic Reviws* (Protocol), Issue 11, together with Howick J, Fanshawe T, Lewith G, Heneghan C, Bishop F, Little P, Roberts NW, and Mistiaen P.

(2015) Randomized Trials and Observational Studies: The Current Philosophical Controversy, in: T, Schramme, and S, Edwards, *Handbook of the Philosophy of Medicine*, together with Jeremy Howick.

(2015): *Philosophical Controversies in the Evaluation of Medical Treatments: With a Focus on the Evidential Roles of Randomization and Mechanisms in Evidence-Based Medicine*. Theses in philosophy from the Royal Institute of Technology.

(2015): Philosophy of Evidence-Based Medicine, in: D. Prichard, *Oxford Bibliographies in Philosophy,* together with Jeremy Howick and Ashley Graham Kennedy.

In preparation:

(201x): Research Gaps in the Philosophy of Evidence-Based Medicine, *Philosophy Compass,* together with Ashley Graham Kennedy and Jeremy Howick.

(201x) Effects of Practitioner Empathy and Patient Expectations in Health Consultations for all Conditions, *Cochrane Database of Systematic Reviews*, together with Howick J, Fanshawe TR, Lewith G, Heneghan CJ, Bishop F, Little P, Roberts NW, and Mistiaen P.

(201x): Positive Framing for Treating Pain: Meta-Analysis of Randomized Trials, *Annals of Internal Medicine*, together with Jeremy Howick, Thomas R Fanshawe, Felicity Bishop, Mara van Osch, Sandra van Dulmen, Nick Christelis, George Lewith, Patriek Mistiaen, and Ted Kaptchuk.

(201x): Assigning Functions to Medical Technologies, *Philosophy and Technology*.

(201x): Making Sense of Attenuated Mechanism Function Toward Developing Effective Pharmacological Interventions, together with Roland Poellinger.

(201x): To Pool or Not to Pool: An Essential Question When Deciding What Evidence to Rely On to Guide Clinical Practice, together with Jeremy Howick and Jeffrey Aronson.

(201x): Mechanisms: False Portents of Treatment Efficacy.

(201x): Regulatory Affairs: Evidential Asymmetry in Drug Development.

Presentations:

1. Mechanisms: Examining Philosophical Critiques of the EBHC Stance on Mechanistic Reasoning (Pathophysiologic rationale): Department of Primary Health Care Sciences, University of Oxford, Oxford, UK.

2. Philosophical Controversies in the Evaluation of Medical Treatments. Public Defense of Doctoral Thesis. Department of History and Philosophy of Technology and Science, Royal Institute of Technology, Stockholm, Sweden.

s) Christoph Merdes

1. Type of Affiliation with the MCMP

Christoph Merdes is a Doctoral Fellow under the supervision of Stephan Hartmann.

2. Research Projects

Christoph Merdes has been working in Social Philosophy, Collective Rationality, the Application of Simulation Models to Philosophical Questions and Analogical Modelling in the Sciences.

3. Academic Output

In Preparation:

(201x) Homophily, Heterogeneity and Central Influences in Kinetic Exchange Models of Opinion Formation.

(201x) The Evolution of Unpopular Norms by Pluralistic Ignorance on a Social Network.

Presentations:

1. Die Konstruktion von Simulationsmodellen. Probleme und Lösungsansätze. Doktorandenkolloquium Lehrstuhl Methoden der empirischen Sozialforschung. Erlangen, Germany.

t) Dr. Barbara Osimani

1. Type of Affiliation with the MCMP

Barbara Osimani is the ERC Starting Grant awardee and primary project coordinator of the research group on Philosophy of Pharmacology: Safety, Statistical Standards, and Evidence amalgamation.

2. Research Projects

Barbara Osimani has been working on foundational issues concerning the nature of medical evidence and methods for causal assessment with a special focus on pharmacology. She also has an interest in Bayesian epistemology and decision theory and has developed a model of health risk information seeking behavior, as well as a formalization of the precautionary principle through the lenses of Jon Williamson's version of Objective Bayesianism. Her current research is focused on the foundations of pharmacology and evidence amalgamation.

3. Academic Output

Publications:

(2015) Causal Assessment of Pharmaceutical Treatments: Why Standards of Evidence Should not be the Same for Benefits and Harms, *Drug Safety*, 38 (19): 1-11, together with Mignini F.

(2015) Bayesianisme objectif et principe de précaution. In: Drouet I. (eds), *Les approches et méthodes bayésiennes,* together with Russo F.

In preparation:

(201x) Epistemology of Causal Inference in Pharmacology. Towards a Framework for the Assessment of Harms, together with Jürgen Landes and Roland Poellinger.

(201x) Coherence, Consistency, and Causal inference. In: Uncertainty in Pharmacology: Epistemology, Methods and Decisions, Springer Series *Boston Studies in Philosophy of Science* edited together with Adam La Caze.

(201x) Uncertainty in Pharmacology: Epistemology, Methods and Decisions, Springer Series *Boston Studies in Philosophy of Science*, edited together with Adam La Caze.

Presentations:

1. Coherence, Consistency, and Causal Inference: 8th Workshop on the Philosophy of Information, Ferrara, Italy.

2. Philosophy of Pharmacology: Safety, Statistical Standards, and Evidence Amalgamation: 3rd Winter Symposium of the "Human Motion Project". Munich, Germany.

3. Opacity, complexity and epistemic asymmetry in pharmacology: a Bayesian approach to combine multiscale evidence for causal assessment: Validation and Models in Computational Biomedical Science: Philosophy, Engineering, and Science, Sheffield, UK.

4. Probabilistic causal assessment and evidence amalgamation in pharmacology: Evidence Synthesis by Building a Case: Workshop 1. Durham, UK.

5. Experts in Fabula: Evidence and Expertise. Helsinki, Finland.

6. Causal inference and statistics in pharmacology: a framework for evidence amalgamation: EPSA, Düsseldorf, Germany.

7. A coherentist approach to probabilistic causal assessment: The Bridges, Rutgers University, USA.

8. Nesting Causal Models and Evidential Relations in Pharmacology: WPMSIIP 2015, LMU Munich, Germany, together with Roland Poellinger).

Further Activities:

Interview with Glenn Shafer for *The Reasoner*.

Interview by the research journal "Einsichten" about the PhilPharm project.

u) Brian Padden

1. Type of Affiliation with the MCMP

Brian Padden was an MCMP Doctoral Fellow November 2013 until August 2015.

2. Research Projects

His research focused 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 Oath 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 Hannes Leitgeb: Logik I, winter term 2014/2015.

v) 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*.

In preparation:

(201x): Phase Transitions: A challenge for reductionism or for Nagelianism?

(201x): On the role of Infinite Idealizations in QFT.

Presentations:

1. The Role of Approximation in a Reductive Explanation for Phase Transitions: University of Oxford, Oxford, UK.
Effective Theories, Mixed Scale Modeling, and Emergence, Pittsburgh, USA.
2. Do RG Methods provide a Reductive Explanation for Phase Transitions?: 15th Congress of Logic, Methodology and Philosophy of Science, CLMPS 2015, Helsinki, Finland.
New Work on Explanation and Understanding, MCMP, Munich, Germany.
1st Munich Graduate Workshop in Mathematical Philosophy: Philosophy of Physics, MCMP, Munich, Germany.
3. Infinite Idealizations in Physics: Summer School in Mathematical Philosophy for Female Students, Munich, Germany.
4. On the role of infinite idealizations in QFT: Re-thinking foundations of physics, Dorfgastein, Austria.
Further Activities:
Conference Organizing Committee, "1st Munich Graduate Workshop in Mathematical Philosophy: Philosophy of Physics", Munich, April, 2015.

Conference main Organizer "Ontology of Fundamental Physics", Santiago, Chile, December, 2016.

Conference main Organizer "Reduction in Physics and Biology", Santiago, Chile, January, 2016.

Conference Organizing Committee, "Infinite Idealizations in Science", Munich, June, 2016 [scheduled].

w) Dr. Cédric Paternotte

1. Type of Affiliation with the MCMP

Cédric Paternotte has been an MCMP Postdoctoral Fellow from October 2012 until August 2015. He is currently an External Member of the MCMP having taken up a position at the University Paris-Sorbonne as a lecturer and member of the Sciences, Norms, Decisions research team within the department of philosophy.

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): Scientific virtues as catalysts, *Synthese*, together with M. Ivanova.

(2015): Parallels between joint action and biological individuality, in: T. Pradeu and A. Guay (eds.): *Individuals Across the Sciences*, Oxford University Press.

In Preparation:

(201x): The fragility of common knowledge, *Erkenntnis*.

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

(201x): Review of *The Prisoner's Dilemma*, M. Peterson (ed.), *Metascience*.

(201x): Review of James Marshall's *Social Evolution and Inclusive Fitness Theory*, *Studies in History and Philosophy of Science C*.

(201x): Deception: a functional account, together with Marc Artiga.

(201x): Cooperative outcomes.

(201x): Connaissance commune et sens commun.

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

(201x): Team reasoning and joint intentions.

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

x) Dr. Roland Poellinger

1. Type of Affiliation with the MCMP

Roland Poellinger is a Postdoctoral Fellow with Dr. Barbara Osimani's ERC project "Philosophy of Pharmacology" since 1 October, 2015.

2. Research Projects

Roland Poellinger has been working in General Philosophy of Science and Formal Epistemology with a special focus on formal theories of causation and their application.

3. Academic Output

Publications:

In preparation:

(201x): Epistemology of Causal Inference in Pharmacology, together with Barbara Osimani and Jürgen Landes.

(201x): Bayesian Confirmation by Analogy, together with Cameron Beebe.

(201x): Making Sense of Attenuated Mechanism Function Toward Explaining the Effects of Pharmacological Intervention, together with Alexander Mebius.

(201x) Unboxing the Concepts in Newcomb's Paradox: Causation, Prediction, Decision in Causal Knowledge Patterns, In: *6th Munich-Sydney-Tilburg Conference on Models and Decisions* (Munich; 10-12 April 2013).

Presentations:

1. Nesting Causal Models and Evidential Relations in Pharmacology: 8th Workshop on Principles and Methods of Statistical Inference with Interval Probability (WPMSIIP'8), Institut für Statistik, LMU Munich, Germany, together with Barbara Osimani.

2. A Coherentist Approach to Probabilistic Causal Assessment: Bridges 2, Philosophy Department, Rutgers University, New Jersey, USA, presented by Barbara Osimani.

3. Belief Propagation in Epistemic Graphs for Assessing Causal Hypotheses of Harm in Pharmacology: LogiCIC Workshop 2015 (Reasoning in Social Context), Philosophy Department, University of Amsterdam, The Netherlands, presented by Jürgen Landes.

Further activities:

Starting in October 2015, Roland Poellinger co-organized the cross-faculty program *Formal(isiert)es Denken und empirisches Argumentieren*, (w/ Prof. Dr. Thomas Augustin, statistics department), co-funded by Lehre@LMU (to be repeated in 2016); in this lecture series, Roland Poellinger gave the lecture "Zusammenhänge präzisieren im Modell (on the syntax and semantics of formal models)".

In the winter semester 2015/16, Roland Poellinger was organizing the reading group on the Philosophy of Statistics.

For the ERC project Philosophy of Pharmacology, Roland Poellinger created the project website https://philpharmblog.wordpress.com/ and the network website https://evimednet.wordpress.com/.

Roland Poellinger is principal investigator (team leader of the section *Philosophy of Science and Science Communication*) for *Exploring*

Quantum Matter (ExQM), joint PhD school of LMU, TU, MPQ Munich in the *Elite Network of Bavaria* (ENB). He is also a regular faculty member of the doctoral school of Philosophy at the University of Pécs (PTE), Hungary, and is currently supervising Nikoletta Nemesi's PhD project (topic: vague objects), to be submitted in 2016.

y) 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:

(2015) Ceteris Paribus Laws, *The Stanford Encyclopedia of Philosophy*, together with A. Hüttemann and G. Schurz.

(2015) Metaphysics, Prescription, and Methodological Disagreement. A Comment on Mathias Frisch's Causal Reasoning in Physics, *Metascience*.

(2015): 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.

(201x): Is There A Monist Theory of Causal and Non-Casual.

(201x): Explanations? The Counterfactual Theory of Scientific Explanation, *Philosophy of Science*.

(201x): Modeling Inequality, *British Journal for Philosophy of Science*, together with S. Bradley and K. Thébault.

(201x): A Monist Theory of Causal and Non-Causal Explanations, In: *Explanation Beyond Causation*, eds.: A.Reutlinger and J. Saatsi, Oxford University Press.

(201x): Explanation Beyond Causation, Oxford University Press, together with J. Saatsi.

(201x): Kausalität, In: *Metzler Handbuch Metaphysik*, Hrsg.: M. Schrenk.

In preparation:

(201x) Explanation in Science and Metaphysics.

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

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

Presentations:

1. Is There a Monist Theory of Causal and Non-Causal Explanations: Philosophical Colloquium, Central European University, Budapest, Hungary.

2. A Counterfactual Account of Non-causal and Causal Explanations: EPSA 2015, Düsseldorf, Germany.

3. Modeling Inequality: EPSA 2015, Düsseldorf, Germany, together with (with Karim Thébault and Seamus Bradley.

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

4. The Counterfactual Account of Scientific Explanation: Nordic Network for Philosophy of Science, Helsinki, Finland.

5. A Monist Account of Metaphysical and Scientific Explanations:

Workshop The Philosophy of Barry Loewer, Central European University, Budapest, Hungary.

6. Renormalization Group Explanations, Reductivity, and Multiple Realization: Workshop Emergence in Physics, University of Leeds, UK.

7. Are Higher-Level Fact Really Emergent?:Workshop Agency and (Quantum) Physics, University of Innsbruck, Austria.

8. Renormalization Group Explanations are Reductive: Workshop Emergence in Physics, University of Leeds, UK.

9. Against the Abstractness View: HPS Seminar, University of Leeds, UK.

10. Explanation Beyond Causation: Philosophical Colloquium. Bogasici University Istanbu, Turkey.

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

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

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

What's Explanatory About Non-causal Explanations?: Biennal 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.

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

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

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

Further Activities:

Submission of a research proposal for an Emmy Noether group to the DFG, project: Rethinking Scientific Explanation.

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).

Grant for conference organization from the Münchener Universitätsgesellschaft, MUG.

Organizer of the workshop "Foundations of Econophysics and Complexity Science" (July 2016), Munich Center for Mathematical Philosophy (MCMP); coorganizers: Seamus Bradley, Meinard Kuhlmann, and Karim Thébault.

Member of the Program Committee of the conference "Semantics of Theories" (June 2016), Munich Center for Mathematical Philosophy (MCMP).

Member of the Program Committee of "Models and Simulations 7" (May 2016), Universitat de Barcelona.

Organizer of the Lecture Series "Philosophy, Science, Society" (Philosophie, Wissenschaft, Gesellschaft), Lecture Series Münchner Philosophisches Kolloquium (Winter Term 2015/16), LMU Munich; co-organizer: Stephan Hartmann.

Organizer of the symposium "Non-Causal Aspects of Scientific Explanation" (September 2015), EPSA 2015, University of Düsseldorf; co-organizer: Mathias Frisch.

Member of the Program Committee of the Fifth Conference of the European Philosophy of Science Association (EPSA) (University of Düsseldorf; Sepember 2015).

Organizer of the workshop "The Philosophy of Barry Loewer" (July 2015), Central European University Budapest; co-organizer: Hanoch Ben-Yami.

Organizer of the workshop "Emergence and Laws" (July 2015), University of Leeds; co-organizers: Juha Saatsi and Markus Schrenk.

Organizer of the workshop "Just Playing? Toy Models in the Sciences" (May 2015), Munich Center for Mathematical Philosophy (MCMP); co-organizer: Dominik Hangleiter.

Organizer of the workshop "New Work on Explanation and Understanding" (May 2015), Munich Center for Mathematical Philosophy (MCMP).

Organizer of the symposium on Mathias Frisch's book "Causal Reasoning in Physics" (February 6, 2015), Munich Center for Mathematical Philosophy (MCMP).

Student supervision 2015 (and on-going): Master Theses as main supervisor (Sargsyan, Anna; Tesic, Marko; Frister, Renate; Grießhammer), as a second reader (Manno, Ann-Kristin), and Bachelor-Theses as the main supervisor (Wolf, Niko)

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.

z) Pascal Ströing

1. Type of Affiliation with the MCMP

Pascal Ströing is Doctoral Fellow under supervision of Stephan Hartmann. He holds a dissertation scholarship from the Studienstiftung des deutschen Volkes.

2. Research Projects

Pascal Ströing's dissertation project focusses on questions from General Philosophy of Science with argumentations that are based on exemplary investigations from different scientific fields and mathematical explications.

3. Academic Output

Publications:

In preparation:

(201x): New Insights on the Metaphysics of Phenomena and Patterns in Data.

(201x): Measures of Explanatory Power for Observed Data.

Presentations:

1. How are Patterns in Data Related to Empirical Phenomena? Work-in-Progress talk, MCMP, Munich, Germany.

2. New Insights on the Metaphysics of Phenomena and Patterns in Data: New Trends in Metaphysics of Science, Paris, France.

Further Activities:

Teaching assistant for Master's course: Central Topics in the Philosophy of Science

ä) Dr. Karim Thébault

1. Type of Affiliation with the MCMP

Karim Thébault was an Assistant Professor at the Chair of Philosophy of Science until September 2015. He is currently an External Member of the MCMP having taken up a position at the University of Bristol as a lecturer of the philosopy department.

2. Research Projects

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

3. Academic Output

Publications:

(201x): Schrödinger Evolution for the Universe: reparametrization, Classical and Quantum Gravity, together with S. Gryb.

(201x) Modelling Inequality, *British Journal for the Philosophy of Science*, together with S. Bradley and A. Reutlinger.

Presentations:

Why Trust A Theory?, LMU Munich, December 2015.

Philosophy of Physics Research Seminar, University of Oxford, November 2015.

SIGMA Club, The London School of Economics, November 2015.

Geometry, Topology, and Gravity Workshop, Bristol, November 2015.

Department of Philosophy, University of Bristol, September 2015.

Biannual Meeting of the European Philosophy of Science Association, Dusseldorf, September 2015.

German Physical Society Spring Meeting, TU Berlin, March 2015.

Further Activities:

Workshop Organizer, "The Problem of Time in Perspective", Munich.

Workshop Organizer, "1st Munich Graduate Workshop in Mathematical Philosophy: Philosophy of Physics", Munich, April 2015.

Convener, "Colloquium in Logic, Philosophy of Science and Philosophy", Munich, January-July 2015.

ö) Dr. Giovanni Valente

1. Type of Affiliation with the MCMP

Giovanni Valente is a Visiting Fellow via a Humboldt Fellowship for Experienced Researchers. He is also an Assistant Professor in the Department of Philosophy at University of Pittsburgh (USA).

2. Research Projects

Giovanni Valente has been working in General Philosophy of Science, Philosophy of Physics and Philosophy of Climate Science.

3. Academic Output

Publications:

(2015): Time and Irreversibility in Axiomatic Thermodynamics, *American Journal of Physics* 83, pp.628-634, together with Harvey R. Brown and Robert Marsland III.

(2015): Lanford's Theorem and the Emergence of Irreversibility, *Foundations of Physics*, Vol.45, pp. 404-438, together with Jos Uffink.

(2015): Restoring Particle Phenomenology, *Studies in History and Philosophy of Modern Physics*, Vol.51, pp. 97-103.

In preparation:

(201x) On the Paradox of Reversible Processes in Thermodynamics.

Presentations:

1. Relativistic Causality and Local Disentanglement in Quantum Field Theory:

Politecnico di Milano, Italy.

James T. Cushing Lecture, Notre Dame, USA.

2, Restoring Particle Phenomenology:

IFICC, Santiago, Chile.

ü) 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.

3. Academic Output

Publications:

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

(2015): Dilation, Disintegrations, and Delayed Decisions. Proceedings of the 9th International Symposium on Imprecise Probability: Theories and Applications (ISIPTA 2015), Pescara, Italy, pp. 227-236, together with Arthur Paul Pedersen

(2015): Is there a Logic of Information?, Journal of Experimental and Theoretical Artificial Intelligence, 27(1): 95-98.

Presentations:

1. Conditionals: A Confession and a Comment: Human Rationality: Probabilistic Points of View, Villa Vigoni, Loveno di Menaggio, Italy.

2. Resolving Peer Disagreements through Imprecise Probabilities: Munich Center for Mathematical Philosophy Colloquium, Munich, Germany.

3. A Symposium on Imprecise Probabilities: The 2015 European Philosophy of Science Association Meeting (EPSA 2015), Duesseldorf, Germany, together with Seamus Bradley, Jennifer Carr and Jon Williamson.

4. Dilation and Delayed Decisions: Workshop on Principles and Methods of Statistical Inference with Interval (and more generally imprecise) Probability (WPMSIIP 8), Department of Statistics, LMU Munich, Germany, together with Arthur Paul Pedersen.

Multi-disciplinary approaches to reasoning with imperfect information and knowledge – A synthesis and a roadmap of challenges, Dagstuhl Seminar 15221, Dagstuhl, Germany.

5. Philosophical Foundations of Imprecise Probabilities: The 9th International Symposium on Imprecise Probability: Theories and Applications, Pescara, Italy.

6. Dilation, Disintegrations, and Delayed Decisions: The 9th International Symposium on Imprecise Probability: Theories and Applications, Pescara, Italy, together with Arthur Paul Pedersen.

7. If, Then, Otherwise: A symposium on conditionals: 23rd Annual Meeting of the European Society for Philosophy and Psychology, Tartu, Estonia, together with Karolina Krzyzanowska and Stephan Hartmann.

8. Epistemic Decision Theory's Reckoning: The British Society for the Philosophy of Science, Manchester, UK, together with Conor Mayo-Wilson.

9. Booleanosis: Workshop on Belief, Probability, and Conditionals, Regensburg, Germany.

10. Dilation and Sets of Probabilities: Munich-Salzburg Workshop, Salzburg, Austria.

11. Scoring Imprecise Credences: A Mildly Immodest Proposal: University of Bristol, UK.

12. An Introduction to the Theory of Lower Previsions: A Tutorial: The 7th Workshop on Combining Probability and Logic (PROGIC 2015), University of Kent, Cantebury, UK.

13. Peer Disagreements: The 89th American Philosophical Association Pacific Division Meeting, Vancouver, British Columbia, Canada, together with Lee Elkin.

14. Sets of Acceptable Gambles: Unifying Probability and Logic in 20 Minutes: 2nd Madeira Workshop on Belief Revision and Argumentation, Ponta Delgada, Madeira, Portugal.

15. Updating and Revising Acceptable Gambles: MCMP and Statistics Workshop, LMU Munich, Germany.

16. An Acceptable Model of Belief: Munich Center for Mathematical Philosophy Colloquium, Munich, Germany.

Further Activities:

Elected as At-Large Member of the Society for Imprecise Probability: Theory and Applications (SIPTA) Executive Committee in July 2015.

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

Gregory Wheeler was co-Chair of the 7th Workshop on Combining Probability and Logic (PROGIC 2015).

He was a member of the Program Committee for

1. 2015 Meeting of the International Society for Imprecise Probabilities: Theory and Applications, Pescara, Italy

2. 5th International Conference on Logic, Rationality and Interaction (LORI-V), Taiwan National University (2015).

3. 3rd International Conference on the History and Philosophy of Computing (HAPOC 2015), Pisa

4. 6th Indian Conference on Logic and Its Applications (ICLA 2015), IIT-Bombay

Gregory Wheeler taught Formal Methods II: Models and Simulations and Philosophy of Statistcs (S 2015), and Models and Simulations in Social Epistemology and The American Pragmatists (W 2015).

Gregory Wheeler is co-supervising Lee Elkin, a PhD student.

He began supervising Pia Schneider, a MCMP MA student.

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

He was a member of the faculty hiring committee for Hannes Leitgeb's Chair.

He was a member of the LMU Graduate School for Neuroscience PhD selection committee.

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

ß) Dr. Johanna Wolff

1. Type of Affiliation with MCMP

Johanna Wolff is a Visiting Fellow via an Experienced Researcher Scheme.

2. Research Projects

Johanna Wolff's research specialization is philosophy of science, with special emphasis on the philosophy of physical science and the metaphysics of science. Main current research project: a book on the metaphysics of quantities.

3.Academic Output

Publications:

(2015): Observability, Visualizability and the Question of Metaphysical Neutrality, *Foundations of Physics*, 45:9 1046-1062.

(2015): Spin as a Determinable, *TOPOI*, 34:2 379-386.

Forthcoming:

(201x) Naturalistic Quietism or Scientific Realism?, *Synthese*.

(201x): Using Defaults to understand Token Causation, *Journal of Philosophy*.

Presentations:

1. Foundationalism vs. Coherentism: About Quantities and Measurement, University of Helsinki, Finland.

2. Magnitudes as Spaces: Workshop on analogue content and magnitudes, Antwerp, Belgium.

3. Realism about quantities?: CLMPS 2015, Helsinki, Finland.

MCMP, LMU Munich, Germany.

4. Realism about Measurement and Realism about Magnitudes: The Making of Measurement, CRASSH Cambridge University, UK.

5. Why Eliminativism - Comments on Steven French's The Structure of the World: Society for Realist/Antirealist Discussion, Pacific APA, Vancouver, Canada.

6. The metaphysical status of quantities: Philosophy of Science: Contemporary Debates, The University of Edinburgh, UK.

7. Quantitative Structure - A new approach to structural realism: Department of Philosophy, The University of Aberdeen, Aberdeen, UK.

(V) We also hosted several visitors:

The MCMP is regularly hosting visitors: this includes our recurring Visiting Professors, scholars who are spending their sabbaticals at the Center, and visiting postdocs and students. This is the list of visitors at the MCMP and invited by the chair of philosophy if science during the period from January to December 2015:

Ana-Maria Cretu (Edinburgh)	13.04.2015 -29.07.2015
Peter Brössel (Ruhr-University Bochum)	15.04.2015 -15.06.2015
Michael Strevens (New York University)	27.04.2015 -04.05.2015
Miklós Rédei (London School of Economics)	01.05.2015 -30.06.2015
Friedel Weinert (University of Bradford)	04.05.2015 -04.07.2015

Robert Rynasiewicz (Johns Hopkins)	15.05.2015 -15.06.2015
Holger Andreas (UBC/MCMP)	15.05.2015 -31.07.2015
Michael Esfeld (Lausanne)	01.09.2014 -30.06.2015
Sean Gryb (Radboud University)	02.07.2015 -30.07.2015
Rossella Marrano (SNS)	06.10.2014 -31.07.2015
Michael Stöltzner (South Carolina)	01.09.2014 -15.12.2015
Bobby Vos (Universiy of Utrecht)	12.10.2015 -11.12.2015
Elena Tatievskaya (Universität Augsburg)	15.10.2015 -31.01.2016
Nicole Cruz De Echeverria Loebell (Birkbeck College)	25.10.2015 -31.10.2015

a) Ana-Maria Cretu

Ana-Maria Cretu was a visiting student at the MCMP from June 2015 until August 2015 on personal funding (PPLS Career Development Scholarship). During her time at the MCMP she worked on the third chapter of her PhD thesis. In this chapter, she investigated various ways in which realists have tried to block semantic incommensurability. She argues that even a hybrid theory of reference is unsuccessful in securing continuity of reference of natural kind terms throughout theory change. She benefited from fruitful discussions with Sebastian Lutz, Samuel Fletcher, Erik Curiel and Alexander Reutlinger. As a result of her research the following talks can be named: Bucharest Colloquium in Analytic Philosophy, Bucharest, Munich Center for Mathematical Philsophy, British Society for the Philosophy of Science Annual Conference, Manchester.

b) Peter Brössel

Peter Brössel visited the MCMP from April 15th until June 15th on a combination of MCMP and personal funding. At that time he was doing research on inference to best explanation and related inference schemas, with a special emphasis of applications of this inference schemas in neuroscience. As results of this research the following publications can be named: (2015): On the Role of Explanatory and Systematic Power in Scientific Reasoning, *Synthese* 192 (12), 3877-3913; accepted: Rethinking Bayesian Confirmation Theory, Predictive Coding and Cognitive Penetration, together with A. Newen and F. Marchi, Special Issue of *Consciousness and Cognition*, with contributions of K. Friston, J. Hohwy, F. Macpherson, B. Nanay, B. Scholl, D. Stokes and others. "On the Rationale of Reverse Inference in Neuroscience" was presented at talks at the MCMP Munich, Germany as well as at the Berlin School of Mind and Brain, Germany. Further talks were given as follows: "Zur Rechtfertigung des Schlusses auf die Beste Erklärung", Austrian Congress for Philosophy, Innsbruck, Austria; "On the Role of Explanatory and Systematic Power in Scientific Reasoning", Ghent, Belgium; "Rethinking Bayesian Confirmation Theory", Düsseldorf, Germany. He has also applied for a DAAD Jahresstipendium and is still waiting for a decision.

c) Michael Strevens

Michael Strevens was at the MCMP as well as the CAS for five days, from April 27th through May 1st. In that time he gave two linked talks to Professor Alex Reutlinger's graduate seminar, a talk to MCMP as a

whole, and a talk at a workshop on explanation and understanding, as well has having informal meetings with several members of the faculty and graduate students. He was able to arrange for the topics of the talks to correspond to three papers, one that was nearly finished and two that were written since: "Drift: Objective or Unreal" to appear in a volume on genetic drift edited by Charles Pence and Grant Ramsey; "The Mathematical Route to Causal Understanding" to appear in a volume on "Explanation beyond causation" edited by Alexander Reutlinger and Juha Saatsi; "Truth and Understanding" to appear in a volume on "Explaining understanding" edited by Stephen Grimm, Christoph Baumberger, Sabine Ammon. Much of the rest of his time at MCMP was devoted to working on the talks and the papers in tandem.

d) Mikós Rédei

Miklós Rédei visited the MCMP from May 1st until June 30th, 2015 on MCMP funds during a sabbatical leave from London School of Economics (LSE). Further support came from an Individual Staff Research Fund provided by LSE and the National Research, Development and Innovation Office of Hungary. At that time he was working on the problem of general features of general Bayesian learning, where "general Bayesian learning" means inferring a state from another that is regarded as evidence, and where the inference is conditionalizing the evidence using the conditional expectation determined by a reference probability measure representing the background subjective degrees of belief of a Bayesian Agent performing the inference. States are linear functionals that encode probability measures by assigning expectation values to random variables via integrating them with respect to the probability measure. Bayesian conditionalization based on the technique of conditional expectations as conditioning device defines a two-place "Bayes accessibility relation" in the state space of integrable random variables. Characterizing the Bayes accessibility relation amounts to characterizing Bayesian learning in this general setting. The research succeeded in determining the general features of the Bayes accessibility relation. The general features show that a Bayesain Agent's background probability is even more crucial than previously thought because it renders a large number of probability measures not learnable by the Agent no matter what evidence he is presented with. The results of the research were summarized in the paper "General properties of general Bayesian learning", co-authored with Z. Gyenis, that was submitted for publication and is currently under review in the journal *Erkenntnis*. During his stay at the MCMP he gave several talks and lectures: "Categorial approach to relativistic locality", MCMP Colloquia; Series of three seminar talks on interpretation and foundation of probability, delivered at MCMP in the Monday afternoon seminar series: Seminar 1: Bertrand's Paradox; Seminar 2: The Borel-Kolmogorov Paradox and conditional expectations; and Seminar 3: Quantum probability theory. Outside the MCMP he gave several invited talks: "The Borel-Kolmogorov Paradox and conditional expectations", Department of Philosophy, University of Salzburg, Austria; "Reichenbach's Common Cause principle", Düsseldorf Center for Philosophy of Science, Heinrich Heine University.

e) Friedel Weinert

Friedel Wenter visited the MCMP from May 1st until July 30th 2015 on his own funds. During his time at the MCMP he completed a book manuscript, in which he looked at the role of thought experiments and in particular the role of demons in argument patterns used in science

and philosophy. The research has resulted in a monograph entitled "The demons of science: what they tell and do not tell us about our world". It has also led to two invited lectures: a talk at the British Science Festival in Bradford on the subject of demons of science and an invited lecture at the London School of Economics in the cosmological arrow of time. Furthermore he applied for a sabbatical from his home institution, which was successful because of the research fellowship at the MCMP.

f) Robert Rynasiewicz

Robert Rynasiewicz visited the MCMP from May 15th to June 15th, 2015 on MCMP funds. At that time he worked on two different research projects while at the MCMP. (1) He analyzed the arguments for absolute time and space given by Newton in the Scholium to the definitions of his Principia. These were evaluated against the backdrop of an earlier unpublished manuscript De Gravitatione in which he gives a series of arguments against Descartes' definition of true motion and Descartes' identification of matter with extension. The main result is that Newton does argue for absolute motion, since true motion is accepted by Cartesians, atomists, and Aristotelians alike. Rather, he argues that the only acceptable definition of true motion requires reference to immovable places and thus to absolute space. (2) He attempted to evaluate the claim, first made by Ignatowsky in 1910, but refined and advocated by a number of prominent physicist up to the present, that the theory of (special) relativity does not require the postulate that the speed of light is independent of the motion of its source. At issue is whether the Lorentz transformation can be derive without this postulate by appealing instead to general assumptions such as the homogeneity and isotropy of space. The latter assumption, though, presupposes a convention about the speed of light in different directions, which one is otherwise free to reject. This "standard" simultaneity assumption appears to presuppose the light postulate. The results of the first project are found in "Newton's Scholium on Time, Space, Place and Motion" forthcoming in the *Oxford Handbook on Newton* edited by Chris Smeenk and Eric Schliesser for Oxford University Press. In connection with the second project, he gave a colloquium at MCMP June 10, 2015 titled "On the Role of the Light Postulate in Relativity." During his period of residence he attended almost all the colloquia held by both the philosophy of science and logic groups, including noontime WIP talks and he also participated at the annual excursion of the center, making the 15 kilometer hike with the MCMP group from Schliersee to Tegernsee, an effort he was very glad to have made.

g) Holger Andreas

Holger Andreas visited the MCMP from May 15th to July 15th 2015. At that time he has worked on strengthening the Ramsey Test, along the lines of work by Peter Gärdenfors and Hans Rott. Basically, the idea is that a strengthened Ramsey Test conditional is true if, after suspending any judgments concerning antecedent and consequent, we hypothetically assume the antecedent to be true, then see whether we come to believe the consequent. This strengthened variant of the Ramsey Test has been shown to have some advantages over the standard Ramsey Test. In particular, in could be shown that it can be used for an analysis of causation and of explanatory conditionals. This has been joint work with Mario Günther (MCMP). Further, he has been working on a Choice-semantical approach to the semantics theoretical statements, together with Georg Schiemer (MCMP). From this work to papers are in progress: "A Choice-semantical Approach

to Theoretical Truth", in *Studies in History and Philosophy of Science*, together with Georg Schiemer; "Further Strengthening the Ramsey Test", to be submitted to *Erkenntis*.

h) Michael Esfeld

Michael Esfeld visited the MCMP from January to July 2015 on his own Alexander von Humboldt research award, hosted by Stephan Hartmann. At that time he worked on a book project on "What there is. The fundamental ontology of the natural world" with Dirk-André Deckert (Mathematics, LMU). Together they developed an atomistic ontology in terms of matter points that are structurally individuated: all there is to them are the spatial relations in which they stand. The spatial relations change. We claim that all that is needed to capture that change is a commitment to dynamical structure, namely dynamical relations as expressed in terms of the dynamical parameters of a physical theory. The argument for this ontology is that it is the most parsimonious and the most general way to conceive a fundamental ontology of the natural world that is in the position to explain the experimental data. To accomplish that task, we bring together atomism, ontic structural realism and relationalism about space and time. The first part of the book sets out this ontology in general terms, the second part considers classical mechanics and quantum mechanics with a primitive ontology such as Bohmian mechanics, the third part develops a particle ontology for quantum field theory and the fourth part elaborates on relationalism for relativity physics. As a result of the research, the following publications can be named: "What is matter? The fundamental ontology of atomism and structural realism", forthcoming in Anna Ijjas and Barry Loewer (eds.): *A guide to the philosophy of cosmology*. Oxford: Oxford University Press; "The physics and metaphysics of primitive stuff", forthcoming in *British Journal for the Philosophy of Science*; "How to account for quantum non-locality: ontic structural realism and the primitive ontology of quantum physics", forthcoming in *Synthese*; "Naturphilosophie: von der Metaphysik zur Physik" forthcoming in *Wiener Jahrbuch für Philosophie*; "The reality of relations: the case from quantum physics", in Anna Marmodoro and David Yates (eds.): *The metaphysics of relations*; "The metaphysics of laws: dispositionalism vs. primitivism", in Tomasz Bigaj and Christian Wüthrich (eds.): *Metaphysics in contemporary physics*; "Primitive ontology and quantum state in the GRW matter density theory", *Synthese*; "Bell's theorem and the issue of determinism and indeterminism", *Foundations of Physics 45* (2015); "On the importance of interpretation in quantum physics. A reply to Elise Crull", *Foundations of Physics 45*. While visiting the MCMP he attented the "3rd International Summer School in Philosophy of Physics: The Ontology of Physics", Saig (Black Forest), Germany, co-organized with Stephan Hartmann and Detlef Dürr (Mathematics, LMU).

i) Sean Gryb

Sean Gryb visited the MCMP from July 2nd until July 31st on MCMP funds as well as his own Dutch NWO VENI grant. Together with Karim Thébault, he worked out questions regarding the nature of time quantum cosmology. Specifically, they constructed a model for the quantum evolution of the early universe that involves a resolution of the initial singularity. They also discussed the relations between the whole argument in general relativity and the problem of time. As a result the following papers can be named: "Regarding the `Hole Argument' and the `Problem of Time'", together with Karim Thébault, accepted to *Philosophy of Science*; "Schrödinger Evolution for the

Universe: Reparametrization". *Class.Quant.Grav. 33* (2016) no.6, 065004, together with Karim Thébault; "Schrodinger Evolution of the Homogeneous Isotropic Universe", in progress together with Karim Thébault.

j) Rossella Marrano

Rossella Marrano visited the MCMP for seven months starting from January 2015 to July 2015. This visit was funded by her home university, the Scuola Normale Superiore in Pisa. At that time she has been working on her doctoral research project which consists in laying down the formal foundations and exploring the philosophical implications of truth from comparison, namely the idea that the truth of the sentences in a given formal language can be evaluated by means of binary comparisons between the sentences themselves, such as for example "the sentence is less (more) true than the sentence". This is presented as an alternative to the standard approach, which consists rather in evaluating sentences by assigning them a certain value, the truth value. As results of her research the following talks can be named: A qualitative perspective on vagueness and degrees of truth. CLMPS, Helsinki; More or less true than' and order-based semantics. LOGICA 2015, Hejnice monastery; Graded truth as objective probability. Progic 2015. Canterbury. As further results the following papers are in preparation: "More or less true and pairwise valuations"; "Degrees of truth explained away"; "Vagueness of truth taken seriously". The paper together with Andrea Strollo is already submitted: "A renewed challenge for strong alethic pluralism: mixed inferences and Suskzo's reduction".

k) Michael Stöltzner

Michael Stöltzner was a Scholar-in-Residence at the Deutsches Museum, Munich from January 1st, 2015, until May 31st, 2015 and an instructor/visiting professor (*Lehrauftrag*) at the MCMP in the summer term. His main research was in the area of philosophy of physics both in a systematic and in a historical perspective. He worked on models in elementary particle physics, the concept of explanation in particle physics, the axiomatic method in the natural sciences, the principle of least action both historically and with respect to string theory. In his role as instructor he taught a BA-course on the Vienna Circle in German ("Von der Wissenschaftlichen Weltauffassung zur Analytischen Philosophie") and collaborated with the following people at MCMP: Stephan Hartmann (monthly evening discussions), Richard Dawid (writing a paper "String Action" which was presented during a MCMP WIP talk in July), Brian Padden (discussed with several drafts of his paper and his proposal for the Studienstiftung), Catherine Herfeld (discussions about axiomatization, possible projects, which led to an invitation to an MCMP workshop in 2016). An application for an ERC Consolidator grant with the MCMP was thought through with various people at LMU; the reason why the idea was not followed up in 2015 was that at the same time final steps of preparing the application for a DFG Research Unit (Forschergruppe) were taken, which has meanwhile been accepted and allows comparable conditions for research in Germany. Based on a previous sketch the final application was written during that time and, since Michael Stöltzners subproject is on "Models", the topic was discussed repeatedly with Stephan Hartmann. Needless to say, the six postdoc positions that will be posted in February 2016 are exactly suitable for some recent or expected PhDs of the MCMP.

l) Bobby Vos

Bobby Vos spent two months at the Munich Center for Mathematical Philosophy, during which Sebastian Lutz supervised a project for his research master. During frequent meetings various topics in the philosophy of science were discussed, primarily focusing on the structure of scientific theories. In addition, Sebastian Lutz also advised him on certain aspects of academic life. All in all, his time in Munich provided him with valuable insights into both his research topic and academia in general.

m) Elena Tatievskaya

Elena Tatievskaya stayed at the MCMP during the period between October 15th 2015 and December January 31st 2016. Her source offunding was a financial support of the Foundation Office of the City of Augsburg and of the Paritätische St.Martinsstiftung as well as personal funding. During her stay she was working on the research project "Gustav Shpet on Understanding and Explanation in History". Contemporary theories of historical understanding and explanation were considered. She identified first the import of Shpet's theory of understanding with respect to the main problems of current discussions on the specific character of historical cognition before investigating Shpet's semiotic conception and the parallels between his theory and the philosophy of symbolic forms developed by Cassirer. She applied Shpet's semiotic theory to interpret his notion of the subject matter of history which according to him has semiotic nature. This task was important insofar as Shpet does not represent his "logic of history" by means of fully developed semiotic concepts. On the other hand Elena Tatievskaya was studying critical investigations of Shpet's philosophical and semiotical legacy that became popular quite recently. The results of her research in that period include a talk given at the MCMP to the participants of the colloquium in Philosophy, Logik, and Philosophy of Science (4.11.2015) on the theme of "Gustav Shpet on the Function of Understanding in History", a paper in preparation and a book in preparation. During her stay she attended the Workshop "Why Trust a Theory? Reconsidering Scientific Methodology in Light of Modern Physics" as well as colloquium talks in Philosophy, Logik, and Philosophy of Science and colloquium talks in Mathematical Philosophy (weekly). Besides she was preparing an application for external funding to support her research project financially.

n) Nicole Cruz De Echeverria Loebell

Nicole Cruz De Echeverria Loebell was visiting the MCMP from October 26th until October 30th 2015 on a Postgraduate Study Visit Grant from the British Psychological Society. Her main research was done in heoretical discussions and planning of possible common projects on the relation between probabilistic validity and argument strength, and on learning conditional information. Informal discussions during her stay influenced the outline of a talk in November 2015, at a workshop on "Human rationality: Probabilistic perspectives", held in Loveno di Menaggio, Italy. The talk was on an experiment assessing people's endorsement of a specific inference, which is informative for investigating people's interpretation of conditional sentences. Further discussions with Ulrike Hahn and Stephan Hartmann at the workshop then influenced the outline of a short paper on the topic that was just submited to the COGSCI 2016 conference. More direct collaboration will be developed in the context of her second visit in April 2016.

(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 2015,15 April to 15 July 2015, and 15 October 2015 to 15 February 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 2015:

Gabriel Tarziu (Romanian Academy)	01.01.2015 - 31.01.2015
Remco Heesen (Carnegie Mellon)	06.01.2015 - 28.02.2015
Berna Kılınç (Boğaziçi University)	15.04.2015 -1 5.06.2015
Borut Trpin (University of Ljubljana)	15.04.2015 - 31.07.2015
Greg Gandenberger (Pittsburgh)	16.04.2015 - 15.07.2015
Ben Levinstein (University of Bristol)	01.05.2015 - 16.05.2015
Gabór Hofer-Szabó (Hungarian Academy of Sciences)	01.06.2015 - 30.06.2015
Rush Stewart (Columbia University)	01.06.2015 - 30.06.2015
Ignacio Ojea (Columbia University)	01.06.2015 - 30.06.2015
Flavia Padovani (Drexel University)	05.10.2015 - 30.11.2015
Johannes Findl (University of Barcelona)	15.10.2015 - 15.11.2015
Morten Langfeldt Dahlback (NTNU)	15.10.2015 - 15.11.2015
Michael Miller (University of Pittsburgh)	01.11.2015 - 26.11.2015
James Fraser (University of Leeds)	02.11.2015 - 04.12.2015
Peter Evans (University of Queensland)	15.11.2015 - 15.12.2015
Matt Farr (University of Queensland)	16.11.2015 - 16.12.2015
Elena Castellani (University of Florence)	24.11.2015 - 24.12.2015

a) Gabriel Tarziu

Gabriel Tarziu visited the center for on the month of January 2015 on a Visiting Fellowship. The research that he has done at MCMP concerns the problem of mathematical understanding of physical phenomena. More precisely if we can we have such a thing. Many philosophers offer recently what can be taken as good grounds for an affirmative answer; they argue that we can find in science examples of explanations in which the mathematical part is doing a genuinely explanatory job. His aim was to give an account of mathematical understanding in science but by following a completely different path.

He was interested in the possibility of giving an account that takes mathematics as conveying understanding about physical phenomena even though it is not explanatory. During his stay at the center he worked on the paper "Can we distinguish between mathematical and the other mathematized scientific explanations?" which is still under review at a philosophical journal. He also gave a talk on the 7th of January 2015 at the MCMP Colloquium in Philosophy, Logic and Philosophy of Science, titled "Mathematical explanations of non-mathematical facts?".

b) Remco Heesen

Remco Heesen visited the MCMP January 1st until February 28th 2015 on a Visiting Fellowship. At that time he was working on his PhD dissertation, which focuses on the epistemic consequences of scientists' decisions what and when to publish. It is investigated what decisions would be made by scientists aiming to maximize the credit they receive under the priority rule, which says that recognition for scientific work depends on its originality. This allows a normatively evaluation of the incentive structure of science as well as an identification of a positive and a negative aspect of the priority rule. As a result of his research the following presentations can be named: "Communism and the Incentive to Share in Science" presented at: European Philosophy of Science Association in Düsseldorf, Germany; Logic Colloquium in Helsinki, Finland; Bristol-Groningen conference in Formal Epistemology in Bristol, UK; "Expediting the Flow of Knowledge Versus Rushing into Print" presented at: National University of Singapore, Malaysia; Congress of Logic, Methodology, and Philosophy of Science Helsinki, Finland; Tilburg University, The Netherlands; "Vindicating Methodological Triangulation" presented at: Scientific Discovery in the Social Sciences in London, UK; MCMP, Germany. While at the center he visited the conference "Scientific Discovery in the Social Sciences" at the London School of Economics in January 2015.

c) Berna Kılınç

Berna Kılınç visited the MCMP on April 15th until June 5th 2015 on MCMP funds as well as funding from her home institution, Bogazici University, Philosophy Department, Turkey. At that time she worked on the stability theory of belief, linking degrees of belief with categorical belief. More specifically, she tried to transfer probabilistic convergence results concerning quantitative degrees of belief to qualitative beliefs, linking the issue with asymptotic truth approximation. At the MCMP she gave the talk "Convergence of Iterated Belief Upgrades", another on the same issue at her home university in October 2015. Currently she is preparing a paper for publication based on this research. During her time at the center she attended many colloquia at the center, including the ones on New Work on Explanation and Understanding and the Munich-Salzburg Joint Seminar. Berna Kılınç stated to have profuted greatly from her stay at the MCMP, using it to come to know many new directions of research, and getting acquainted with several academics working in her field, which she perceived as a great opportunity for people coming from a peripheral country.

d) Borut Trpin

Borut Trpin stayed at MCMP from April 15th to July 31st 2015. His visit was funded by multiple sources: 1 month (April 15 - May 15) was covered by MCMP via a Visiting Fellowship, 3 months were covered by DAAD Short Term Grant. The whole stay was also funded by Erasmus+ as he visited LMU/MCMP as an exchange doctoral

candidate. At that time his research was about learning from conditionals. The main goal was to develop a formal framework of learning from conditionals. The research was based on work done beforehand by Stephan Hartmann (MCMP) and Soroush Rafiee Rad and their modelling of learning conditionals via minimizing Kullback-Leibler divergence. His approach was similar, but the belief updating mechanism was based on standard Bayesian updating with (simpler) material conditionals. He managed to demonstrate that his approach brings forth the same results as the much more complex approach by Hartmann and Rafiee Rad. As a result a paper has been published: "What is learned from conditionals?" and a talk was given: "Learning from material conditionals", at the Cognitive Science Conference, Information Society 2015, Jožef Stefan Institute, Ljubljana. He actively participated in the seminar "Conditionals and psychology of reasoning" lead by Karolina Krzyżanowska at the MCMP. He also attended the conference "Causal and Probabilistic Reasoning" and many of the weekly talks. Further his visit has resulted in Stephan Hartmann now being his external doctoral co-advisor.

e) Greg Gandenberger

Greg Gandenberger visited the MCMP from April 15th until June 13rd 2015 on MCMP funds. At the time of his stay he wrote a paper that goes some way toward reconciling Bayesian and frequentist views about the relevance of stopping rules to statistical inference, which is an important topic in medical research and other areas. This paper was inspired by conversations at the MCMP and probably would not have been written if he had not visited the Center. He also gave a talk about the paper at the MCMP on June 24. It is now under review with Philosophy of Science. Furthermore he participated in reading groups on the philosophy of statistics and on accuracy-first epistemology, the second of which is still meeting regularly via Google hangout. He gave a series of tutorials at a workshop at the University of Bristol and a guest lecture for Gregory Wheeler's course on the philosophy of statistics and attended talks, workshops, and conferences at the MCMP.

f) Ben Levinstein

Ben Levinstein was at the MCMP from May 1st until May 16th 2015 on a Visiting Fellowship. At that time he worked on accuracy-first epistemology and social epistemology. Accuracy first epistemology claims that all that matters epistemically is believing truths and disbelieving falsehoods. Social epistemology investigates how the beliefs of different agents interact, how to aggregate judgment, and how information spreads in society. As a result he published two papers since his time at MCMP that relate to his research there: "Permissive Rationality and Sensitivity" in *Philosophy and Phenomenological Research*; "The Foundations of Epistemic Decision Theory", together with Jason Konek and forthcoming in *Mind*. He also has a paper called "Imprecise Epistemic Values and Imprecise Credences" under review and a paper that was delivered as a talk at MCMP called "A Pragmatist's Guide to Epistemic Utility" in preparation. During his stay he attended the Imprecise Credences conference at Bristol.

g) Gábor Hofer-Szabó

Gábor Hofer-Szabó has spent one month at the Munich Centre for Mathematical Philosophy in June 2015 as a senior visiting fellow. During his stay he delivered a talk on Einstein's Criterion of Reality at the MCMP's weekly seminar and visited many of talks. He also visited the "Causal and Probabilistic Reasoning" workshop, and participated

at the annual excursion of the Centre. He also took the chance to talk to many of the permanent fellows and visitors on various topics, which in his opinion makes the center the number one place in Europe to do philosophy of science. The visit was highly beneficial to his academic career; he could finish the paper "A generalized definition of Bell's local causality," forthcoming in *Synthese*, and start another one on "Einstein's reality criterion in an operational approach".

h) Rush Stewart

Rush Stewart spent the month of June 2015 at the MCMP, together with Ignacio Ojea. Besides the MCMP funding he relied in a stipend from his home university. During their stay his coauthor, Ignacio Ojea Quintana, and he were concerned with the problem of probabilistic opinion pooling, e.g. the problem of aggregating a number of individual probabilistic opinions into a collective opinion, and probabilistic learning. In their first joint paper, they generalize the mathematical framework of probabilistic opinion pooling to include representations of group opinion in terms of imprecise probabilities. This paper is conditionally accepted at the *Journal of Philosophical Logic* and won the David H. Siff philosophy of science prize at Columbia. During their stay at the MCMP, they did nearly all of the work for a second paper. In this second paper, they state a number of commutativity results for pooling and different learning rules, e.g. whether aggregation or learning happens first does not matter to the end collective opinion. What is interesting about the results is that there are imprecise pooling formats that commute with a set of updating rules that no precise pooling format does. The abstract for this paper is as follows: It is explored which types of probabilistic updating commute with convex IP pooling (Stewart and Ojea Quintana, MS). Positive results are stated for Bayesian conditionalization and a mild generalization of it, imaging, and a certain parameterization of Jeffrey conditioning. This last observation is obtained with the help of a slight generalization of a characterization of (precise) externally Bayesian pooling operators due to Wagner (2009). These results strengthen the case that pooling should go by imprecise probabilities since no precise pooling method is as versatile. Ignacio Ojea has since presented some results of the conducted research in an informal talk at CUNY grad center. The paper is currently under review. In June, Rush Stewart also presented related work at the Probability and Belief Workshop organized by Hans Rott at the University of Regensburg. Besides he had the opportunity to attend a number of talks at LMU. Besides Aidan Lyon and Michael Murreau's joint talk, he attended many sessions of the conference on "Causal and Probabilistic Reasoning" organized by Greg Wheeler. Since returning to Columbia, Ignacio Ojea and Rush Stewart, together with another graduate student, won departmental funding to organize a workshop related to our project on pooling: Group Agency and Social Epistemology. The planned speakers include the MCMP's Greg Wheeler, as well as MCMP associatesPhilip Kitcher, Cailin O'Connor, and Kevin Zollman.

i) Ignacio Ojea

Ignacio Ojea spent the month of June 2015 at the MCMP, together with Rush Stewart and funded by the Center. During that period they wrote the paper "Learning and Pooling, Pooling and Learning", where they proof several results about commutativity between imprecise pooling operators and different forms of updating - conditionalization, conditionalization with likelihood, Jeffrey conditionalization, a modified version of Jeffrey conditionalization, imaging and Kullback-Leibler. The paper is currently under review. He also gave a talk at

the MCMP on Monday, June 28, 2015 titled "Game semantics for (some) Many-valued Logics" and attended to several talks during his stay there. Furthermore, thanks to the funding of the MCMP he participated in the Probability and Belief Workshop at the University of Regensburg on June 13th.

j) Flavia Padovani

Flavia Padovani visited the MCMP October 5th until November 30th 2015. The research she has been carrying out while at the MCMP dealt with measurement and the problem of representation of physical quantities. The focus was understanding in what sense the act of measuring can be interpreted as "constitutive" of the measured quantities, how this "constitution" is achieved, especially in connection with the outstanding issue of scientific representation. She is currently completing the paper "Measurements, Coordination, and the Problem of Representation of Physical Quantities" that was started writing while being at the MCMP and that has been invited for submission to the European Journal for Philosophy of Science. Furthermore she has been working on the draft of two other papers on approximation and idealization in Reichenbach's early work. While visiting the Center, she has applied for an AvH 18-month research fellowship to extend and complete her research on measurement at the MCMP and at the MPIWG across the next 3 years. A decision is awaited only later on this year. She also submitted a paper that was accepted for presentation to the international conference "Neo-Kantian Perspectives on the Exact Sciences" (Konstanz, 22-24 January 2016), the paper being published in the conference proceedings.

k) Johannes Findl

Johannes Findl stayed at the MCMP from October 15 until November 15, 2015, with a generous visiting junior visiting fellowship from the MCMP had awarded me. Since his current PhD project is about scientific explanation and understanding, he dedicated most part of his time at the MCMP to further his knowledge on these topics. For this purpose, he attended some sessions of Stephan Hartmann's master course Central Topics in Philosophy of Science, where he learned for the first time about the Bayesian way of doing philosophy of science, a perspective which has definitely reshaped his thinking about many philosophical problems and which will significantly influence the outcomes of his thesis. During his stay, he had the opportunity to give a talk on the topic of scientific explanation and understanding at the MCMP's weekly work-in-progress seminar (WIP). He benefited in many ways from the many critical comments and questions which were raised in the discussion after the talk. With the input received, he was able to substantiate my views on this topic and is hopefully able to write a publishable paper on the relationship between explanation and understanding. While he was at the MCMP, he attended a great number of weekly talks and the workshop "What Do You Want to Do With That? Answers from Philosophers Outside the Academy" where he gained a lot of information about job opportunities for professional philosophers who don't work at a university. Last but not least, he enjoyed many excellent philosophical discussions within the MCMP environment.

l) Morten Langfeldt Dahlback

Morten Langfeldt Dahlback visited the MCMP on a visiting fellowship from October 15th until November 15th 2015. During his stay he carried out research on the implications of inter-level coherence

requirements - requirements not to believe what we ourselves judge it irrational or unjustified to believe - for our overall understanding of the relationship between epistemic rationality and logical and probabilistic coherence. So far, the research carried out has resulted in one paper currently under review, as well as two papers in the final stages of preparation.

m) Michael Miller

Michael Miller visited the MMP November 1st 2015 to November 26th 2015. In addition to his MCMP Visiting Fellowship he was supported by his home institution (The University of Pittsburgh) and a Wesley Salmon Fund Grant. During this time he worked on two research projects. The first was work from his dissertation on the particle concept in quantum field theory. In particular, he is working to address the way that infrared divergences affect the tenability of such interpretations. The second project that developed during his visit is a collaborative project with another MCMP visiting fellow (James Fraser, Leeds) on the sense in which the space time symmetries of quantum field theory might be approximate or emergent. The visit was relatively short and has not yet resulted in publishable work. He worked on a manuscript for an article "Particle Interpretations and the Infrared Problem", which will be submitted to *Philosophy of Science* in the current year. The project with James Fraser will likely lead to a series of articles but they are still early in development. During his time at the MCMP he regularly attended a reading group on inconsistency in physics. He also gave a WIP talk to the MCMP entitled "Mathematical Structure and the Meaning of 'Quantum Field'".

n) James Fraser

James Fraser visited the MCMP on a visiting fellowship November 1st until December 1st 2015. At that time he worked on a chapter of his thesis that deals with the status of perturbation theory in quantum field theory. He also spent time collaborated with Michael Miller, who was also visiting the center. They are writing a paper together on the possibility of approximate Lorentz symmetry in modern physics and conducted the initial stages of this research at Munich. As a result of his research during that time he is preparing a paper for submission based on the chapter of his thesis. Furthermore Michael Miller and James Fraser are hoping to write up the results of their collaborative research in the summer of 2016. While visiting the MCMP, James Fraser took part in the philosophy of physics reading group.

o) Peter Evans

Peter Evans visited MCMP from the 15th of November to the 15th of December 2015. He was funded by a combination of a visiting fellowship from MCMP/LMU and research funding from my home institute, The University of Queensland. During his visit, he worked with Radin Dardashti, Alex Reutlinger and Karim Thébault and Matt Farr on the group project "Analogue Simulation and Quantum Causal Modelling". The project involves an analysis of a series of experiments from a team in Paris in which an oil droplet bouncing on (and coupled to the surface wave of) a vibrating bath displays behaviour that is thought to be typically quantum. The group is particularly interested in critiquing the claim that these experiments provide analogical evidence for pilot wave theories of quantum mechanics and they are exploring whether the fluid mechanical models might provide insight into the relation between classical and quantum causal models. A

paper on the subject is in preparation. During his visit Peter Evans attended the "Why trust a theory" conference at the MCMP.

p) Matt Farr

Matt Farr visited the MCMP from November 15th and December 15th 2015. He was funded by a group fellowship together with Peter Evans. Their research project concerned a set of experiments purportedly demonstrating a fluid-mechanical analogue of quantum mechanical behaviour. Together with MCMP members Radin Dardashti and Karim Thebault, Peter Evans and Matt Farr examined the philosophical rigour of the analogy and the consequences it has for analogue confirmation, the interpretation of quantum mechanics, and the status of causal modelling in quantum mechanics in light of the causal structure of the fluid mechanical experiments. Independently of this, Matt Farr also used the time to develop his own related research project on the relationship between time reversal symmetry and causality. During their time at the MCMP the group had a series of group meetings on these issues in which the existing literature on the experiments was read and discussed, and two papers were planned. These papers are currently in progress, one to be submitted to British Journal for Philosophy of Science, and one to Studies in History and Philosophy of Modern Physics. During his visit, he also completed a paper "Causation and Time Reversal", which is currently under review with the *British Journal for the Philosophy of Science*. He presented this paper in the MCMP Philosophy of Science Colloquium and discussed it with several MCMP members. During the visit, he attended the two conferences, "Why Trust a Theory?" at the MCMP and "Neo-Kantian Perspectives on the Exact Sciences" in Konstanz. He also completed a co-edited a special issue of *Studies in the History and Philosophy of Modern Physics* with MCMP member Milena Ivanova.

q) Elena Castellani

Elena Castellani visited the MCMP from November 24th to December 24th, 2015, on MCMP funds. Her research work, during her stay, has regarded: The research project on The convergence argument for theory assessment, presented in applying for the fellowship. This work in progress for a joint paper in collaboration with Richard Dawid and Radin Dardashti has much benefited from the possibility of discussing it among the three of them while staying at MCMP; The work on a paper entitled "Duality and particle democracy", which is due for a special issue on "Dualities in Physics" of the journal *SHPMP*; The preparation of the talk on "Scientific Methodology: A View from Early String Theory", that was presented at the workshop "Why Trust a Theory?" at the MCMP.

(VII) Center for Advanced Studies (CAS)

Since April 1st 2013 the MCMP runs a CAS research focus program 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 until it ended in Mai 2015:

Events:

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)

Invited Guests:

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)

Michael Strevens (27.04.-01.05.2015)

Publications:

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.

(IIV) ERC Starting Grant Research Group

Since spring 2015 the MCMP is hosting the ERC Starting Grant research group of Barbara Osimani on Philosophy of Pharmacology: Safety, Statistical Standards, and Evidence amalgamation. The project is interdisciplinary and applies methods from the philosophy of science, in particular from the theory of causality and from the foundations of statistics, to pharmacology. The project has three

objectives: To provide a foundational analysis on statistical/causal inference with a focus on the critical assessment of current practices in drug approval and pharmacosurveillance; To build a unified epistemic framework within which different kinds of evidence for pharmaceutical harm can be combined and used for decision: evidence amalgamation; To provide a theoretical framework for the development of new standards of drug evaluation. With Barbara Osimani as the project's primary coordinator Jürgen Landes, Alexander Mebius and Roland Poellinger are hosted by Stephan Hartmann and the MCMP.

For further information visit the group's website: http://www.mcmp.philosophie.uni-muenchen.de/research/research_projects/phil_pharma/index.html

(IV) Further External Funding

The Chair of Philosophy of Science can claim several high ranking projects funded by the DFG throughout the year 2015:

1. Liefke, Kristina: „Einheit und Vereinheitlichung in der Intensionalen Semantik", 24 months, 167.440€.

2. Hartmann, Stephan: „Die Evolution unpopulärer Normen und Mobbing", 30 months, 151.400€.

3. Dawid, Richard: „Nichtempirische Theorienbestätigung", 36 months, 258.400€.

4. Hartmann, Stephan: „Trilaterale Forschungskonferenzen in der Villa Vigoni: Rationalité Humaine: Les Point de Vue Probabilistes", 12 months, 24.000€.

5. Hartmann, Stephan: „Inferentialismus, Bayesianismus und die Theorie wissenschaftlicher Erklärungen", 36 months, 300.450€.

Furthermore the DFG supported the MCMP conference „Studying Knowledge Transfer and ist Contects" by Catherine Herfeld with 4.500€ of funding.