Academic Report for 2018 (01.01.2018- 30.09.2018)

Prof. Dr. Stephan Hartmann

January 30, 2019

2018 was a very special year for the MCMP in general and for the Chair of Philosophy of Science in particular because it was the last year of the generous funding we received from the Alexander von Humboldt Foundation. We are looking back to five exciting and intellectually rewarding years and we are very grateful for the wonderful support of the Alexander von Humboldt Foundation. The MCMP, which would not have been possible without this support, continues to be a world-leading place for mathematical philosophy and the philosophy of science and we are confident that we will keep on going strong in the years to come. Thanks to the support of LMU Munich and various funding agencies, we could employ a number of excellent new MCMP members who enrich our academic life and who make sure that the MCMP keeps on flourishing.

This report informs you about our academic activities in 2018. Besides our research and the resulting publications, we hosted several major conferences, workshops and a summer school. Besides, we intensified our collaborations with researchers from the University of Cambridge. Thanks to the strategic partnership between the University of Cambridge and LMU Munich, we received funding for two joint projects (on *Decision Theory and the Future of AI* and on *Category Theory in Philosophy of Science*) which we will use for joint workshops and various research visits. We also continued to hold close links to other LMU departments, such as the Departments of Economics, Mathematics, Physics, Sociology and Statistics and the Center for Advanced Studies (CAS). We also kept on participating in the Graduate School Systemic NeuroSciences (GSN) and the Munich Center for NeuroSciences (MCN). Again, all this was done to underline our mission to do cutting-edge research that productively combines formal and empirical methods to problems and questions of philosophical interest.

In this report, we present the work done in 2018 in more detail.

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

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

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

1. The MCMP website

With the help of the whole media team, especially Michael Bräustetter, we continually kept the website up-to-date. Among the most popular pages is our front page, followed by the section about our MA program and our own faculty.

2. MCMP on iTunes U

The MCMP has an assortment of twelve video channels on iTunes U, one of them our archive with 250 recordings, the first ones from 2011. Since 2016 we provide access to more than 650 video recordings on virtually any kind of philosophical problem.

3. MCMP @ Facebook

The MCMP regularly posts news and events on Facebook. Currently we have more than 3.098 people following our page, where we are sharing announcements and events.

4. M-Phi Blog

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

5. 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.*

6. 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 since 2014. Up to now, we managed to transfer 556 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).

(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 September 2018:

10.01.2018	Simon Friederich (Groningen)
17.01.2018	Katherina Kinzel (Vienna)
22.01.2018	Flavio Auer (MCMP)
24.01.2018	Adrien Currie (Cambridge)
29.01.2018	Mark Colyvan (Sydney/ MCMP)
07.02.2018	Klaus Nehring (UC Davis)
07.02.2018	Fay Dowker (Imperial)
11.04.2018	Monika Schnitzer (LMU)
18.04.2018	Sacha Bourgeois-Gironde (Paris)
25.04.2018	Alexander Gebharter (Düsseldorf)
02.05.2018	Peter Wakker (Rotterdam)
09.05.2018	Daniel Braun (Ulm)
16.05.2018	Anton Donchev (New Bulgarian)
16.05.2018	Carlo Proietti (Lund)
23.05.2018	Martin Carrier (Bielefeld)
06.06.2018	Don Howard (Notre Dame))
06.06.2018	Hans Halvorson (Princeton)
18.06.2018	Charles Sebens (UCSD)

25.06.2018 Sharon Berry (Van Leer Institute)
27.06.2018 Dunja Šešelja (Ruhr-Universität Bochum)
11.07.2018 Olav B. Vassend (Nanyang Technological University)
11.07.2018 Claus Beisbart (Bern)

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 September 2018:

11.01.2018 Zeynep Soysal (Boston)
18.01.2018 Ali Abashnezhad (MCMP)
22.01.2018 Fenrong Liu (Amsterdam)
25.01.2018 Sandy Zabell (Northwestern)
08.02.2018 Matteo De Benedetto (MCMP)
01.03.2018 Hanti Lin (UC Davis)
12.04.2018 Beau Mount (Oxford)
26.04.2018 Markus Pantsar (Helsinki)
03.05.2018 Vit Puncochar (Prague)
17.05.2018 Bartlomiej Skowron (Warsaw)
17.05.2018 Valentin Goranko (Stockholm)
24.05.2018 Krzysztof Wójtowicz (Warsaw)
24.05.2018 Aleksandra Samonek (Louvain)
07.06.2018 Floris Roelofsen (Amsterdam)
14.06.2018 Ed Zalta (Stanford)
21.06.2018 Georg Schiemer (Vienna)
21.06.2018 Isaac Wilhelm (Rutgers)
28.06.2018 Marta Sznajder (MCMP)
05.07.2018 Maria Aloni (Amsterdam)

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 September 2018:

15.01.2018 Patricia Palacios (MCMP)
25.01.2018 Roman Frigg (LSE)
12.04.2018 Sebastian Hengst (MCMP)
03.05.2018 Gasper Stukelj (MCMP))
17.05.2018 Stefan Rinner (MCMP)
24.05.2018 Simon Scheller (MCMP)
21.06.2018 F.A. Muller (Rotterdam)
28.06.2018 Alexander Reutlinger (MCMP)

b. Workshops and Conferences

From the total of MCMP events in 2018 the Chair of Philosophy of Science hosted thirteen workshops and conferences throughout the year, all supported by Sabine Beutlhauser and her assistant Fabian Beigang:

1. The Second Annual Bristol-MCMP Workshop on Foundations of Physics: Problems in Classical and Quantum Statistical Mechanics

January 27 2018, LMU Munich, Germany

Organizer: Erik Curiel, Karim Thébault

Statistical mechanics plays a central in almost every field of physics: solid state, fluid mechanics, cosmology, astrophysics, the study of black holes, every major program of quantum gravity, low temperature physics, the Standard Model, experimental error analysis, and on and on. Its conceptual and foundational problems---among them, the role and interpretation of probabilities, the nature of entropy and the Second Law, the root of irreversibility, its relation to thermodynamics---are as deep and unresolved as those of any other field of physics as well. All of these are active and central areas of research in contemporary work on the foundations of physics. Indeed, in recent decades the scope of statistical mechanics has grown to encompass fundamental work in such diverse fields as economics and formal epistemology as well. This workshop addressed problems pertaining to a wide spectrum of such issues with an emphasis on technical work, with the aim both of examining the problems in their own right and of investigating whether approaches and techniques from some areas can be of use in others.

Invited Speakers: Karim Thébault (Bristol), Sean Gryb (Bristol), Patricia Palacios (LMU/MCMP), Erik Curiel (LMU/MCMP), Neil Dewar (LMU/MCMP), Roman Frigg (LSE)

2. Explanation and Reduction in the Sciences (The Third Jerusalem-MCMP Workshop in the Philosophy of Science)

February 8-10 2018, The Hebrew University of Jerusalem, Jerusalem

Organizer: Stephan Hartmann, Alexander Reutlinger, Orly Shenker (Edelstein Center, The Hebrew University of Jerusalem)

What is a scientific explanation? Which theories of scientific explanation should we embrace? What does it mean to say that some scientific explanations are reductive? To what extent do some scientific explanations support particular versions ontological reductionism or physicalism? The participants of this workshop addressed these questions in the context of explanatory practices in cognitive science and physics.

Invited Speakers: Ophelia Deroy (LMU), Oron Shagrir (Edelstein Center), Lotem Elber-Dorozko (Edelstein Center), Orly Shenker (Edelstein Center), Stephan Hartmann (LMU/MCMP), Reuben Stern (LMU/MCMP), Mario Günther (LMU), Arnon Levy (Edelstein Center), Ori Hacohen (Edelstein Center)

3. UAH-MCMP Workshop "Multiple Realizability, Causation and Reductive Explanations in Science"

March 6-7, 2018, Alberto Hurtado University, Chile

Organizer: Stephan Hartmann, Patricia Palacios, Francisco Pereira (UAH)

This workshop aimed to promote an international forum to share knowledge, issues, and challenges related to multiple realizability, causation and reductive explanations in science. Some of the questions that were addressed are: Is multiple realizability compatible with reduction? Should multiple realizability be understood as synonym of universality? Do we have reasons to believe in top-down causation in science? Is supervenience a causal relation? Does thermodynamics reduces to statistical mechanics? Are there examples of emergence in science? Does Quantum Statistical Mechanics provide reductive explanations? Are Causal explanations in the high-level Sciences Complete?

Invited Speakers: Sergio Daniel Barberis (University of Buenos Aires), Sebastian Fortin (University of Buenos Aires- CONICET), Samuel Fletcher (MCMP/LMU), Stephan Hartmann (MCMP/LMU), Manuel Herrera Aros (University of Buenos Aires- CONICET), Olimpia Lombardi (University of Buenos Aires- CONICET), Francisco Pereira (UAH), Patricia Palacios (MCMP/LMU), Michael Strevens (NYU)

4. First joint MCMP-Hannover Workshop on Philosophy of Physics: Models

May 4-5 2018, LMU Munich

Organizer: Neil Dewar, Stephan Hartmann

In philosophy of physics and philosophy of science, there has been a great deal of work devoted to examining the use and significance of models in physics. However, there remains much to be clarified about the different sense of "model" in play in this literature, and how they relate to one another. What similarities and differences

obtain between toy models, data models, and models in the semantic view of theories? Are there important differences between abstract models such as these, and the concrete models used in analogue simulations? What role should models play in accounts of reduction and universality? This workshop, organised in collaboration with the philosophy of science group at Leibniz Universität Hannover, seeked answers to these and related questions.

Invited Speakers: Dr. Neil Dewar (LMU/MCMP), Enno Fischer (Leibniz Universität Hannover), Prof. Mathias Frisch (Leibniz University Hannover), Laurenz Hudetz (University of Salzburg), Dr. Joshua Luczak (Leibniz University Hannover), Patricia Palacios (MCMP/University of Salzburg)

5. Workshop: Objectivity – New Perspectives on Objective Inquiry

May 6 2018, LMU, MCMP

Organizer: Alexander Reutlinger

Objectivity is taken to be an epistemic virtue of inquiry – not only in the natural sciences but also in the social and historical sciences and, going beyond scientific inquiry, in journalism. The objectivity of inquiry takes center stage as a virtue: the inquirers themselves (scientists, historians, journalists) and the consumers or users of the outcomes of such inquiry (such as companies, policy makers, readers) rely on it. However, despite its central role, the notion of objectivity is surprisingly unclear. The contributions to this workshop aimed at shedding new light on the notion of objectivity.

Invited Speakers: Gordon Belot (University of Michigan), Georgios Karageorgoudis (LMU Munich), Katherina Kinzel (University of Vienna), Anna Leuschner (University of Hannover), Christoph Neuberger (LMU Munich), Kärin Nickelsen (LMU Munich), Alexander Reutlinger (MCMP/LMU Munich)

6. Workshop: Recent Work in the Philosophy of Probability and Conditionals

May 18 2018, LMU Munich

Organizer: Reuben Stern

This workshop served as an opportunity for philosophers working on the philosophy of probability and the philosophy of conditionals to convene with each other, and to discuss new trends in both areas.

Invited speaker: Jean Baccelli (LMU/MCMP), Benjamin Eva (University of Konstanz/MCMP), Alan Hájek (Australian National University), Stephan Hartmann (LMU/MCMP), Karolina Krzyżanowska (University of Amsterdam/MCMP), Rush Stewart (LMU/MCMP), Reuben Stern (LMU/MCMP)

7. 11th Munich-Sydney-Tilburg/Turin (MuST) Conference

June 11-13 2018, University of Turin, Turin

Organizer: Mark Colyvan (Sydney), Vincenzo Crupi (Turin), Paul Griffiths (Sydney), Stephan Hartmann (Munich), Jan Sprenger (Turin)

Science is there to explain the world, to render it intelligible. But what counts as a scientific explanation of an observed phenomenon? How should one quantify explanatory power? What is the role of explanation in reasoning? Philosophers and scientists have given various answers: subsumption under general laws (the D-N model), unificatory value, identifying causally productive processes,

statistical relevance, cognitive salience, and so on. The 11th MuST (Munich-Sydney-Tilburg/Turin) conference investigated the scope of different models of explanation, fosters a dialogue between them and evaluates their role in scientific reasoning in general. Philosophers and scientists alike were invited to contribute to this event.

Inivited Speakers: Peter Brössel (University of Bochum), Lina Jansson (University of Nottingham), Tania Lombrozo (University of California at Berkeley), Michael Strevens (New York Unversity)

8. Explanatory Power: Inferentialism, Bayesianism and Scientific Explanation

June 14-15 2018, University of Geneva, Geneva

Organizer: Lorenzo Casini (Geneva), Stephan Hartmann

Invited Speakers: Laura Franklin-Hall (New York University), Ashton T. Sperry (Ronin Institute), Juha Saatsi (University of Leeds), Vincenzo Crupi (University of Turin), Lilia Gurova (New Bulgarian University), David Kinney (London School of Economics), Raphael van Riel (University of Duisburg-Essen), Tania Lombrozo (University of California, Berkeley), Dingmar van Eck and Erik Weber (Ghent University), Lorenzo Casini (University of Geneva) and Michael Baumgartner (University of Bergen), Matteo Colombo (Tilburg University), Anton Donchev (New Bulgarian University) and Mila Marinova (KU Leuven),

9. Foundations of Quantum Mechanics and Quantum Information Theory: A Workshop with Jeffrey Bub

June 20 2018, LMU, MCMP

Organizer: Neil Dewar

The foundations of quantum mechanics have long been a focus of philosophical interest, from both philosophers of science and physicists: what is the best resolution of the so-called "measurement problem"? What is the nature and status of the quantum correlations? And how best do we understand the differences between quantum and classical mechanics? With Jeffrey Bub, whose recent book Bananaworld explores quantum foundations from an information-theoretic perspective, this workshop examined such conceptual and philosophical issues.

Invited Speakers: Jeffrey Bub (University of Maryland), Omid Charrakh (MCMP/LMU Munich), Erik Curiel (MCMP/LMU Munich), Benjamin Eva (University of Konstanz/MCMP), Stephan Hartmann (MCMP/LMU Munich), F.A. Muller (Erasmus University Rotterdam), Kai Redeker (LMU Munich)

10. Computational Modeling in Philosophy

June 22-23 2018, MCMP, LMU

Organizer: Simon Scheller

Computational models are an increasingly important tool in philosophy. They find application in diverse domains such as philosophy of language, philosophy of mind, political philosophy, and social epistemology. Computers allow us to model the evolution of language, individual thought processes, scientific communities, and opinion dynamics in much more sophisticated ways than previously possible. The models employed range from toy models to empirically parameterized representations of dynamical systems. Modelers draw on techniques from a number of areas, from agent-

based modeling to artificial neural networks. Computational models contribute to philosophy by allowing for more explicit and rigorous thought experiments and by acting as a methodological bridge to the empirical sciences, for example. This conference aimed to foster an exchange among leading researchers in the field concerning the foundations and applications of computational modeling within philosophy and beyond.

Invited Speakers: Remco Heesen (University of Cambridge), Johannes Marx (University of Bamberg), Cailin O'Connor (University of California, Irvine)

11. Summer School on Mathematical Philosophy for Female Students 2018

July 15- 21 2018, MCMP, LMU

Organizer: Neil Dewar

Invited Speakers: Esa Diaz Lenon (University of Barcelona), Stephan Hartmann (LMU/MCMP), Hannes Leitgeb (LMU/MCMP), Friederike Moltmann (CNRS), Barbara Vetter (Freie Universität Berlin), Jo. E. Wolff (King's College London)

12. Workshop on Decision Theory & the Future of Artificial Intelligence

July 27-28 2018, LMU Munich

Organizers: Reuben Stern (LMU Munich), Stephan Hartmann (LMU Munich), Yang Liu (University of Cambridge), Huw Price (University of Cambridge)

This workshop continued in the tradition established last year of bringing together philosophers, decision theorists, and AI researchers in order to promote research at the nexus between decision theory and AI. Our plan for the second installment was to make connections between decision theory and burgeoning research programs that may play a prominent role in the near future of the discipline – e.g., quantum information theory, social network analysis, and causal inference.

Invited Speakers: Hans Briegel (University of Innsbruck), Tina Eliassi-Rad (Northeastern University), Dominik Janzing (Amazon Development Center), Christian List (London School of Economics), Aidan Lyon (University of Maryland), Teresa Scantamburlo (University of Bristol), Wolfgang Spohn (University of Konstanz)

13. Categorical Equivalence in Philosophy of Science

July 30-31 2018, MCMP, LMU

Organizer: Neil Dewar

This was the first of three workshops associated with the grant: the purpose of this meeting was to evaluate recent work done on categorical approaches to theoretical equivalence. This is an area that has already received attention from philosophers, with the result that there is a valuable existing stock of results and case studies; but the time is ripe to synthesise the results so far, and look towards future developments. This meeting also was a valuable opportunity to reflect on progress made since the conference on "The Semantics and Structure of Theories", held at the MCMP in June 2016, since there is some overlap between the topics of discussion.

Invited Speakers: Erik Curiel (LMU/MCMP), Hans Halvorson (Princeton), Sarita Rosenstock (UC Irvine), Thomas Barrett (UC Santa Barbara), James Owen Weatherall (UC Irvine)

c. Additional Activities

1. Reading Group on Philosophy of Physics

This reading group focused on the foundations of modern physics and addressed conceptual, formal, and philosophical problems. In SS18, the participants were studying the application of category theory to philosophy of physics, by reading Jaap van Oosten's Basic Category Theory notes and a selection of relevant papers. The reading group met on Fridays at 16:00, and was organized by Neil Dewar.

2. Inference and Belief Dynamics

This reading group focused on Nonmonotonic Inference, Belief Dynamics, and Theory Change. In the Summer Semester 2018, the participants were studying Prof. Dr. Hannes Leitgeb's book "Inference on the Low Level: An Investigation into Deduction, Nonmonotonic Reasoning, and the Philosophy of Cognition" as the first reading. The reading group met on Tuesdays at 10:00. It was organized by Ana Cholodvskis and Sena Bozdag.

3. Aristotle's Metaphysical Natural Philosophy

The reading group took place on Thursdays, and was organized by Dr. Daniel A. Di Liscia.

(IIX) Awards

Our postdoctoral fellow **Simon Scheller** has received the Dissertation Prize from the University of Bamberg for his Ph.D. thesis entitled „Democratic Decision Making - A Theoretical Analysis". The prize is sponsored by the Universitätsbund of the University of Bamberg and is awarded annually for the most outstanding work in a Doctoral Dissertation across all university faculties. In his doctoral thesis, Simon has studied the benefits and pitfalls of democratic institutions for collective decisions, making use of various formal modeling techniques. He has joined the MCMP right after he finished his PhD last winter and continues to work on related topics here in Munich. Congratulations Simon!

(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 September 2018:

a) Dr. Bengt Autzen

b) Dr. Jean Baccelli

c) Omid Charrakh

d) Dr. Peter Collins

e) Dr. Curiel Erik

f) Dr. Neil Dewar

g) Prof. Dr. Ulrike Hahn

h) Prof. Dr. Stephan Hartmann

i) Dr. Silvia Jonas

j) Dr. Jürgen Landes

k) Josè Leyva

l) Christoph Merdes

m) Dr. Barbara Osimani

n) Patricia Palacios

o) Dr. Alexander Reutlinger

p) Dr. Simon Scheller

q) Dr. Tom Sterkenburg

r) Dr. Reuben Stern

s) Dr. Rush Stewart

t) Pascal Ströing

u) Dr. Dr. Momme von Sydow

a) Dr. Bengt Autzen

1. Type of Affiliation with the MCMP

Postdoctoral Fellow

2. Research Projects

Bengt Autzen has been working on the Philosophy of Probability, the Philosophy of Biology and the Philosophy of Economics.

3. Academic Output

Publications:

(Accepted): Survival, Reproduction and Functional Efficiency. *Philosophy of Science.*

(Accepted): Bayesian Ockham's Razor and Nested Models. *Economics and Philosophy.*

(2018): The Evolutionary Explanation of What? A Closer Look at Adaptationist Explanations of Risk Preferences. *Erasmus Journal for Philosophy and Economics* 11: 31-49.

(2018): Error Management, Reliability and Cognitive Evolution. *Biology and Philosophy* 32: 935-950.

(2018): Bayesian Convergence and the Fair-Balance Paradox. *Erkenntnis* 83: 253-263.

In preparation:

(201x): Diagnostic Parsimony: Ockham meets Bayes.

(201x): Is the Replication Crisis a Base-Rate Fallacy?

(201x): Hope and Risk.

Presentations:

Survival, Reproduction and Functional Efficiency: Biennial Meeting of the Philosophy of Science Association, Seattle, WA, November 2018.

b) Dr. Jean Baccelli

1. Type of Affiliation with the MCMP

Jean Baccelli is a Postdoctoral Research Fellow at the MCMP.

2. Research Projects

Jean Baccelli has been working in Decision Theory, Philosophy of Economics, and General Philosophy of Science.

3. Academic Output

Publications:

(2018): Risk Attitudes in Axiomatic Decision Theory. *Theory and Decision 84(1): 61-82.*

(2018): Beyond the Metrological Viewpoint. Forthcoming at *Studies in History and Philosophy of Science – Part A.*

(2018): Expected Utility in 3D. Forthcoming at Cozman and Wheeler (eds.), *Probability and Choice: Essays in Honor of Teddy Seidenfeld*, Springer, Theory and Decision – Library A.

(2018): The Problem of State-Dependent Utility: A Reappraisal. Under review at *The British Journal for the Philosophy of Science*.

In preparation:

(2018): Support for Geometric Pooling. Together with Rush Stewart.

(2018): Risk Attitudes over General Domains. Together with Christoph Jansen and Georg Schollmeyer.

(Accepted): Moral Hazard, the Savage Framework, and State-dependent Utility. *Erkenntnis*.

Presentations:

1. Beyond the Metrological Viewpoint: 26th Biennal meeting of the Philosophy of Science Association, Seattle, USA, November 2018.

2. The Problem of State-Dependent Utility: A Reappraisal: Columbia University in the City of New York, University Seminar in Logic, Probability, and Games, New York, USA, September 2018.

3. Beyond the Metrological Viewpoint: Conference Measurement at the Crossroads, Paris, France, June 2018.

4. The Problem of State-Dependent Utility: A Reappraisal: Conference Foundations of Utility and Risk, Conference York, UK, June 2018.

5. The Problem of State-Dependent Utility: A Reappraisal: Workshop Recent Work in the Philosophy of Probability and Conditionals, Munich, Germany, May 2018.

6. Believing, Betting, Acting: Ecole Normale Supérieure – Paris, Séminaire Les lundis de la philosophie, Paris, France, May 2018.

7. Act-State Dependence, Moral Hazard, and State-Dependent Utility: Seminar Foundations of Probability, Rutgers, USA, February 2018.

8. Believing, Betting, Acting: Séminaire de philosophie pratique, Besançon, France, January 2018.

9. Beyond the Metrological Viewpoint: Second Rotterdam-Cambridge Workshop on Evidence and Measurement, Rotterdam, the Netherlands, January 2018.

c) Omid Charrakh

Omid Charrakh

1. Type of Affiliation with the MCMP

Omid Charrakh is a PhD student at the MCMP working on his dissertation under the supervision of Professor Stephan Hartmann.

2. Research Projects

Omid Charrakh has been working in working in General Philosophy of Science and Philosophy of Physics.

3. Academic Output

Publications:

In preparation:

(201x): On the Reality of the Wavefunction. To appear in *Studies in History and Philosophy of Science*.

Presentations:

1. On the Reality of the Wavefunction: Foundations of Quantum Mechanics and Quantum Information Theory: *A Workshop with Jeffrey Bub,* Munich, Germany, June 2018.

2. Quantum Nonlocality and Special Relativity: Seminar in Foundations of Quantum Mechanics, Munich, Germany, May 2018.

3. One the Problem of the PBR theorem: Mathematical Philosophy Student Society (MPSS), Munich, Germany, November 2018.

d) Dr. Peter Collins

1. Type of Affiliation with the MCMP

Peter Collins is an external member of the MCMP, where he was a postdoctoral fellow between October 2017 and September 2018. He is currently based at Goldsmiths, University of London.

2. Research Projects

Peter Collins works in the psychology of judgment and decision making, in psycholinguistics, and the psychology of argument and persuasion.

3. Academic Output

Publications**:**

(In Press): *Cancellation, negation, and rejection. Cognitive Psychology*. Together with Skovgaard-Olsen, N., Collins, P. J., Krzyżanowska, K., Hahn, U., & Klauer, K.

(2018): Communication and reasoning with verbal Probability Expressions. *Psychology of Learning and Motivation*, 69, 69-106, together with Hahn, U.

(2018): The bi-directional relationship between source characteristics and message content. *Frontiers in Psychology*, 9(18), together with Hahn, U., von Gerber, Y., & Olsson, E.

In preparation:

(Submitted): Conditionals and testimony. Together with Krzyżanowska, K., Hartmann, S., Wheeler, G., & Hahn, U.

(Submitted): We might be wrong, but we think hedging doesn't protect your reputation. Together with Hahn, U.

(201x): Framing and the norms of practical argumentation. Together with Hahn, U.

(201x): Communicating pain with pain scales in sickle cell disorder. Together with Marston, C., & Renedo, A.

e) Dr. Erik Curiel

1. Type of Affiliation with the MCMP

Erik Curiel is Assistant Professor under the Chair of Philosophy of Science (Prof. Dr. Stephan Hartmann).

2. Research Projects

Erik Curiel has been working in general philosophy of science, in philosophy of physics, and in theoretical physics.

3. Academic Output

Publications:

(2018): Singularities and Black Holes in Relativistic. *The Stanford Encyclopedia of Philosophy*, (On-Line), Edward N. Zalta (ed.).

(Accepted): The Many Definitions of a Black Hole. *Nature Astronomy* (online).

In preparation:

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

(Accepted): Newtonian Abduction as Framework Confirmation. Forthcoming in *Synthese*.

(Accepted): The Problem of Approximate Symmetries in General Relativity. Forthcoming in *Synthese*.

Presentations:

1. What Is the Einstein Field Equation, and Why Does It Matter for Quantum Gravity?: University of Bonn, Institute für Philosophie Colloquium, December 2018.

2. The Many Failures of Determinism in General Relativity and Semi-Classical Gravity: Black Hole Initiative, Harvard University,

Workshop “Determinism and Indeterminism in Spacetime”, November 2018.

3. Irreversibility in Thermodynamics and in Statistical Mechanics: The 19th European and UK Conference on Foundations of Physics, Utrecht, July 2018.

4. Entropy is Modal–What's Up with That?: British Society for Philosophy of Science, Annual Conference, Oxford, July 2018.

5. Interaction and Evolution in Quantum Mechanics: Munich Center for Mathematical Philosophy, “Workshop on the Foundations of Quantum Mechanics”, LMU Munich, June 2018.

6. Two Paths to the Einstein Field Equation from Horizon Thermodynamics: University of Regensburg, Lehrstuhl for Mathematik Colloquium, December 2018.

7. Two Paths to the Einstein Field Equation from Horizon Thermodynamics: Colloquium for “Space and Time After Quantum Gravity” Project, University of Illinois, Chicago, March 2018.

8. Thermodynamical Irreversibility Has Nothing to Do With Temporal Asymmetry: Munich Center For Mathematical Philosophy, Workshop “Second Annual Joint Bristol-MCMP Workshop on the Foundations of Physics”. LMU Munich, January 2018.

9. How Can Physics Bear on Ontology? Or, The Dialectical Dance of Realism and Instrumentalism: Munich Center for Mathematical Philosophy Colloquium, LMU Munich, November 2018.

University of Barcelona, Department of Philosophy Colloquium, November 2018.

10. The Categories of Physical Systems and Theories: Munich Center for Mathematical Philosophy, Conference “Categorical Equivalence in Philosophy of Science”, LMU Munich, July 2018.

11. Semantics of Theories: Epistemology, Yes; Ontology, No: University of Florence, Dept. of Philosophy Colloquium, March 2018.

12. On the Mathematical, Physical, and Conceptual Cogency of Quantum Field Theory On Curved Spacetime: Max Planck Institute for Mathematics in the Sciences, Conference “Progress and Visions in Quantum Theory in View of Gravity: Bridging Foundations of Physics and Mathematics”, Leipzig, September 2018.

13. Measure, Topology and Probabilistic Reasoning in Cosmology: City University of Dublin, Centre for Astrophysics and Relativity Seminar, December 2018.

Erwin Schrödinger International Institute for Mathematics and Physics, Conference “Concepts of Probability in the Sciences”, Vienna, October 2018.

14. Energy Conditions in Spacetime Theories: University of York, Dept. of Physics, Conference “Energy Conditions in Quantum Theory and Gravity”, September 2018.

15. A Strengthened Zeroth Law for Black-Hole Thermodynamics: Black Hole Initiative (Harvard University), Colloquium, March 2018.

f) Dr. Neil Dewar

1. Type of Affiliation with the MCMP

Neil Dewar is Assistant Professor of Philosophy of Physics at the MCMP.

2. Research Projects

Neil Dewar has been working in Philosophy of Science, Philosophy of Physics, and Metaphysics.

3. Academic Output

Publications:

(2018): Maxwell Gravitation. *Philosophy of Science* 85(2): 249-270.

(2018): with James Owen Weatherall: On Gravitational Energy in Newtonian Theories. *Foundations of Physics* 48(5): 558-578.

(2018): On Translating Between Logics. *Analysis* 78(4): 622-630.

In Preparation:

(201x): La Bohume. Forthcoming in *Synthese.*

(201x): Algebraic Structuralism. Forthcoming in *Philosophical Studies*.

(201x): Supervenience, Reduction, and Translation. Forthcoming in *Philosophy of Science*.

(201x): Freeing Structural Realism from Model Theory. Submitted to Madarasz and Szekely (eds.), *Hajnal Andreka and Istvan Nemeti on unity of science: from computing to relativity theory through algebraic logic*.

(201x): A Room With A View. Submitted to Wüthrich, Beisbart, and Sauer (eds.), *Thinking About Space and Time,* together with Joshua Eisenthal.

(201x): Extending List's Levels. Submitted to Skowron and Kus (eds.), *Category Theory in Physics, Mathematics and Philosophy,* together with with Samuel Fletcher and Laurenz Hudetz.

Presentations:

1. Freeing Structuralism from Model Theory, at the *First Joint MCMP-Hannover Workshop on Philosophy of Physics* (MCMP, Munich, 4-5 May).

at *Objects and Properties: Generating Dialogue* (St John's College, Cambridge, 29-30 June).

2. Supervenience, Reduction, and Topology, at *Society for the Metaphysics of Science Annual Conference* (University of Milan, 22-24 August).

at *Philosophy of Science Association Annual Meeting* (Seattle, WA, 1-4 November).

Grants:

LMUExcellent Travel Grant, to attend Society for the Metaphysics of Science Annual Conference.

DAAD conference travel grant, to attend Philosophy of Science Association Biennial Meeting.

Events organised:

First Joint MCMP-Hannover Workshop on Philosophy of Physics (4-5 May).

Foundations of Quantum Mechanics and Quantum Information Theory: A Workshop with Jeffrey Bub (20 June).

Summer School on Mathematical Philosophy for Female Students (15-21 July).

Workshop on Categorical Equivalence in Philosophy of Science (30-31 July).

g) Prof. Dr. Ulrike Hahn

1. Type of Affiliation with the MCMP

Collaboration via on Humboldt Foundation Anneliese Maier Research Award.

2. Research Projects

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

3. Academic Output

Publications:

(2018): How good is your evidence and how would you know?. *Topics in Cognitive Science* 10(4), 660-678, together with Merdes, C. and von Sydow, M.

(In Press): Truth tracking performance of social networks: how connectivity and clustering can make groups less competent. *Synthese*, together with Hansen, J.U. and Olsson, E.J.

(2018): The bi-directional relationship between source characteristics and message content. *Frontiers in Psychology* 9, 18, together with Collins, P.J., von Gerber Y. and Olsson, E.J.

(In Press): On the ignorance of group-level effects- The tragedy of personell evaluation?. *Journal of Experimental Psychology: Applied*. Together with von Sydow, M. and Braus, N.

(In Press): Cancellation, Negation, and Rejection. *Cognitive Psychology*. Together with Skovgaard-Olsen, N., Collins, P.J., Krzyzanowska, K. and Klauer, C.

Selected Presentations:

1. Is there such a thing as Bayesian pragmatics?: Sept. 2018 Invited speaker, Workshop *Bayesian Pragmatics*, UCL, London.

2. Testimony and Social Networks: July 2018 Public event: *Minds, Machines and Society*, Wisconsin Institute for Discovery.

3. Testimony and Trust: July 2018. Invited Symposium Speaker, *40th Annual Meeting of the Cognitive Science Society*, Madison, WI.

4. Some thoughts on trust: July 2018. *Leading Integrity*. Conference, London.

5. Misperceptions of randomness: June 2018. *Bounded Rationality Summer Institute*, Max Planck Institute for Human Development, Berlin.

6. The Perception-cognition gap: June 2018. Dept of Psychology, Univ. of Heidelberg, Germany.

7. The psychology of argumentation: May 2018. Lorentz Workshop: Human Aware Computational Argumentation, Leiden, Netherlands.

8. How communication can make voters choose less well: April 2018. Keynote Workshop "Formal Epistemology and Social Networks", Lund, Sweden.

9. Inference from absence in language and thought: April 2018. Linguae Lectures, ENRS Paris.

10. Norms for real world arguments: April 2018. Linguae Lectures, ENRS Paris.

Awards:

Computational Modelling Prize in Applied Cognition, Cognitive Science Society.

h) 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. Currently he is also a Senior Researcher in Residence at the Center for Advanced Studies (CAS) at LMU.

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:

(2018): Bayesian Argumentation and the Value of Logical Validity. *Psychological Review 125(5): 806-821*, together with Benjamin Eva.

(2018): Understanding (With) Toy Models. *The British Journal for the Philosophy of Science 69/4): 1069-1099*, together with Dominik Hangleiter and Alexander Reutlinger.

(2018): Intertheoretic Reduction, Confirmation, and Montague's Syntax-Semantics Relation. *Journal of Logic, Language and Information 27: 313-341*, together with Kristina Liefke.

(2018): When No Reason For Is A Reason Against. *Analysis 78(3): 426-431*, together with Benjamin Eva.

(2018): The No Miracles Argument without the Base Rate Fallacy. *Synthese 195: 4063-4079*, together with Richard Dawid.

(2018): Voting, Deliberation, and Truth. *Synthese 195: 1273-1293*, together with Soroush Rafiee-Rad.

(2018): Two Sides of Modus Ponens. *The Journal of Philosophy*, 115 (11):605-621, together with Reuben Stern.

In preparation:

(201x). Anchoring in Deliberations, to appear in *Erkenntnis.* Together with Soroush Rafiee-Rad.

(201x): *Bayesian Philosophy of Science*, to appear with Oxford University Press, together with Jan Sprenger.

(201x): Being Realist about Bayes, and the Predictive Processing Theory of Mind, to appear in *The British Journal for the Philosophy of Science*, together with Matteo Colombo and Lee Elkin.

(201x): The Similarity of Causal Structure, to appear in *Philosophy of Science*, together with Benjamin Eva and Reuben Stern.

(201x): Assessing Scientific Theories: The Bayesian Approach, to appear in R. Dardashti, R. Dawid and K. Thébault: *Why Trust a Theory?,* Cambridge University Press, together with Radin Dardashti.

Presentations:

1. Von der individuellen zur kollektiven Realität: SPP1516-Abschlussveranstaltung, Justus Liebig Universität Giessen, Germany, October 2018.

2. Anomalies and Bayesian Confirmation Theory: *Anomalies: Disruption and Source of Knowledge,* Leopoldina, Halle, Germany, September 2018.

3. The Philosophy of Open Quantum Systems: Swiss Society of Logic and Philosophy of Science, Lugano, Switzerland, September 2018.

4. Deliberation, Epistemic Diversity and the Anchoring Effect: *Judgement Aggregation and Epistemic Diversity*, 10th International Congress of the German Society for Analytic Philosophy, Cologne, Germany, September 2018.

5. What is Mathematical Philosophy?: Max Planck Institute of Quantum Optics, Garching, Germany, July 2018.

Foundations of Mathematics, LMU Munich, April 2018.

6. The Open Systems View as Fundamental: *Foundations of Quantum Mechanics and Quantum Information Theory: A Workshop with Jeffrey Bub*, LMU Munich, June 2018.

7. Modeling Collective Decision Making: *Deliberation, Belief Aggregation, and Epistemic Democracy,* Paris, France, May 2018.

8. Reductive Explanations in Quantum Statistical Mechanics: *Multiple Realizability, Causation and Reductive Explanations in Science*, Valparaiso, Chile, March 2018.

9. Bayesian Argumentation: Seventh Annual Meeting of the DFG Priority Program *New Frameworks of Rationality*, Etelsen, Germany, February 2018.

10. Hawking Radiation and Analogue Experiments. A Bayesian Analysis: *Explanation and Reduction in the Sciences (=The Third Jerusalem-MCMP Workshop in the Philosophy of Science*, Hebrew University of Jerusalem, Jerusalem, Israel, February 2018.

i) Dr. Silvia Jonas

1. Type of Affiliation with the MCMP

Silvia Jonas holds a Minerva Fellowship by the Max Planck Society.

2. Research Projects

Silvia Jonas works in Philosophy of Mathematics, Metaphysics, Metaethics, and Philosophy of Religion.

3. Academic Output

Publications:

(R&R): Mathematical and moral disagreement. Revise and resubmit, *Philosophical Quarterly*.

(2018): Modal Structuralism and Theism. In: Fiona Ellis (ed.), *New Models of Religious Understanding*, Oxford University Press (2018).

(2018): What's hot in Mathematical Philosophy? *The Reasoner*, Vol. 12, No. 8.

(201X): Word and object: divine language. In: D. Frank and A. Segal (eds.), *Cambridge Critical Guide to Maimonides's Guide of the Perplexed*, Cambridge University Press (forthcoming).

Presentations:

1. Frankfurt School of Finance and Management, Workshop Metaethics, Presentation title: "Metaethics and Metamathematics", November 2018.

2. University of Erlangen-Nürnberg, Colloquium of the faculty of philosophy, Presentation title: "Mathematical and Moral Realism, and the Problem of Disagreement", November 2018.

3. Munich Center for Mathematical Philosophy (MCMP), Workshop Analogical Reasoning in Mathematics and Science, Presentation title: "Analogical Reasoning and Non-empirical Domains", October 2018.

4. Cologne University, Colloquium of the faculty of philosophy, Presentation title: "Mathematical and Moral Disagreement", October 2018.

5. John Templeton Foundation, Workshop: Abrahamic Reflections on Science and Religion, Location: Ohrid, Republic of North Macedonia, Presentation title: "Spurious Correlations and Emergence", June 2018.

6. Munich Center for Ethics, Munich University, Workshop Werkstattgespräch: Women in Philosophy, Presentation title: "Pluralist mathematics: How foundational debates in mathematics might change the way philosophers understand realism", May 2018.

6. Max Planck Society, Meeting of Minerva Fellows, Presentation title: "Mathematics Analogies", April 2018.

7. Munich University, Workshop Foundations in Mathematics: Modern Views, Presentation title: "Why should philosophers care about the foundations of mathematics?, April 2018.

j) Dr. Jürgen Landes

1. Type of Affiliation with the MCMP

From 1.1.2018 to 30.09.2018 Juergen Landes was a research associate on the PhilPharm project. From 1.10.2018 until now he is the PI of a DFG project on Evidence in Bayesian Epistemology.

2. Research Projects

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

3. Academic Output

Publications:

(2019): Variety of Evidence. *Erkenntnis*.

(2018): L&P-updating - All Bets Are Off. *The Reasoner*, 12 (2): 10, 2018.

(2018): Epistemology of Causal Inference in Pharmacology. *European Journal for Philosophy of Science*, 8: 3–49, together with Barbara Osimani and Roland Poellinger.

In preparation:

(Submitted): Assessing the mechanistic evidence assessors E-Synthesis and EBM+: A case study of amoxicillin and Drug Reaction with Eosinophilia and Systemic Symptoms (DRESS). *Current Pharmaceutical Design*, together with Yaman Abdin, Daniel J. Auker-Howlett, Glorjen Mulla, Claus Jacob and Barbara Osimani.

(Submitted): Confirmation by Robustness Analysis. A Bayesian Account. *Economics & Philosophy*, together with Lorenzo Casini and Radin Dardashti.

(Submitted): Varied Evidence and the Elimination of Hypotheses. *Synthese*.

(Submitted): Varieties of Error and Varieties of Evidence. *British Journal for the Philosophy of Science*, together with Barbara Osimani.

(Submitted): The Principal Principle, admissibility, and normal informal standards of what isreasonable. *Disputatio*, together with Christian Wallmann and Jon Williamson.

(201x): Formal Epistemology meets Mechanism Design. *European Journal for Philosophy of Science*.

(Accepted): Interview with Gabriele Kern-Isberner. *The Reasoner*.

(201x): On the Assessed Strength of Agents' Bias: Less is More. *Episteme*. Together with Barbara Osimani.

(201x): E-Synthesis: A Bayesian Framework for Causal Assessment in Pharmacosurveillance. Together with Barbara Osimani and Roland Poellinger.

(201x): Objective Bayesian nets from consistent datasets: Theory and Matlab Implementation. *Journal of Artificial Intelligence Research*, together with Jon Williamson.

(201x): The Entropy-Limit Conjecture for non-categorical quantified Constraints. Together with Jon Williamson and Soroush Rafiee Rad.

(201x): The Variety of Evidence Thesis and its Dependence on Degrees of Dependence.

(201x): Stefano Bonzio, Jürgen Landes and Barbara Osimani. Special Issue: Reliability. *Synthese*, 2020. Currently calling for papers.

k) 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

José has been working on topics related to the emergence and dynamics of social norms, on which he intends to write his doctoral dissertation.

3. Academic Output

Attendance at academic events organised by the MCMP: Weekly Colloquia, Workshops and Conferences.

l) Christoph Merdes

1. Type of Affiliation with the MCMP

Christoph Merdes was a doctoral student and scientific employee (Wissenschaftlicher Mitarbeiter) at the MCMP until March 2018, and is now an external member.

2. Research Projects

Christoph Merdes is working in Social Epistemology, in particular the dynamics of learning source reliability, social philosophy, in particular on the evolution of unpopular social norms, and agent-based modeling and simulation, both as a philosophical method and an object for the philosophy of science.

3. Academic Output

Publications:

(2018): Strategy and the Pursuit of Truth. *Synthese*.

(2018): How good is your evidence and how would you know?. *Topics in cognitive science*, 10(4), 660-678, together with Ulrike Hahn and Momme von Sydow.

In preparation:

(201x): How Communication Can Make Voters Choose Less Well. Together with Ulrike Hahn and Momme von Sydow.

Presentations:

1. 20. 2. 2018 „Attributing Collective Goals." beim Jahrestreffen des DFG-Schwerpunktrogramms „New Frameworks of Rationality" in Etelsen, Deutschland.

m) Prof. Dr. Barbara Osimani

1. Type of Affiliation with the MCMP

Visiting Professor at the MCMP in her ERC Starting Grant PhilPharm.

2. Research Projects

Causal Inference in Strategic Environments, Bayesian epistemology, Evidence synthesis, Philosophy of Statistics.

3. Academic Output

Publications:

(Accepted): Special Issue on "The Notion of Reliability". *Synthese*, together with Bonzio S. Landes.

(Accepted): Causal Inference from Computer Simulation. In: Bertolaso M. Sterpetti F .(eds.) *Will Science Remain Human?*. Springer, together with Poellinger R.

(Submitted): Varieties of Error and Varieties of Evidence in Scientific Inference. *BJPS*, together with together with Landes J.

(201x): Less is More: On the Value of Agents' Testimony. Forthcoming, together with Landes J.

(Accepted): Reviewing the mechanistic evidence assessors E-Synthesis and EBM+: A case study of amoxicillin and Drug Reaction with Eosinophilia and Systemic Symptoms (DRESS). *Current Pharmaceutical Design*, together with Ahmad Y.A., Auker-Howlett D., Landes J., Mulla G., Jacob C.

(Submitted): E-Synthesis: a Bayesian Framework for Causal Assessment in Pharmacosurveillance. *Frontiers in Pharmacology*, together with Landes J.

(Accepted): The α, β and ε, of Causal Inference. In: Clayton Littlejon, Maria Lasonen-Aarnio (eds.): *Routledge Handbook of the Philosophy of Evidence*.

(Submitted): Science as a Signaling Game: Preregistration, and strategic disclosure of clinical trials. *Philosophy of the Social Sciences*, together with Bonzio S., De Pretis F., Sacco A.

(201x): Social Games and Epistemic Losses: Reliability and higher order evidence in Medicine and Pharmacology. In: Osimani B., La Caze A. (eds.) *Uncertainty in Pharmacology: Epistemology, Methods and Decisions".* Springer: Boston Series in Philosophy of Science.

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

(Accepted): E-Synthesis: An Epistemic Bayesian Network for Causal Assessment in Pharmacosurveillance based on Heterogeneous Evidence. In: Jacob C., Osimani B., Ruthenberg K. Special Issue on: "Societal Side Effects: The Wider Impact of Pharmaceuticals on Society" *International Journal of Environmental Research and Public Health*, together with De Pretis F., Mancini A., Paolanti M.

n) Patricia Palacios

1. Type of Affiliation with the MCMP

Patricia Palacios was an MCMP Doctoral Fellow until July 10. when she successfully defended her doctoral thesis.

2. Research Projects

Patricia Palacios has been working on topics concerning general philosophy of science and philosophy of physics. Her current projects include: the analysis of philosophical problems raised by phase transitions, investigating the role of idealizations in physics, analyzing the explanatory role of econophsics and sociophysics models.

3. Academic Output

Publications:

(2018): Stability of Democracies – A Complex System Perspective. *European Journal of Physics*, together with K. Wiesner, A Birdi, T Eliassi-Rad, H Farrell, D Garcia, S Lewandowsky, D Ross, D Sornette and K. Thébault, DOI: 10.1088/1361-6404/aaeb4d.

(2018): Stock Market Crashes as Critical Phenomena?: Explanation, Idealization and Universality in Econophysics. *Synthese*, 195(10), 4477–4505, together with J. Jhun and J. Weatherall.

(2018): Had We But World Enough and Time… But We Don't! Justifying the Thermodynamic and Infinite-time Limits in Statistical Mechanics. *Foundations of Physics*, 48(5), 526–541.

(2018): Infinite Idealizations in Science' (co-editor with S. Fletcher, E. Shech and L. Ruetsche]), special issue, *Synthese.*

(Submitted): Phase Transitions: A Challenge for Inter-theoretic Reduction?

(Submitted): On the Universality of the Hawking Radiation. Together with K. Thebault and S. Gryb.

In preparation:

(201x): The Ehrenfests' on statistical mechanics II: Phase transition. invited for inclusion in the volume *Tatjana Afanassjewa and her Legacy: Philosophical Developments to the Work of a Great Mathematical Physicist.*

(201x): What Makes Scale Invariant Models Explanatory?. Together with J. Jhun.

(201x): Redefining equilibrium for Long-range Interacting Systems. Together with Lapo Casetti.

Presentations:

1. Emergence and Reduction in Condensed Matter Physics: Talk in the Seminar Research Group "HEFTP", Max Planck Institute, Berlin, Germany, September 2018.

2. Re-definining Equilibrium for Long-range Interacting Systems: TIME IN PHYSICS Workshop, Salzburg, Austria, September 2018

3. Can Physics Tell Us Why (and When) Stable Democratic Systems May be Undesirable?: Munich-Hannover Workshop in Philosophy of Science, Munich, Germany, May 2018,

4. Market Crashes as Critical Phenomena?: Deutsche Physikalische Gesellschaft (DFG), Spring Meeting, Berlin, Germany, March, 2018.

5. On the Universality of Hawking Radiation: Workshop "Causation, Multiple Realizability and Reductive Explanations', February, Valparaiso, Chile, 2018

Bristol-MCMP Workshop in Philosophy of Physics, Munich, Germany, January, 2018

6. Do Scale Invariant Models Explain?: Workshop: How stable aredemocracies? Complex systems perspectives on modern society, Bristol, UK, January 12-13, 2018

Further Activities:

Conference main Organizer, Workshop "First Irvine-Munich-Polimi-Salzburg Conference in Philosophy and Foundations of Physics", Salzburg, Austria, September 3-4 2018.

Conference main Organizer, Workshop "Explanation, Multiscale Models and Multiple Realizability", Valparaiso, Chile, March 5-8 2018

o) Dr. phil. habil. Alexander Reutlinger

1. Type of Affiliation with the MCMP

Alexander Reutlinger is Akademischer RAT a.L. at the Chair for Philosophy of Science.

2. Research Projects

Alexander Reutlinger's research was focused on the following areas in philosophy of science: (i) non-causal explanations and (ii) biased research and science skepticism.

3. Academic Output:

Publications:

(2018): *Explanation Beyond Causation. Philosophical Perspectives on Non-Causal Explanations*, Oxford University Press, together with Juha Saatsi.

(Under review): What is Epistemically Wrong With Research Affected by Sponsorship Bias? An Evidential Account. *Studies in the History and Philosophy of Science*.

(2018): Taking Reductionism to the Limit. How to Rebut the Anti-Reductionist Argument from Infinite Limits. *Philosophy of Science* 85: 455-482, together with Juha Saatsi.

(2018): Understanding (With) Toy Models. *The British Journal for the Philosophy of Science* 69: 1069-1099, together with Dominik Hangleiter and Stepan Hartmann.

(2018): Modeling Inequality. *The British Journal for the Philosophy of Science* 69: 691–718, together with Karim Thébault and Seamus Bradley.

(2018): Extending the Counterfactual Theory of Explanation. A Monist Account of Causal and Non-Causal Explanations. A. Reutlinger and J. Saatsi (eds.), *Explanation Beyond Causation*, Oxford: Oxford University Press: 74-95.

(2018): Entering a New Decade: Is There Explanation Beyond Causation?. A. Reutlinger and J. Saatsi (eds.), *Explanation Beyond Causation*, Oxford: Oxford University Press: 1-11, together with Juha Saatsi.

(2018): Bedrohte akademische Freiheit. Der Fall Central European University. *prae|faktisch – Ein Philosopieblog***.**

(2018): Was sollen Philosoph/innen tun? Kommentar zur Podiumsdiskussion 'Bedrohtes Denken' (DGPhil Kongress 2017). *Zeitschrift für philosophische Forschung* 72.1: 114-118, together with Maria Kronfeldner.

(2018): Evidenz trumpft! Eine Kritik am Begriff der alternativen Fakten. *Cogito 11*: 21-22.

Presentations:

1. The Role of Mathematics in Non-Causal Explanation:, June 2019, Workshop Explanatory and Heuristic Power of Mathematics, Sapienza University of Rome.

2. Objectivity as Independence: November 2018, Kolloquium Philosophie und Wissenschaftsreflexion, Leibniz Universität Hannover.

3. Wie sollten sich Philosoph*innen in politischen Debatten äußern?: (with Maria Kronfeldner), Workshop Die gesellschaftliche Rolle der Philosophie, FAU Erlangen-Nürnberg.

4. Understanding and Non-Causal Explanations: (Keynote Lecture), May 2018, Workshop Understanding and Explanation, University of Ghent.

5. Non-Causal Explanations: July 2017, Research Seminar, University of Cologne.

6. What is Epistemically Wrong with Research Affected by Sponsorship Bias?: September 2018, GAP.10, University of Cologne.

Conference Organization:

1. Member of the Program Committee of the BSPS Meeting (July 2018), University of Oxford.

2. Organizer of the workshop "Objective Inquiry. New Perspectives on Objectivity, Biases, and Expertise", (June 2018), Munich Center for Mathematical Philosophy (MCMP).

3. Member of the Program Committee of the MuST Conference (June 2018), University of Turin.

4. Organizer of the Jerusalem-Munich Workshop "Explanation and Reduction in the Sciences" (February 2018), The Hebrew University of Jerusalem (Edelstein Center for History and Philosophy of Science, Technology and Medicine); co-organizers: Stephan Hartmann and Orly Shenker.

p) Dr. Simon Scheller

1. Type of Affiliation with the MCMP

Simon Scheller is a Postdoctoral Researcher at the MCMP

2. Research Projects

Simon Scheller has been working in Political Philosophy, Agent-based Modeling and Collective Decision Making Theory.

3. Academic Output

Publications:

(2018): Rationality in Context. On Inequality and the Epistemic Problems of Maximizing Expected Utility. *Synthese* (co-authored with J. Marx and D. Klein).

(2018): When Do Groups Get It Right? – On the Epistemic Performance of Voting and Deliberation. *Historical Social Research* 43(1): 89-109. 2018.

(2018): Rational Choice and Asymmetric Learning in Iterated Social Interactions – Some Lessons from Agent Based Modeling. In: Marker, Schmitt, Sirsch (eds): *Demokratie und Entscheidung. Beiträge zur Analytischen Politischen Theory.* Springer, pp. 277-296 (co-authored with J. Marx and D. Klein).

In preparation:

(201x): Fear Appeals in Political Communication – A Theoretical Analysis.

(201x): Political Epistemology: Why we should (not) worry about Democracy's Epistemic Crisis.

(291x): Trust in Heterogeneous Populations.

Presentations:

1. Deutsche Vereinigung für Politikwissenschaften (DVPW) Conference, Frankfurt: *Poverty and the Justifiability of Redistributive Institutions. A normative Interpretation of an agent-based Model of rational exchange.* (September 2018).

2. Symposium: *From Cases to General Principles – Theory Development through Agent-based Modeling* – funded by the Volkswagen-Foundation (June 2018).

3. Vienna Forum for Analytical Philosophy (WFAP) graduate conference on Rationality and Democracy, Vienna: *Epistemic Democracy and Strategic Manipulation in Deliberation. (May 2018.)*

4. MCMP Work in progress-talk, LMU Munich: *Trust in Heterogeneous Populations – An Agent Based Computer Simulation. (March 2018).*

5. ANR-DFG Research Project 'ColAForm' - Workshop, University of Bamberg: *The Strategic use of Fear Appeals in Political Communication. (February 2018.)*

6. MCMP Work in Progress-talk, LMU Munich: *Political Epistemology – How Can Democratic Communities Safeguard against Strategic Manipulation? (January 2018).*

Conference Organisation:

Computational Modeling in Philosophy, 2 day conference at the MCMP with about 30 participants (June 2018).

q) Dr. Tom Sterkenburg

1. Type of Affiliation with the MCMP

Tom Sterkenburg is a Postdoctoral Fellow at the MCMP.

2. Research Projects

Tom Sterkenburg works on the philosophical foundations of statistics and machine learning.

3. Academic Output

Publications:

(2018): Universal Prediction: A Philosophical Investigation. PhD Thesis, University of Groningen.

In preparation:

(20xx): On the Truth-Convergence of Open-Minded Bayesianism. Together with Rianne de Heide.

(Accepted): The Meta-Inductive Justification of Induction: The Pool of Strategies. *Philosophy of Science.*

(Accepted): The Meta-Inductive Justification of Induction. *Episteme.*

(Accepted): Putnam's Diagonal Argument and the Impossibility of a Universal Learning Machine. *Erkenntnis.*

Presentations:

1. The Meta-Inductive Justification of Induction, *Biennial Meeting of the Philosophy of Science Association*, Seattle, USA, November 2018.

2. Inductive Bias and Adversarial Data, *Workshop on Decision Theory & the Future of Artificial Intelligence,* LMU Munich, Germany, September 2018.

3. Algorithmic Information Theory: A Critical Perspective: *Algorithmic Information, Induction and Observers in Physics*, Perimeter Institute, Waterloo, Canada, April 2018.

4. Book symposium on Simon Huttegger's *The Probabilistic Foundations of Rational Learning*, APA Pacific Division Meeting, San Diego, March 2018.

r) Dr. Reuben Stern

1. Type of Affiliation with the MCMP

Reuben Stern was a postdoctoral fellow at the MCMP.

2. Research Projects

Reuben Stern has been working in General Philosophy of Science, Bayesian Epistemology, Philosophy of Action, and Decision Theory.

3. Academic Output

Publications:

(2018): Diagnosing Newcomb's Problem with Causal Graphs. In A. Ahmed (ed.) *Newcomb's Problem (Classic Philosophical Arguments)*, Cambridge University Press.

(2018): In Defense of Interventionist Solutions to Exclusion. *Studies in History and Philosophy of Science*, together with Tom Polger and Lawrence Shapiro.

(2018): The Many Ways to Achieve Diachronic Unity. In J. Bermudez (ed.) *Self Control and Rationality: Interdisciplinary Essays*, Cambridge University Press, together with Kenny Easwaran.

(2018): Two Sides of Modus Ponens. *The Journal of Philosophy*, 115 (11):605-621 together with Stephan Hartmann.

In preparation:

(Accepted): Causal Explanatory Power, *The British Journal for the Philosophy of Science* , together with Benjamin Eva.

(Accepted): Decision and Intervention. *Erkenntnis*.

(Accepted): Decision Theory with a Human Face, by Richard Bradley. *Economics and Philosophy*.

(Accepted): The Similarity of Causal Structure. *Philosophy of Science*, together with Benjamin Eva and Stephan Hartmann.

(201x): Antireductionist Interventionism. Together with Benjamin Eva.

(201x): Diachronic and Interpersonal Coherence. Together with Kenny Easwaran.

(201x): Interventionist Agency.

(201x): An Interventionist's Guide to Exotic Choice.

(201x): Two Dimensions of Collective Agency. Together with Kenny Easwaran.

(201x): Why Think That Causes Must Temporally Precede Their Effects.

Selected Presentations:

1. The Similarity of Causal Structure: November 2018, Twenty-Sixth Biennial Meeting of the Philosophy of Science Association, Seattle, WA (with Benjamin Eva and Stephan Hartmann).

2. An Interventionist's Guide to Exotic Choice: August 2018, Workshop on Causes, Norms, and Decisions, Leibniz University Hannover.

3. Causal Explanatory Power, Blameworthiness, and Negligence: June 2018, 1th MuST Conference in Philosophy of Science, University of Turin (with Benjamin Eva).

4. The Ineffable Learning Handbook: May 2018, Recent Work in the Philosophy of Probability and Conditionals, LMU Munich (with Stephan Hartmann).

5. Antireductionist Interventionism: February 2018, Explanation and Reduction in the Sciences, Hebrew University (with Benjamin Eva).

s) Dr. Rush Stewart

1. Type of Affiliation with the MCMP

Rush Stewart is an assistant professor at the Chair of Philosophy of Science at the MCMP.

2. Research Projects

Rush Stewart is working on issues in decision theory, formal and social epistemology, and social and political philosophy.

3. Academic Output

Publications:

(2018): Probabilistic Opinion Pooling with Imprecise Probabilities. *Journal of Philosophical Logic 47(1): 17-47*, together with Ignacio Ojea Quintana.

(2018):Learning and Pooling, Pooling and Learning. *Erkenntnis 83(3): 369-389*, together with Ignacio Ojea Quintana.

(2018). What's Hot in Mathematical Philosophy Column. *The Reasoner* 12(10), together with Michael Nielsen.

In preparation:

(Accepted). Another Approach to Consensus and Maximally Informed Opinions with Increasing Evidence. *Philosophy of Science,* together with Michael Nielsen.

(Accepted): Persistent Disagreement and Polarization in a Bayesian Setting. *The British Journal for the Philosophy of Science*, together with Michael Nielsen.

(Accepted): Obligation, Permission, and Bayesian Orgulity. *Ergo*, together with Michael Nielsen.

(Accepted): Distention for Sets of Probabilities. In: F. Cozman and G. Wheeler *Probability and Choice: Essays in Honor of Teddy Seidenfeld,* Theory and Decision Library A, Springer, together with Michael Nielsen.

Presentations:

1. Pooling and Learning (and Learning, and Learning, …), *Decision, Rationality & Interaction Seminar,* IHPST Paris, France, March 2018.

Institute of Logic and Intelligence, Southwest University Chongqing, China, December 2018.

2. Obligation, Permission, and Bayesian Orgulity, 26th Biennial Meeting of the Philosophy of Science Association, Seattle, Washington, USA, November 2018, presented by co-author Michael Nielsen.

Recent Work in the Philosophy of Probability and Conditionals, MCMP, Munich Germany, May 2018.

3. Persistent Disagreement and Polarization in a Bayesian Setting, University of Bayreuth, Bayreuth, Germany, November 2018.

4. On the Possibility of Testimonial Justice, *Workshop on Induction and Probability*, MCMP, Munich, Germany, September 2018.

Other Activities:

Rush was also a visitor at the Center for the Study of Existential Risk (CSER) at Cambridge for a week.

t) Pascal Ströing

1. Type of Affiliation with the MCMP

Pascal Ströing was doctoral student under supervision of Stephan Hartmann. He holds a dissertation scholarship from the Studienstiftung des deutschen Volkes.

2. Research Projects

His 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:

(2018): Data, Evidence and Explanatory Power. *Philosophy of Science* 85(3): 422-441.

(2018): Phenomena and Patterns in Science. Dissertation Thesis)

u) Dr. Dr. Momme von Sydow

1. Type of Affiliation with the MCMP

Momme von Sydow is Postdoctoral Fellow at the MCMP, associated with a project of Professor Dr. Ulrike Hahn's Anneliese Maier-Research Award.

2. Research Projects

Momme von Sydow has been working on contingency assessment, Bayesian Social Epistemology, Bayesian Epistemology, Bayesian Logic, Cognitive Psychology, Philosophy of Biology, and Personal Psychology.

3. Academic Output

Publications:

(2018/2019): How Communication Can Make Voters Choose Less Well. *Topics in Cognitive Science*, together with Ulrike Hahn and Christoph Merdes.

(2018): On the Ignorance of Group-Level Effects – The Tragedy of Personnel Selection. *Journal of Experimental Psychology*, together with Niels Braus and Ulrike Hahn.

(2018): How Good is Your Evidence and How Would You Know?. *Topics in Cognitive Science, 10*(4), 660-678, together with Ulrike Hahn and Christoph Merdes.

(2018): *How Communication Can Make Voters Choose Less Well.* Proceedings of the Fortieth Annual Conference of the Cognitive Science Society, pp. 1760-1765. Austin, TX: Cognitive Science Society, together with Ulrike Hahn and Christoph Merdes. [Computational Modeling Prize in Applied Cognition of the CogSci2018].

In preparation:

(201x): Knowledge Through Social Networks: The Good, the Bad, and the Ugly. Together with Ulrike Hahn and Christoph Merdes. (manuscript to be resubmitted to *Psychological Review*).

(Submitted): Formal Models of Source Reliability. Special Edition of *Synthesis*.

(201x): Thinking Locally or Globally. Trying to Overcome the Tragedy of Personnel Evaluation. Together with Niels Braus and Ulrike Hahn (to be resubmitted).

Presentations:

1. von Sydow, Momme & Mertens, Ulf (2018). *Workshop/Tutorial of the Deutschen Gesellschaft für Psychologie (DGPs) Einführung ins Bayessche Hypothesentesten – von der Philosophie bis zu psychologischen Anwendungen in R*, for PhD students, MA students and post doctoral students. Ruprecht-Karls- Universität Heidelberg, Psychologisches Institut. October, 12 – 13, 2018 (two-day workshop/tutorial, invited by the steering committee of the DGPs).

2.. von Sydow, Momme & Mertens, Ulf (2018). *Pre-Conference Tutorial/Workshop (one-day). Einführung in das Bayessche Hypothesentesten und R (Introduction to Bayesian Hypothesis Testing and R)* at the Conference of the Deutsche Gesellschaft für Psychologie (DGPs), Frankfurt am Main, September, 15 (one-day workshop/tutorial,invited by conference organizors, DGPs, 2018).

3. Hahn, Ulrike, von Sydow, Momme, & Merdes, Christoph (2018). *How Communication Can Make Voters Choose Less Well*. Fortieth Annual Conference of the Cognitive Science Society (CogSci 40). Madison, Wisconsin, July, 25 – 28 (poster).

4. von Sydow, Momme (2018). *Konfidenzintervalle – Vertrauen auf Vertrauensintervalle?* Private Hochschule Göttingen, July, 18 (talk).

5. Braus, Niels, & von Sydow, Momme (2018). *Altruist- and Egoist-Detection in Personnel Psychology*. 31. Tagung des Forums Friedenspsychologie ‚Frieden Macht Freiheit', Ruprecht Karls Universität Heidelberg, June, 08 – 10 (talk).

6. Merdes, Christoph, Momme von Sydow, & Ulrike Hahn (2018). *A Dilemma in Reliability Learning*. Fake Knowledge Conference. Universität Köln, June, 1 – 2. (talk).

7. Hahn, Ulrike, von Sydow, Momme, & Merdes, Christoph (2018). *How communication can make voters choose less well.* Formal Epistemology and Social Networks, International Workshop

(organized by Prof. Erik J. Olsson, Dept. of Philosophy, Lund University, Sweden. April, 24/25 (keynote talk).

8. von Sydow, Momme, Braus, Niels, & Hahn, Ulrike (2018). Ignorance of Strong Group-Level Contingencies? – Trying to Overcome the Tragic of Personnel Evaluation. Tagung experimentell arbeitender Psychologen (TeaP; Fachgruppentagung allg. Psychologie der DGPs), Marburg, March, 11 – 14 (talk).

Prizes:

Computational Modeling Prize in Applied Cognition of the CogSci2018 for the joint submission, "How Communication Can Make Voters Choose Less Well " (with Ulrike Hahn and Christoph Merdes), cash award of $1000.

(V) We also hosted several visitors and visiting fellowships:

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. In addition we introduced a visiting fellowship scheme by application for postdocs and faculty (senior), advanced PhD students (junior) or a group of two to four researchers which may also include scientists (research group) to come and visit the MCMP on our funding for a month during the academic year. This is the list of visitors at the MCMP and invited by the chair of philosophy if science during the period from January to September 2018:

Shanna Slank (University of Wisconsin-Madison)	01.01.2018 - 31.12.2018
Mark Colyvan (University of Sydney)	17.01.2018 - 15.02.2018
Claus Beisbart (University of Bern)	28.01.2018 - 04.03.2018 & 08.06.2018- 20.07.2018
Josefine Lomholt Pallavicini (University of Copenhagen)	09.04.2018 - 01.06.2018
Gordon Belot (University of Michigan)	04.05.2018 - 12.05.2018
Carlo Proietti (Lund University)	01.05.2018 - 31.05.2018
Anton Donchev (New Bulgarian University)	13.05.2018 - 10.06.2018
Dunja Šešelja (Ruhr-University Bochum (RUB))	03.06.2018 - 03.07.2018
Claus Beisbart (University of Bern)	08.06.2018 -

	20.07.2018
Cristian Soto (Universidad de Chile Santiago)	11.06.2018 - 29.06.2018
Jeffrey Bub (University of Maryland)	16.06.2018 - 21.06.2018
Olav B. Vassend (Nanyang Technological University)	18.06.2018 - 16.07.2018
Samuel C. Fletcher (University of Minnesota/MCMP)	08.07.2018 - 09.07.2018
Jeremy Butterfield (University of Cambridge)	16.07.2018 - 26.07.2018
Atoosa Kasirzadeh (University of Toronto)	31.07.2018 - 31.08.2018
Michael Nielsen (Columbia University)	29.08.2018 - 17.09.2018
Miklós Rédei (LSE)	01.08.2018 - 31.07.2019

a) Shanna Slank: Shanna is a regular visiting PhD student at the MCMP. She has been working in practical philosophy, feminist philosophy, and metaethics. Related to her work, the following papers are currently in preparation: Rethinking the Imposter Phenomenon, Transformative Choice and the Value of Lived Experience.

b) Mark Colyvan

Mark stayed at the MCMP 17th January 2018 to 8th February 2018 and 22 June 2018 to 20th July 2018. Both stays were funded by a combination of Humboldt funds and Australian Research Council funds. During that time he wrote a collaborative paper on mathematical explanation with LMU faculty member Alex Reutlinger and former LMU postdoc Karolina Krzyżanowska. Mark also completed revisions on a number of projects explained in the following section. His main research projects while visiting the LMU have been on mathematical explanation and formal methods in legal reasoning. Abstracts of these projects are as follows: 1. Mathematical Explanation: The best mathematical proofs tell us why some mathematical fact holds, not simply that it holds. But to understand how one piece of mathematics explains another piece of mathematics is poorly understood. Mathematics may also be involved in explaining facts outside mathematics. Examples include empirical phenomenon such as the existence of certain weather patters, the shape of the cells in bee hives, and the impossibility of certain population cycles in ecology. This project will advance a new theory of mathematical explanation, for both internal mathematical purposes and for extra-mathematical explanations. Applications to conservation biology and conservation management will be developed; 2. Formal Methods in Legal Reasoning: This project will use formal epistemology to improve our understanding of existing legal practices and to propose recommendations for improving the consistency and accuracy of legal proceedings. Since judges and juries rarely know all the relevant facts, they must make the best decision possible in the face of uncertainty. Formal epistemology employs probabilistic reasoning to advance our understanding of how to form beliefs and make decisions in response to uncertain evidence. The project will address in particular the use of statistical evidence in trials and the aggregation of individuals' beliefs to reach group decisions in juries and judicial panels. From this the following Papers and Book Chapters can be named: a) Wrote: 'The Prospects for a Monist Theory of Non-causal Explanation in Science and Mathematics' (coauthors: Alexander Reutlinger and Karolina

Krzyżanowska), currently under consideration at a refereed journal; b) Completed work on: 'Legal Probabilism: A Qualified Defence', Journal of Political Philosophy, forthcoming (coauthor: Brian Hedden); c) Completed revisions to: 'The End of Mystery', American Philosophical Quarterly, forthcoming (coauthor: Sam Baron); d) Completed revisions to paper 'Musical and Mathematical Notations as Models', currently under consideration at a refereed journal; e) Completed some work on book Thinking About Ecology (under contract with OUP). While at the MCMP he also gave the following Research Presentations: 1. 29/1/18: "Crime Punishment and Specific Evidence" presented at MCMP, LMU. 2. 25/5/18: "Analogical Reasoning via Mathematical Models" presented at Bergen Philosophy of Science Conference, Bergen, Norway. 3. 8/6/18: "Crime Punishment and Specific Evidence" presented at workshop on "Evidence in Statistical, Biomedical and Forensic Sciences' at Polytechnic University of Marche, Faculty of Medicine, Ancona, Italy. 4. 11/6/18: "Counterpossibles and the End of Explanation" presented at MuST conference at the University of Turin. He also attended the following conferences: 1. Invited speaker at Bergen Philosophy of Science Conference (24–25/5/18); 2. Invited speaker at Ancona workshop on Statistical Evidence in Law and Medicine (8/6/18); 3. Attended and presented paper at MuST conference in Turin (11—13/6/18); 4. 30/1/18: Guest lecture in Alex Reutlinger's course on metaphysics of science. He also met for regular consultation with LMU faculty, postdocs, students, and other visitors while in residence.

c) Claus Beisbart: Claus stayed at the MCMP from 29.1. - 1.3.2018 and 11.6. - 13.7. on private funding during his sabbatical. At that time he did research on a) validation of computer simulations: In the last few decades, computer simulation has been established as a new philosophical method. But why should we trust the results of computer simulations? The scientific answer is validation: Computer simulations have to be shown to be valid. But as it happens, the validation of computer simulations is very difficult, and working scientists have expressed unease about validation. In a handbook that he edit together with N. J. Saam, philosophers, mathematicians and working scientists from various disciplines in the natural and social sciences share their experiences with validations and systematically reflect upon it. During my time at the MCMP, Claus has reviewed many chapters for the volume and myself written two chapters. He has analyzed validation from a Bayesian perspective, and has discussed validation in the light of the debate on what computer simulations are; b) virtual realism: In his recent Petrus Hispanus Lectures, D. Chalmers has argued for a position that takes objects from virtual environments, e.g. avatars, to be real. Claus critically examined his position by comparing with objects from computer simulations; c) agent-based modeling: Agent-based models are often assumed to be very poor as far as explanation is concerned. In a joint project with Prof. B. Osimani, Claus studied a case from cell biology. They argued that simulations can be crucial to identify the correct explanation. The following publications came out of it: 1. Beisbart, C. & Saam, N. J. (eds.), Computer Simulation Validation - Fundamental Concepts, Methodological Frameworks, and Philosophical Perspectives, Cham: Springer, in production, to appear 2019. 2. Beisbart, C., Simulation Validation from a Bayesian Perspective, to appear in: Beisbart & Saam (eds.), Computer Simulation Validation - Fundamental Concepts, Methodological Frameworks, and Philosophical Perspectives, Cham: Springer, in production, to appear 2019. 3. Beisbart, C., What Is a Computer Simulation and What Does This Mean for Validation?, to appear in: Beisbart & Saam (eds.), Computer Simulation Validation -

Fundamental Concepts, Methodological Frameworks, and Philosophical Perspectives, Cham: Springer, in production, to appear 2019. 4. Beisbart, C., Virtual Realism - Really Realism or only Virtually So? Disputatio, to appear. He also gave the following talks: 1. Are Computer Simulations Experiments? And If Not, How Are They Related to Each Other? Höchstleistungsrechenzentrum Stuttgart, 20.6.2018. 2. Zwischen Ausdifferenzierung und Vereinheitlichung. Mögliche Auswirkungen des digitalen Wandels auf das Fächergefüge, Impulsvortrag für das interdisziplinäre Streitgespräch "Ausdifferenzierung der Fächer im Zeichen der Digitalisierung", Geschäftsstelle der Deutschen Forschungsgemeinschaft, Bonn, 28.6.2018. 3. Hunting the Higgs with Computers: A Causal and a Logical Analysis, Munich Center for Mathematical Philosophy, Ludwig-Maximilians-Universität München, 11.7.2018. He was also interviewed for KanalK, Was ist Zeit?, 11.7.2018 (repeated 15.7.2018). He has an ongoing collaboration with Barbara Osimani.

d) Josefine Lomholdt Pallavicini: Josephine is a PhD candidate at the Department of Media, Cognition and Communication at the University of Copenhagen. Her PhD project is a part of the DFF-project "The social epistemology and social psychology of disagreement" and the associated research group SERG (Social Epistemology Research Group). Josephine's project investigates the possibilities for using statistical formal models on phenomena of interest in the field of social epistemology. It also aims to contribute to the understanding of higher-order beliefs and evidence in cases with e.g. polarization or disagreement. Higher-order beliefs say something about how first-order beliefs are formed and whether they are trust-worthy or not (if there exists a defeater or not). Part of her project aims to update existing Bayesian models to include a notion of higher-order beliefs. Her visit at the MCMP contributed to this goal and her thesis: "Bayesian Modeling of disagreement, trust and higher-order evidence". (Advisor: Prof. Klemens Kappel.)

e) Gordon Belot: Gordon visited the MCMP on his own funding to participate in a summer school on rationality and a philosophy of physics workshop at the MCMP. These events were connected with his two lines of research. The first is evaluating different mathematical roles of mathematics in scientific explanations; the second is assessing different characteristics of aggregation functions in arriving at group decisions. While at the MCMP he finished a draft paper that is currently under review. He also had a very useful meeting with his MCMP supervisor Stephan Hartmann about this research paper.

f) Carlo Proietti: Carlo visited the MCMP in May 2018 on a research grant from his home country (Sweden, Riksbankens Jubileumsfond). He visited MCMP in the context of his research project "Rationality and Group Behavior" (funded by the Riksbankens Jubileumsfon, 2017-2020). This is a research project in social epistemology, focusing on the explanation of irrational collective behavior such as polarization of attitudes with analytic methods and computer simulations. These topics and methodologies are of special interest within the Philosophy of Science group at MCMP. During his visit Carlo planned experimental work on polarization with Prof. Ulrike Hahn and had exchange of ideas for future work with Prof. Stephan Hartmann and PhD Momme von Sidow. While at the MCMP he gave a talk on 16 May 2018: Understanding group polarization with argumentation graphs. Furthermore the following activities were connected with his stay: Participation to workshops: MCMP-Hannover (May 4-5), Recent work in the Philosophy of Probability

and conditionals (May 18). Participation to weekly seminars (Logic Colloquium and Philosophy of Science).

g) Anton Donchev: Anton visited the MCMP 13.05 - 10.06.2018 on the EPSA fellowships' program for junior philosophers working in Central and Eastern Europe. In this period he, in collaboration with Mila Marinova from KU Leuven, was conducting an experimental study aimed at answering the research question whether people make an intuitive difference between the explanatory power of a hypothesis and its degree of confirmation by empirical evidence. Their work involved finishing an already outlined experimental design, programming an online questionnaire to serve as a platform for the experiment, running the questionnaire and gathering of data, and subsequently analyzing these data. The experiment was successfully completed and they have found strong evidence in support of the claim that people intuitively distinguish explanation from confirmation (i.e., distinguish the explanatory power from the degree of confirmation of a given hypothesis). A paper draft reporting the results of their experiment—with the working title "Explanatory power and degree of confirmation are intuitively distinct"—is now in the final stage of preparation. In addition, the results were presented on the workshop "Explanatory Power" (the workshop was part of the DACH project "Inferentialism, Bayesianism, and Scientific Explanation) at the University of Geneva, 14-15.06.2018. In the specific period of Anton's stay at the MCMP, however, only one talk was given on this topic of research—this was at the MCMP itself on 16.05.2018, and the talk was entitled "The Relation Between Explanatory Power, Degrees of Confirmation, and Prior Probabilities". Anton has also attended the MCMP workshop "Recent work in the philosophy of probability and conditionals" (18.05.2018) and the MCMP conference "Formal methods in philosophy: Truth, paradox, and mathematics" (4-6.06.2018), as well as most of the weekly talks at the MCMP during his stay. In addition, from the MCMP he traveled directly to the 11th Munich-Sidney-Tilburg/Turin (MuST) conference: "Models of Explanation" (11-13.06.2018), where he met with his collaborator Borut Trpin, and presented their work on a research project entitled "Inference to the Best of the Best Explanations"

h) Dunja Seselja: Dunja visited the MCMP as an invited researcher from June 3- July 7 2018. The main research topic during her stay was an in-depth study of the epistemic function of highly-idealized agent-based models (ABMs) employed in philosophy of science and social epistemology. While ABMs have become an increasingly popular method in these fields, what exactly we can learn from them is not properly understood. In a paper that resulted from this research she argues that the majority of currently proposed ABMs of science should be understood as theoretical abstractions, which are not explanatory of actual scientific inquiry, though they can be useful in providing insights into theoretical aspects of scientific rationality. The above mentioned research resulted in a paper entitled "Exploring Scientific Inquiry via Agent-Based Modeling", which was submitted to the special issue of Perspectives on Science "Exploratory Models and Exploratory Modelling in Science", edited by Axel Gelfert, Grant Fisher, Friedrich Steinle. It is still under review. During her stay Dunja gave the following talks: 1. A guest lecture at the seminar on Models and Simulations by Rush Stewart; 2. A guest lecture at the seminar on Social Epistemology by Jean Baccelli 3. A talk at the MCMP Colloquium in Philosophy, Logic and Philosophy of Science 4. A talk at the MCMP conference "Computational Modeling in Philosophy", June 22-23, 2018. She has also joined the organization of the conference "Biases in Science"

funded by Stephan Hartmann's DFG Research Grant "Inferentialism, Bayesianism and Scientific Explanation", together with Stephan Hartmann (MCMP), Lorenzo Casini (University of Geneva/MCMP) and Marcel Weber (University of Geneva). Finally, inspired by the research conducted in June, Dunja has just submitted a project application for the Scientific Network funding by DFG on the topic "Simulations of Scientific Inquiry".

i) Cristian Soto: Cristian visited the MCMP 11 June 2018 – 30 June 2018 on a 3-year, governmental-funded research grant from Chile, FONDECYT N°11160324. While at the MCMP, he carried out work on the intertwining of the philosophy of laws of nature and the philosophy of applied mathematics. In particular, Cristian wrote two papers, which he is co-authoring with Dr. Otávio Bueno (Department of Philosophy, University of Miami, U.S.A.), on the distinction between mathematical and physical structures, and another one on the inferential conception of physical laws. The following works are among the results of my research at the MCMP, LMU, namely: 1. Article draft: "On the distinction between mathematical and physical structures"; 2. Article draft: "The inferential conception of physical laws"; 3. PPT presentation: "On the distinction between mathematical and physical structures", which was delivered at the Conference of the British Society for the Philosophy of Science, 4-6 July 2018, Oxford University, England. Before visiting the MCMP, LMU, Cristian also visited the Centre for the Philosophy of Natural and Social Sciences, LSE, England, for 7 weeks, starting on early April 2018.

j) Jeffrey Bub: Jeffrey visited the MCMP June 19 — 20, 2018, in part on MCMP funding**.** On June 19, he participated in a graduate seminar by Stephan Hartmann. The seminar was based on Jeffrey's book: Bananaworld: Quantum Mechanics for Primates. He gave a presentation at the seminar and also met with students for discussions afterwards. On June 20, he was one of the speakers at the Workshop: 'Foundations of Quantum Mechanics and Quantum Information Theory: A Workshop with Jeffrey Bub.' His talk was entitled: 'In Defense of a "Single-World" Interpretation of Quantum Mechanics.' Here is the abstract: In a recent "no go" result, Frauchiger and Renner argue that no "single-world" interpretation of quantum mechanics can be self-consistent, where a single-world interpretation is any interpretation that asserts, for a measurement with multiple possible outcomes, that just one outcome actually occurs. They conclude that if quantum theory accurately describes complex systems like observers who perform measurements, then "we are forced to give up the view that there is one single reality." I'll review the Frauchiger-Renner argument and argue that quantum mechanics should be understood probabilistically, as a new sort of non-Boolean probability theory, rather than representationally, as a theory about the elementary constituents of the physical world. I show that this way of understanding quantum mechanics is not in conflict with a consistent "single-world" interpretation of the theory. Jeffrey had useful discussions with several members of the Center during his visit, including Stephan Hartmann, Erik Curiel, Neil Dewar, Omid Charrakh.

k) Olav B. Vassend: Olav stayed from June 18 to July 16. His visit was completely funded by his own (Singaporean) grant. Olav's research while at the MCMP (and subsequently) concerns interpretations of probability and approaches to inductive learning. Part of the research he did while at MCMP has resulted in a paper in the journal Philosophy of Science as well as invited talks at the

University of Tokyo and Fudan University in Shanghai, China. Olav also has four papers in preparation.

l) Samuel C. Fletcher: Samuel visited the MCMP on his personal funds before heading off to the Netherlands to give the following talk: "Reduction and Causal Set Theory's Hauptvermutung" on July 11 at Foundations of Physics 2018 (https://foundations2018.sites.uu.nl/).

m) Jeremy Butterfield: Jeremy visited the MCMP 15 July - 26 July 2018 as a visiting researcher on Erik Curiel's DFG Grant. During his stay Erik Curiel and he, together with Neil Dewar (and MCMP students, Jingyi Wu and Viktoria Kabel) discussed in detail the foundational aspects of black holes, and quantum field theory on curved spacetime, using especially a review article by T Jacobson. Furthermore Jeremy discussed in detail his draft papers on theoretical equivalence and related matters with Erik Curiel and Neil Dewar. The above mentioned activities led to one main publication:

'On Dualities and Equivalences Between Physical Theories', Forthcoming in Philosophy Beyond Spacetime, ed. B. Le Bihan, N.Huggett and C. Wuthrich (OUP 2019). 54 pages; http://philsci-archive.pitt.edu/14736/. The main further activity apart from this result was the development of a bid, with Jeremy to get seed funding as part of the new strategic Partnership between Cambridge University and LMU: for a research group on black holes and quantum field theory in curved spacetime. This bid was successful; and will fund one or two research visits in the calendar year 2019. It will, we hope, seed further research grant applications.

n) Atoosa Kasirzadeh: Attosa visited MCMP from the 1st until the end of August 2018 on her personal funding. At that time, she was following two lines of research. The first is evaluating different mathematical roles of mathematics in scientific explanations; the second is assessing different characteristics of aggregation functions in arriving at group decisions. During her time at the MCMP she finished a draft paper that is currently under review. She also participated in a summer school on rationality; had a very useful meeting with her MCMP supervisor Stephan Hartmann about her research paper, and participated in a philosophy of physics workshop at the MCMP.

o) Michael Nielsen: Michael visited the MCMP August 29-September 1 and September 16-18, in part on MCMP funds and in part on connections to the IRSI conference. During that time Rush Stewart and he worked on a paper about epistemic justice. They applied some results from the computer science literature about the possibility of designing algorithms for fair risk assessment to the problem of making just credibility assessments. As a result they completed a manuscript titled "On the Possibility of Testimonial Justice." It is currently under review. During his stay he presented another paper called "Speed-optimal induction and dynamic coherence" at the Workshop on Probability and Induction, organized by Rush Stewart at the MCMP.

p) Miklos Redei

Miklos stayes at MCMP since August 1, 2018, supported by the Carl Friedrich von Siemens-Forschungspreis der Alexander von Humboldt-Stiftung and by London School of Economics (on sabbatical leave). He will remain at the Center until 2019. At that time his research centered on the following topics: a) Foundations of probability theory, investigating properties of conditionalization; in particular analysing properties of the set of probability measures on

a Boolean algebra that cannot be obtained as conditional probability measure on the basis of a fixed prior; b)Analyzing Robert Musil's concept of philosophy of science in his major work "Mann ohne Eigenschaften"; c) Comparing some aspects of Godel's and von Neumann's understanding of mathematics, highlighting the parallels and divergencies between their careers and philosophical views. From this the following papers have been in progress: 1. Z. Gyenis, M. Rédei: "Having a look at the Bayes Blind Spot" under review with Synthese (major revision required by journal editors, major revision in preparation); 2. M. Rédei: "Parallels and divergencies – Gödel and von Neumann", submitted to a special issue of Magyar Filozofiai Szemle ("Hungarian Philosophical Review"); 3. "Wissenschaftstheoretische Eigenschaften der Wisenschaften in Musils 'Mann ohne Eigenschaften' " (paper in preparation). He also gave the following conference/workshop/seminar talks: 1. "Physics Meets Philosophy" (Institute of Philosophy, Hungarian Academy of Sciences, Budapest, Hungary, September 25, 2018. http://physicsmeetsphilosophy.tumblr.com/ Talk: "On the tension between mathematics and physics"; 2. "Robert Musil und die Modernen Wissenschaften" (Workshop) (October 18-19, 2018, Vienna, Austria) Talk: "Wissenschaftstheoretische Eigenschaften der Wisenschaften in Musils 'Mann ohne Eigenschaften' „; 3. "Biennial Conference of the Philosophy of Science Association (PSA2018)" (November 1-4, 2018, Seattle, U.S.A.), Symposium organiser and talk (with Z. Gyenis) "Features of Bayesian learning based on conditioning using conditional expectations"; 4. LPS colloquium at MCMP/LMU (November 21, 2018) Talk: "Some features of Bayesian learning based on conditioning using conditional expectations". Furthermore he took part in the following activities: 1. Attending MCMP reading group reading Klaas Landsman: Foundations of Quantum Theory From Classical Concepts to Operator Algebras (Springer, 2017); 2. Leading Philosophy of Science Seminar (replacing Prof. S. Hartmann), December 4, 2018, Topic: Imre Lakatos' philosophy of science; 3. Attending Conference (no talk): "Analogical Reasoning in Science and Mathematics" MCMP, October 26 – 28, 2018; 4. Establishing contact (visit) to the "Forschungsinstitut für Technik- und Wissenschaftsgeschichte" des Deutschen Museums in Munich (Prof. Ulf Hashagen).

(VII) Use of funds and overhead

The funds were used as stated in this report and in the additional financial statement.

The overhead is calculated according to the rules of division between the Central University Administration, the Faculty and the Chair. The remaining part for the Chair was used according to the current conditions of use at the LMU.