

FOUNDATIONS OF PHYSICS

2013

29-31 July

The 17th UK and European Meeting
Munich
Center for
Mathematical
Philosophy

Program

"Foundations of Physics" takes place in rooms on Theresienstraße 39 (where the conference begins) and Richard-Wagner-Straße 10 (all parallel sessions and registration in room 109). Please note that registration will open after the morning session on Monday and will be open on all conference days. Our lecture halls at Richard-Wagner-Straße have famous namesakes to help you find your way about:



Room 102:
"Sommerfeld"



Room 104:
"Pauli"



Room 106:
"Wien"



Room 110:
"Heisenberg"

Monday, 29 July

9:00 Stephan Hartmann: Welcome

9:05 Bernd Huber: Welcome of the LMU President

Invited Session 1 – Chair: Stephan Hartmann (Room B139, Theresienstr.)

9:15 John D. Norton: The Neglect of Fluctuations in the Thermodynamics of Computation

10:30 Coffee Break

Invited Session 2 – Chair: Mathias Frisch (Room B139, Theresienstr.)

10:45 Jean Bricmont: From the Microscopic to the Macroscopic World

12:00 Lunch Break: Change of Venue and Registration (Room 109, Richard-Wagner-Str.)

4 parallel tracks		
	Colloquium 1 : Journeys in Platonia: Celebrating 50 Years Since The End of Time (Room "Sommerfeld", Richard-Wagner-Str.)	Contributed Session 1 – Chair: Miklos Redei (Room "Heisenberg", Richard-Wagner-Str.)
13:30	Harvey Brown: Leibniz, Mach and Barbour	Michael Stoeltzner: On some Virtues and Vices of the Algebraic Approach
14:10	Edward Anderson: Kendall's Shape Statistics as a Classical Realization of Barbour-type Timeless Records Theory Approach to Quantum Gravity	Jeremy Butterfield: Renormalization and Nagel's Account of Inter-Theoretic Relations
14:50	Sean Gryb: Barbour's Shape Space as an Ontology for Gravity	Jonathan Bain: Pragmatists and Purists on CPT Invariance in Relativistic Quantum Field Theory
	Contributed Session 2 – Chair: Iulian Toader (Room "Pauli", Richard-Wagner-Str.)	Contributed Session 3 – Chair: Gábor Hofer-Szabó (Room "Wien", Richard-Wagner-Str.)
13:30	Pui Him Ip: The Mystery Behind Schrödinger's First Communication: A Non-Historical Study on the Variational Approach and its Implications	Christian de Ronde: Interpreting the Modal Kochen Specker Theorem: On Quantum Possibility and Potentiality
14:10	Molly Kao: Unification in the Old Quantum Theory	Benjamin Feintzeig: Hidden Variables and Commutativity in Quantum Mechanics
14:50	Alexander Blum and Christoph Lehner: A Silver Lining Among Infinities: How the Spin-Statistics Theorem Restored Faith in Quantum Field Theory	Paul Näger: The Causal Structure of EPR Experiments
15:30	Coffee Break	
4 parallel tracks		
	Contributed Session 4 – Chair: Alexander Blum (Room "Sommerfeld", Richard-Wagner-Str.)	Contributed Session 5 – Chair: Jeremy Butterfield (Room "Heisenberg", Richard-Wagner-Str.)
16:00	John Manchak and James Weatherall: The Geometry of Conventionality	Miklos Redei: Operational Independence Concepts in Algebraic Quantum Theory
16:40	Erik Curiel: Are Black Holes Hot or Cold?	Gábor Hofer-Szabó: On the Localization Problem of the Common Cause
17:20	Vincent Lam: The Status of Mass and Energy in General Relativity	Paniz Imani: The Locality Axiom in Quantum Field Theory and Tensor Products of C^* -algebras
	Contributed Session 6 – Chair: Adam Caulton (Room "Pauli", Richard-Wagner-Str.)	Contributed Session 7 – Chair: Charlotte Werndl (Room "Wien", Richard-Wagner-Str.)
16:00	Iulian Toader: Trans-World Structuralism and Naturalistic Metaphysics	Paul Boes: Is Howard's Separability Principle a Sufficient Condition for Outcome Independence?
16:40	Thomas Müller: Is a Gas Equal to a Collection of Molecules? On the Modal Logic of Reduction	Mile Gu, Karoline Wiesner, Elisabeth Rieper and Vlatko Vedral: Sharpening Occam's Razor with Quantum Mechanics
17:20	Paul Teller: The Failure of Traditional Measurement-Accuracy Realism and the Repercussions for Understanding Vagueness	Rathindra Nath Sen: Galilei Invariance and the Welcher Weg Problem
18:00	Change of Venue	
19:00	Dinner Reception at Deutsches Museum (only for registered conference participants)	
	Evening Lecture – Moderation: Stephan Hartmann (LMU Munich)	
20:00	Introduction: Johannes-Geert Hagmann (Deutsches Museum)	
	Evening Lecture by Julian Barbour: The Mystery of Time and Size in Einstein's Theory of Gravity	
21:30	End	

Tuesday, 30 July	
4 parallel tracks	
	Contributed Session 8 – Chair: James Weatherall (Room "Sommerfeld", Richard-Wagner-Str.)
	Contributed Session 9 – Chair: Vincent Lam (Room "Heisenberg", Richard-Wagner-Str.)
9:00	Adam Caulton: Being Serious about Permutation Invariance in Quantum Mechanics
	Alyssa Ney: Configuration Space in a Relativistic Setting
9:40	F.A. Muller: Witness-Discernibility of Elementary Particles
	Juliusz Doboszewski: Branching From Cobordism
10:20	Noel Swanson, David John Baker and Hans Halvorson: The Conventionality of Parastatistics
	Hanoch Ben-Yami: Causal Order, Temporal Order, and Becoming in Special Relativity
	Contributed Session 10 – Chair: Thomas Müller (Room "Pauli", Richard-Wagner-Str.)
9:00	Charlotte Werndl: Counting States in Statistical Mechanics and Dynamical Systems Theory
	Michael Cuffaro: On the Significance and Implications of the Gottesman-Knill Theorem
9:40	Marij van Strien: The Origin and Foundations of Laplacian Determinism
	Johannes Kofler: Bell Violation with Entangled Photons and without the Fair-Sampling Assumption
10:20	Sylvia Wenmackers and Danny Vanpoucke: A Deterministic Model for Norton's Dome
	Meinard Kuhlmann: Decoherence: How Much Does it Help?
11:00	Coffee Break
4 parallel tracks	
	Contributed Session 12 – Chair: F.A. Muller (Room "Sommerfeld", Richard-Wagner-Str.)
	Contributed Session 13 – Chair: Christoph Lehner (Room "Heisenberg", Richard-Wagner-Str.)
11:15	Lev Vaidman: Local Explanation of the Aharonov-Bohm Effect
	Ken Wharton: Lagrangian-Only Quantum Theory
11:55	Neil Dewar: The Aharonov-Bohm Effect and Non-Locality
	Michael Silberstein, William Stuckey and Timothy McDevitt: A Path Integral Over Graphs Approach to Unification and its Foundational Implications
	Contributed Session 14 – Chair: Michael Cuffaro (Room "Pauli", Richard-Wagner-Str.)
	Contributed Session 15 – Chair: Meinard Kuhlmann (Room "Wien", Richard-Wagner-Str.)
11:15	Peter Janotta and Raymond Lal: Generalized Probabilistic Theories Without the No-Restriction Hypothesis
	Attila Molnár and Gergely Székely: Operationality in the Axiomatic Foundations of Relativity Theory
11:55	Bruno Hartmann: Physical Determination of the Action
	David Rey: Similarity Assessments, Spacetime, and the Gravitational Field: What Does the Metric Tensor Represent in General Relativity?
12:35	Lunch Break

4 parallel tracks	
	Contributed Session 16 – Chair: Lev Vaidman (Room "Sommerfeld", Richard-Wagner-Str.)
13:45	Richard Dawid and Karim Thebault: On the Empirical Testing of the subjective Everett Interpretation
14:25	Jeffrey A. Barrett: Pure Wave Mechanics and the Very Idea of Empirical Adequacy
15:05	Richard Healey: Decoherence in a Pragmatist View: Resolving the Quantum Measurement Problem
	Contributed Session 17 – Chair: Ken Wharton (Room "Heisenberg", Richard-Wagner-Str.)
	Daniele Oriti: On the Emergence of Spacetime in Quantum Gravity
	David Schroeren: Decoherent Histories of Spin Networks
	Yann Benetreau-Dupin: Cosmic Surprise, Anthropic Reasoning, and Bayesian Analysis
	Contributed Session 18 – Chair: Gergely Székely (Room "Pauli", Richard-Wagner-Str.)
13:45	Giovanni Cinà: Connecting Abstractions from Hilbert Spaces: From Categories to Frames
14:25	Jarosław Pykacz: Many-Valued Logic as a Basis for the New Interpretation of Quantum Mechanics
15:05	Marco Giovanelli: A Dialog of the Deaf, Einstein and the Logical Empiricists on Rods and Clocks in General Relativity
15:45	Change of Venue
	Invited Session 3 – Chair: Roland Poellinger (Room B139, Theresienstr.)
16:15	Fay Dowker: Things Happen, They Just Happen in a Partial Order
17:30	Coffee Break
	Invited Session 4 – Chair: Christian Joas (Room B139, Theresienstr.)
17:45	Markus Aspelmeyer: Schrödinger's Mirrors: Towards Table-Top Experiments at the Interface between Quantum Physics and Gravity
19:00	End

Wednesday, 31 July	
4 parallel tracks	
	Colloquium 2: On the Split Between Gravity and Inertia in Different Spacetime Theories – part 1 (Room "Sommerfeld", Richard-Wagner-Str.)
9:00	Harvey Brown: The Role of Geometric Explanation in General Relativity
9:40	Eleanor Knox: The Gravity-Inertia Split in Newtonian and Relativistic Contexts
10:20	Dennis Lehmkuhl and Oliver Pooley: Against the Gravity–Inertia Split
	Contributed Session 20 – Chair: Stephan Hartmann (Room "Heisenberg", Richard-Wagner-Str.)
	Sam Sanders: The Universe is a Green Turing Machine, when seen Through Green Glasses
	Tim Räs and Tilman Sauer: Applying an Account of the Applicability of Mathematics to the World
	Contributed Session 21 – Chair: Richard Dawid (Room "Pauli", Richard-Wagner-Str.)
9:00	Antonio Vassallo: The Metaphysics of Bohmian Quantum Gravity
9:40	Casey McCoy: The Quantum to Classical Transition in Inflationary Cosmology
10:20	Marc Holman: The Significance of Empirical Principles for Quantum Gravity
11:00	Coffee Break
	Contributed Session 22 – Chair: Jeffrey A. Barrett (Room "Wien", Richard-Wagner-Str.)
	Tom Bullock and Paul Busch: On the Connection Between SIC POVMs and MUBs
	Federico Holik, Angel Plastino, Manuel Saenz and Gabriel Catren: Quantum Probabilities and Non Distributive Lattices
	Alexei Grinbaum: Quantum Observer and Kolmogorov Complexity

4 parallel tracks		
	Colloquium 2: On the Split Between Gravity and Inertia in Different Spacetime Theories – part 2 (Room "Sommerfeld", Richard-Wagner-Str.)	Contributed Session 23 – Chair: Michael Silberstein (Room "Heisenberg", Richard-Wagner-Str.)
11:15	J. Brian Pitts: Inertia and the Conformal-Projective Decomposition for Nordström-Einstein-Fokker, Massive Scalar, Einstein, and Massive Spin 2 Gravities	Elizabeth Miller: Quantum Mechanics and Humean Supervenience
11:55	Roundtable Discussion	Thomas Barrett: On the Structure of Classical Mechanics
	Contributed Session 24 – Chair: Wolfgang Pietsch (Room "Pauli", Richard-Wagner-Str.)	Contributed Session 25 – Chair: Daniele Oriti (Room "Wien", Richard-Wagner-Str.)
11:15	Angel S. Sanz: Bohmian Mechanics: Is it possible to Think the Quantum World in a Different Way?	Markus Mueller: Axiomatic Reconstructions and Generalizations of Quantum Theory
11:55	Charles Sebens: Quantum Mechanics Without Wave Functions: The Newtonian Dynamics of Many Interacting Pseudo-Bohmian Worlds	Andreas Doering: Topos-Based Logic for Quantum Systems and Bi-Heyting Algebras
12:35	Lunch Break	
4 parallel tracks		
	Contributed Session 26 – Chair: Alexei Grinbaum (Room "Sommerfeld", Richard-Wagner-Str.)	Contributed Session 27 – Chair: Karim Thébault (Room "Heisenberg", Richard-Wagner-Str.)
13:45	Alison Peterman: Spinoza on Extension and Space	Matthias Egg: Inequivalent Representations Do Not Undermine Realism About Particles
14:25	Petter Sandstad: Powers and Kinds - Exemplified through a Study of Waves	Radin Dardashti: Group Structuralism in Particle Physics
15:05	Wolfgang Pietsch: Against Bayesianism in Physics: a Novel Argument	Pablo Ruiz de Olano: Are Elementary Particles Irreducible Representations? Color, Flavor, and Structuralism about SU(3)
	Contributed Session 28 – Chair: Andreas Doering (Room "Pauli", Richard-Wagner-Str.)	Contributed Session 29 – Chair: Markus Mueller (Room "Wien", Richard-Wagner-Str.)
13:45	Peter Janotta, Christian Gogolin, Jonathan Barrett and Nicolas Brunner: Limits on Nonlocal Correlations From the Structure of the Local State Space	Marcin Pawłowski: What do we know about Monogamy of Nonlocal Correlations?
14:25	Johannes Biniok and Paul Busch: Multi-Slit Interferometry and Commuting Functions of Position and Momentum	Wiesław Laskowski, Marcin Markiewicz, Tomasz Paterek and Marcin Wiesniak: Incompatible Local Hidden-Variable Models of Quantum Correlations
15:05	Simon Friederich: Rethinking Local Causality	Louis Vervoort: Can the Bell Inequality be Violated through Local Interactions with a Background Medium?
15:45	Change of venue	
	Invited Session 3 – Chair: Karim Thébault (Room B139, Theresienstr.)	
16:15	Rob Spekkens: On Causal Explanations of Quantum Correlations	
17:30	Coffee Break	
	Invited Session 4 – Chair: Detlef Dürr (Room B139, Theresienstr.)	
17:45	Tim Maudlin: New Foundations for Physical Geometry	
19:00	End	

Venues

Parallel Sessions and Registration:

Richard-Wagner-Straße 10

80333 München

[Description how to get there](#)

The registration is open after the morning session on 29 July and will be open on all conference days. Please find the registration desk in room 109 on 10 Richard-Wagner-Straße.

Plenary Lectures:

Theresienstr. 39 / (Room B139)

80333 München

[Description how to get there](#)

Evening Lecture on 29 July:

Deutsches Museum

Museumsinsel 1 (Ehrensaal)

80538 München

[Description how to get there](#)



Find all abstracts and further practical info online at

<http://www.lmu.de/FoundationsOfPhysics2013>



Visit our Media page to get more info on where to find recordings and video abstracts of the invited presentations.

