

Program HQ-3

Monday 28 June

- 9:00 Welcome
- 9:15 Jürgen Renn (MPIWG)
"The Transformation of Mechanics"
The Classical Roots of Quantum Physics
- 9:45 Shaul Katzir (MPIWG)
""Classical" Solutions to the Challenges of Radiation and its Interaction with Matter"
- 10:30 Charlotte Bigg (Centre Alexandre Koyré, CNRS)
"The Making of Jean Perrin's Brownian Motion Experiments and of early 20th Century French Physical Science"
- 11:15 Coffee Break
- 11:45 Marta Jordi Taltavull (MPIWG)
"From Classical to Quantum Optical Dispersion, after Bohr's Atom"
Old Quantum Theory & Statistics
- 12:30 Dieter Hoffmann and Giora Hon (MPIWG and University of Haifa)
"From Propagation to Structure: Experimental Research in Berlin and its Role in the Emergence of Early Quantum Physics"
- 13:15 Lunch Break
- 14:30 Matthew Konieczny (University of Minnesota)
"The Birth of a Quantum Physics on the Eastern European Periphery: Władysław Natanson and the First Solvay Conference of 1911"
- 15:15 Michael Eckert (Deutsches Museum)
"Sommerfeld's Munich Quantum School"
- 16:00 Coffee Break
- 16:30 Clayton Gearhart (St. John's University Minnesota)
"Fritz Reiche's 1921 Quantum Theory Textbook"
- 17:15 Massimiliano Badino and Bretislav Friedrich (FHI)
"Putting the Quantum to Work: Otto Sackur's Pioneering Exploits in the Quantum Theory of Gases"
- 18:00 Enric Perez Canals and Tilman Sauer (Universitat de Barcelona and Einstein Papers Project, Caltech)
"Einstein's Quantum Theory of the Monatomic Ideal Gas: Non-statistical Arguments for a New Statistics"

Tuesday 29 June

Quantum Mechanics and Statistics

- 9:00 Daniela Monaldi (York University)
"The Early Interactions of Quantum Statistics, Many-particle Systems, and Quantum Fields"
- 9:45 Jos Uffink (Utrecht University)
"Gibbs Paradox and the Relation between Thermodynamics and Quantum Theory"
- ### ***Classical Concepts in Quantum Mechanics***
- 10:30 Arne Schirrmacher (MPIWG)
"Heisenberg's Ladder Didn't Fall. Types, Aims and Uses of Models in the History of Quantum Theory"
- 11:15 Coffee Break
- 11:45 John Stachel (Center for Einstein Studies, Boston University)
"Bohr: Complementarity and Correspondence"
- 12:30 Kristian Camilleri (University of Melbourne)
"The Doctrine of Classical Concepts in Historical Perspective"
- 13:15 Lunch Break
- 14:30 Anthony Duncan and Michel Janssen (University of Pittsburgh and University of Minnesota)
"(Never) mind your p's and q's: Von Neumann versus Jordan on the Foundations of Quantum Theory"
- ### ***The Many-body Problem***
- 15:15 Christian Joas and Jeremiah James (FHI)
"Application, Extension, and Alteration: The many-body Problem in early Quantum Mechanics"
- 16:00 Coffee Break
- 16:30 Roger H. Stuewer (University of Minnesota)
"An Act of Creation: The Meitner-Frisch Interpretation of Nuclear Fission"
- 17:15 Edward Jurkowitz and Volker Blum (FHI)
"Computation and Concepts in Early Atomic and Solid-State Physics"
- 18:00 Christian Kehrt (Deutsches Museum)
"From Do-it-yourself Quantum Mechanics to Nanotechnology? The History of Experimental Semiconductor Physics in Germany, 1970-2000."

Wednesday 30 June

Quantum Optics

- 9:00 Dieter Fick and Horst Kant (FHI and Philipps-Universität Marburg and MPIWG)
"The Concept of Light Molecules and Light Multiples: A dead-end Way to simulate Bose-Einstein Statistics for Black Body Radiation"
- 9:45 Barry R. Masters (Massachusetts Institute of Technology)
"Proximity of Theory and Experimental Practice in Göttingen's Physical Institutes 1920-1933: Work of Maria Göppert as Exemplar of an Institutional Culture"
- 10:30 Coffee Break
- 11:00 Joan Bromberg (Johns Hopkins University)
"Modelling the Hanbury Brown - Twiss Effect: The Mid-Twentieth Century Revolution in Optics"
- 11:45 Indianara Lima Silva (Universidade Federal da Bahia)
"The Controversy on Photons and the Hanbury-Brown & Twiss Experiment"
- 13:00 Excursion: departure for Potsdam (by bus)
lunch at Fährhaus
guided tour: Einstein Haus, Einstein Turm
- 19:00 back at the institute

Thursday 1 July

Relativistic Quantum Mechanics and Quantum Field Theory

- 9:00 Christoph Lehner (MPIWG)
"The Resolution of the Particle-Wave Dualism: Pascual Jordan and the Quantum Field Theory Program"
- 9:45 Thomas Pashby (University of Pittsburgh)
"Projective Geometry and the Origins of the Dirac Equation"
- 10:30 Kent Staley (Saint Louis University)
"On an alleged fine-tuning Problem in Dirac's Electron Theory and its partial Solution by Weisskopf"
- 11:15 Coffee Break
- 11:45 Adrian Wüthrich (Universität Bern)
"The Genesis of Feynman Diagrams"
- 12:30 Kenji Ito (Sokendai University)
"From Electrical Engineering to Quantum Physics: The Case of Nishina Yoshio"
- 13:15 Lunch Break
- ### ***Quantum Gravity***
- 14:30 Dean Rickles (University of Sydney)
"Pioneers of Quantum Gravity"
- 15:15 Yin Xiaodong and Zhu Zhongyuan (Capital Normal University, Beijing and Chinese Academy of Sciences, Beijing)
"Chang's Contribution to the Quantization of Constrained Hamiltonian System"
- 16:00 Coffee Break
- 16:30 Jürgen Renn, Donald Salisbury, Matthias Schemmel, and Kurt Sundermeyer (MPIWG, Austin College, MPIWG, FU Berlin)
"The Overlapping Worlds of General Relativity and Quantum Theory: The Challenge of the Principle of Equivalence"
- ### ***Determinism and Indeterminism***
- 17:15 Michael Stöltzner (University of South Carolina)
"Random Fluctuations in Electroscopes and Microscopes"
- 18:00 Richard Staley (University of Wisconsin-Madison)
"Between Absolute and Relative, Life and Death, Causality and Probability: The Cultural History of Mechanics"

Friday 2 July

Text Book Project

- 9:00 Massimiliano Badino and Jaume Navarro (FHI and MPIWG)
"Research and Pedagogy: A History of Quantum Physics through the Textbooks"
- *Quantum Mechanics in the 30s***
- 9:45 Elise Crull (University of Notre Dame)
"Grete Hermann and the Gamma-Ray Microscope Gedankenexperiment"
- 10:30 Don Howard (University of Notre Dame)
"Quantum Mechanics in Context: Pascual Jordan's 1936 Anschauliche Quantentheorie in its Philosophical and Political Setting"
- 11:15 Coffee Break
- *Philosophy and Quantum Mechanics***
- 11:45 Cathryn Carson (University of California, Berkeley)
"Quantum Mechanics in Heidegger's Thought about Science"
- 12:30 Mauricio Suárez (Complutense University of Madrid)
"The Birth of Philosophy of Physics and the Origin of Quantum Propensities: Henry Margenau's 'Latency' School"
- 13:15 Lunch Break
- *Interpretations after WWII***
- 14:30 Frederik Moreira dos Santos (Universidade Federal da Bahia)
"The Quantum Mechanics Measurement Problem: the Wigner's approach"
- 15:15 Fábio Freitas (Universidade Federal da Bahia)
"Anthony Leggett and Foundations of Quantum Mechanics"
- 16:00 Coffee Break
- 16:30 Olival Freire Jr. (Universidade Federal da Bahia)
"Orthodoxies on the Interpretation of Quantum Theory: The Case of the Consistent Histories Approach"
- *Hanneke Janssen Memorial***
- 17:15 Jos Uffink (Utrecht University)
"Decoherence and Reality"