

„Heuristics in Physics“

Physik-Zentrum Bad Honnef

December 10-12, 2010

Working Group for Philosophy of Physics (AG Phil) & Section for History of Physics (FV Geschichte)
German Physical Society (DPG)

Friday, Dec. 10 – 13:00 “Symmetry and other Principles”

13:15 Brigitte Falkenburg (TU Dortmund):

Questions of Principle

14:00 Shaul Katzir (MPI for History of Science, Berlin):

Definition and Establishment of Rules through their Heuristic Use:

The Principles of Symmetry and Energy

14:30 Giora Hon (Haifa, Israel):

On the Heuristic Value of Symmetry

15:00 - 15:30 Coffee break

Friday, Dec. 10 – 15:30 “Heuristics in Relativity and Field Theory”

15:30 John Norton (Pittsburgh):

Heuristics in Einstein’s Special Theory of Relativity

16:30 Scott Walter (Nancy):

Light-Figures as Heuristic Devices in the Early History of Relativity

17:00 Dennis Lehmkuhl (Wuppertal):

Heuristics in Einstein’s Search for a Unified Field Theory

17:30 Adrian Wüthrich (Bern):

Against the impossible picture:

Feynman's Quest for an Appropriate Representation of Dirac's Electron

18:00 Arianna Borrelli (Wuppertal):

Naturalness and Hierarchy Problems:

Heuristics beyond Mathematics and Experiment in Theoretical High-Energy Physics

19:00 Dinner at the Physik-Zentrum

Saturday, Dec. 11 – 9:30 “The Theory of Heuristics in Historical Perspective”

9:30 Dieter Suisky (HU Berlin):

Leonhard Euler and Emilie Du Châtelet on the Heuristic Role of Hypotheses

10:00 Jaume Navarro (Cambridge / MPI for History of Science, Berlin):

On Creeds and Policies. The Philosophy of Science of Joseph John Thomson

10:30 Wolfgang Pietsch (Carl von Linde Akademie, München)

The Heuristic Value of Underdetermination: On Discovery by Theoretical Analogy

11:00-11:30 Coffee break

11:30 Kateryna Serebryakova (GNT, Stuttgart):
Application of some Physical Effects and Laws in the Heuristics of Altschuller's TRIZ

12:00 Uwe V. Riss (SAP Research, CEC Karlsruhe):
Heuristic Approach and Objective Conditions in Physics [on Michael Polanyi's Approach]

12:30 Bernd Kröger (Tiefenbronn and GNT, Stuttgart):
Heuristics in the Work of Hermann Haken in the Formation of Synergetics:

13:00 Lunch

Saturday, Dec. 11– 14:15 “Quantum Theory and Quantum Mechanics”

14:15 Prof. Olivier Darrigol (CNRS, Paris):
Heuristics in Early Quantum Theory

15:15 Meinard Kuhlmann (Bremen)
Heuristics and Explanation in Derivations of Planck's Law

15:45 Scott Tanona (Kansas State University):
Was the Correspondence Principle a Heuristic?

16:15-16:45 Coffee break

16:45 Christian Joas & Christoph Lehner (Quantum History Project, FHI and MPI Berlin)
Schrödinger's Optical-Mechanical Analogy: From Heuristic Tool to Interpretational Device

17:15 Martin Jähnert (Berlin):
Pictures and Principles – Heuristics in the Early Interpretational Debate on Quantum Mechanics

17:45 ROUND TABLE The Settings of “Histosophers” in Europe and Elsewhere...

19:30 Restaurant Dinner (location: to be announced)

Sunday, Dec. 12 – 9:15 “Heuristics in Experiments”

9:15 Klaus Hentschel (GNT, Stuttgart):
On Typical Sequences of Heuristics (mostly in Experimental Physics)

10:00 Maarten Bullynck (Université Paris 8 Vincennes à St-Denis):
Lambert's Systematic Heuristic Toolkit for Doing Experimental Physics

10:30 Daniele Macuglia (Chicago)
Heuristic Approaches to the Understanding of the Two Possible Signs of the Hall Effect.

Coffee break 11:00-11:30

11:30 Joint Summary **of the Conference with Initial Impulse Statements**

12:30 End of Conference