

Title: Workshop on "Naturalness, Hierarchy, and Fine-Tuning"

Workshop Description: The requirement of naturalness has long served as an influential constraint on model-building in elementary particle physics. Yet there are many ways of understanding what, precisely, this requirement amounts to, from restrictions on the amount of fine-tuning that a model can exhibit, to prohibitions on sensitive dependence between physics at different scales, to the requirement that dimensionless parameters defining the Lagrangian of a theory all be of order one unless protected by a symmetry. This workshop aims to clarify the relationships among these concepts of naturalness and their connection to the hierarchy problem, as well as to assess arguments for and against imposing various forms of naturalness as a requirement on particle physics model-building. It will bring together researchers in philosophy of physics and theoretical particle physics whose expertise touches either directly on the subject of naturalness or on closely related issues concerning effective field theory, renormalization, and the physical interpretation of quantum field theory.

Location: RWTH Aachen University, Aachen, Germany

Dates: Feb. 28 - Mar. 2

Speakers Include:

- * Jonathan Bain (NYU)
- * Arianna Borrelli (TU Berlin)
- * Elena Castellani (Univ. Florence)
- * Richard Dawid (Univ. Stockholm)
- * Bertrand Delamotte (UPMC Paris)
- * Doreen Fraser (Univ. Waterloo)
- * Holger Gies (Univ. Jena)
- * Alexei Grinbaum (CEA-Saclay)
- * Arthur Hebecker (Univ. Heidelberg)
- * Sabine Hossenfelder (FIAS)
- * Fred Jegerlehner (HU Berlin)
- * Frank Saueressig (Univ. Nijmegen)
- * Mikhail Shaposhnikov (EPF Lausanne)
- * Michael Stoeltzner (USC)
- * James Wells (Univ. Michigan)
- * Porter Williams (Univ. Pittsburgh)

Support: The workshop will be hosted by the Institute of Theoretical Particle Physics and Cosmology at RWTH Aachen University as part of the DFG research unit "The Epistemology of the Large Hadron Collider." For more information about the workshop, see <https://indico.cern.ch/event/630393/>. For information about the Epistemology of the LHC collaboration, see <http://www.lhc-epistemologie.uni-wuppertal.de/>

Application: (Deadline Jan. 31) Those interested in attending the workshop are asked to submit a brief description of their academic background and interest in the

subject of the workshop via the following link: <https://indico.cern.ch/event/630393/registrations/38431/>

Organization: Robert Harlander, Gregor Schiemann, Joshua Rosaler, Miguel Angel Carretero Sahuquillo

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