Fundamental physics today faces increasing difficulties to find conclusive empirical confirmation of its theories. Some empirically unconfirmed or inconclusively confirmed theories in the field have nevertheless attained a high degree of trust among their exponents and are de facto treated as well established theories. This situation raises a number of questions that are of substantial importance for the future development of fundamental physics. Can a high degree of trust in an empirically unconfirmed or inconclusively confirmed theory be scientifically justified? Does the extent to which empirically unconfirmed theories are trusted today constitute a substantial change of the character of scientific reasoning? Might some important theories of contemporary fundamental physics be empirically untestable in principle?

The workshop will be centred around an in-depth discussion of these and other related questions, with a particular focus on the methodological and philosophical aspects. As such, it will be an interdisciplinary event, involving physicists and philosophers of science. It will bring together main exponents of important theories in fundamental physics, physicists who have expressed criticism of the current strategies of theory assessment in fundamental physics and philosophers who have thought about those issues.

INVITED SPEAKERS:

Peter Achinstein (Johns Hopkins University)
Matthias Bartelmann (University of Heidelberg)
Radin Dardashti (LMU Munich)
Richard Dawid (LMU Munich)
Gia Dvali (LMU Munich)
George Ellis (University of Cape Town)
David Gross (UC Santa Barbara and Kavli Institute)
Sabine Hossenfelder (NORDITA, Stockholm)
Nick Huggett (University of Illinois at Chicago)
Gordon Kane (University of Michigan)
Viatcheslav Mukhanov (LMU Munich)
Massimo Pigliucci (CUNY, New York)
Joseph Polchinski (UC Santa Barbara and Kavli Institute)
Carlo Rovelli (University of Aix Marseilles)
Joseph Silk (Johns Hopkins Univ. & Universite Pierre et Marie Curie)
Chris Smeenk (Western University)
Karim Thébault (LMU Munich)
Chris Wüthrich (University of Geneva)