

IMPRS Seminar 30 November 2023
4:30 pm at MPI-PKS

Ising gauge theory coupled to quantum matter: exotic phase transition and SPT order

Speaker: Dr. Sergej Moroz (Karlstad University)

Abstract: After an introduction in the field of lattice gauge theories, I will discuss two surprising phenomena emerging from the interplay of dynamical discrete Ising gauge fields and quantum matter. First, I will talk about an exotic two-dimensional phase transition between the deconfined Dirac semimetal and the confined charge density wave. Second, I will explain how the Higgs phase, where matter condenses, exhibits symmetry-protected topological order. In the presence of an edge, this allows to distinguish sharply the confined and Higgs regimes.