

Title: Invariants of Manifolds from Non-Gauge Theories

Abstract: In this mini-course, we will discuss how non-Lagrangian theories can be used to probe the topology of manifolds. We will start with basic properties of 4d  $N=2$  theories and the geometry of their Coulomb branches. We will then focus on a particular class of "generalized Argyres--Douglas theories" which, we conjecture, gives rise to well-defined new invariants of 3-manifolds.