Topology Seminar

Araminta Amabel

of MIT will be speaking on

Genera via Deformation Theory and Supersymmetric Mechanics

on April 11 at 4:30 in
MIT Room 2-131

We will discuss naturally occurring genera (i.e. cobordism invariants) inspired by the deformation theory for supersymmetric quantum mechanics. First, we construct a canonical deformation quantization for symplectic supermanifolds. Secondly, we prove a super-version of Nest-Tsygan's algebraic index theorem, generalizing work of Engeli. This work is inspired by the appearance of the same genera in three related stories: index theory, trace methods in deformation theory, and partition functions in quantum field theory. Using the trace methodology, we compute the genus appearing in the story for supersymmetric quantum mechanics. This involves investigating supertraces on Weyl-Clifford algebras and deformations of symplectic supermanifolds.