

Topology Seminar

Dan Freed

of UT Austin will be speaking on

Invertible topological field theories

on November 3 at 4:30 in
MIT Room 2-131

One mathematical gateway to field theories in physics is via bordism. There is a unital multiplication on field theories, and so naturally a subset which are invertible. Invertible topological field theories can be realized as infinite loop maps in stable homotopy theory, and the Galatius-Madsen-Tillmann-Weiss theorem identifies the domain. After exposing these ideas, I will indicate two applications. In the first, joint with Hopkins and Teleman, an invertible topological field theory is the obstruction to consistently orienting moduli spaces. In the second, invertible topological field theories approximate the long-range behavior of special condensed matter systems.