Topology Seminar

Inna Zakharevich

of MIT will be speaking on

Scissors congruence and K-theory

on March 19 at 4:30 in
MIT Room 2-131

Hilbert's third problem asks the following question: given two polyhedra with the same volume, is it possible to dissect one into finitely many polyhedra and rearrange it into the other one? The answer (due to Dehn in 1901) is no: there is another invariant that must also be the same. Further work in the 60s and 70s generalized this to other geometries by constructing groups which encode scissors congruence data. Though most of the computational techniques used with these groups related to group homology, the algebraic K-theory of various fields appears in some very unexpected places in the computations. We will give a different perspective on this problem by examining it from the perspective of algebraic K-theory: we construct the K-theory spectrum of a scissors congruence problem and relate some of the classical structures on scissors congruence groups to structures on this spectrum.