Topology Seminar

Thomas Brazelton

of Harvard University will be speaking on

Equivariant enumerative geometry

on October 16 at 4:30 in
MIT Room 2-131

Classical enumerative geometry asks geometric questions of the form 'how many?' and expects an integral answer. For example, how many circles can we draw tangent to a given three? How many lines lie on a cubic surface? The fact that these answers are well-defined integers, independent upon the initial parameters of the problem, is Schubert's principle of conservation of number. In this talk we will outline a program of 'equivariant enumerative geometry', which wields equivariant homotopy theory to explore enumerative questions in the presence of symmetry. Our main result is equivariant conservation of number, which states roughly that the orbits of solutions to an equivariant enumerative problem are conserved. We leverage this to compute the S4 orbits of the 27 lines on any smooth symmetric cubic surface.