Topology Seminar

Andrew Ranicki

of University of Edinburgh will be speaking on

The total surgery obstruction

on December 15 at 4:30 in
MIT Room 2-131

The total surgery obtruction invariant was introduced 35 years ago to unify the two stages of the classical Browder-Novikov-Sullivan-Wall surgery theory of topological manifold types in the homotopy type of an n-dimensional global Poincare duality space X, with n>4. The space X has local Poincare duality if and only if it is a homology manifold. In effect, a topological manifold in the homotopy type of X is the same as a globally contractible quadratic Poincare null-cobordism of the chain level failure of local Poincare duality. (The talk will explain the terms involved). The invariant is the obstruction to the existence of such a null-cobordism. The talk will review progress in total surgery obstruction theory, which is best understood in terms of a combinatorial analogue of the Verdier duality in sheaf theory.