Abstract:

The total surgery obstruction invariant was introduced 35 years ago to unify the two stages of the classical Browder-Novikov-Sullivan-Wall surgery theory of n-dimensional topological manifold types in the homotopy types of spaces with n-dimensional global Poincare duality, with n>4. The invariant quantifies the failure of local Poincare duality, vanishing if and only if the space is homotopy equivalent to a topological manifold. Moreover, the various vanishings quantify the topological manifold types. The talk will review progress in the total surgery obstruction theory.