Topology Seminar

Søren Galatius

of Stanford University will be speaking on

Homological stability for moduli spaces of manifolds

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

For an inclusion $S \subset S'$ of connected orientable surfaces, J. Harer proved in 1985 that the map $H_k(BDiff(S)) \to H_k(BDiff(S'))$, induced by extending orientation preserving diffeomorphisms of S by the identity map of $S' - S$, is an isomorphism when k is small compared to the genus of S. I will discuss a generalization of this statement to higher-dimensional manifolds. As a consequence, we prove that if M is a closed smooth simply connected manifold of dimension $2n > 4$, such that M is diffeomorphic to the connected sum of g copies of $S^n \times S^n$ and some other manifold, then the cohomology of $BDiff(M)$ in the range $* \leq (g-4)/2$ is described in terms of a single characteristic class in a twisted cobordism group. This is joint work with O. Randal-Williams.