## **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  $H_k(BDiff(S)) \rightarrow H_k(BDiff(S'))$ , 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 higherdimensional 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.