

# Topology Seminar

## Søren Galatius

of Stanford University will be speaking on

### Homological stability for moduli spaces of high dimensional manifolds

on September 10 at 4:30 in  
MIT Room 2-131

I will discuss recent joint work with Oscar Randal-Williams concerning the manifolds  $W_g^{2n}$  obtained as the connected sum of  $g$  copies of  $S^n \times S^n$ . For  $n = 1$  this is a genus  $g$  surface, and there is a moduli space  $M_g$  parametrizing smooth surface bundles with genus  $g$  fibers. For higher  $n$  there is an analogous moduli space  $M_g^n$  parametrizing smooth fiber bundles with fibers  $W_g$  (although for  $n > 1$  it is no longer finite dimensional). We prove that for  $n > 2$  the cohomology groups  $H^k(M_g^n)$  are independent of  $g$  as long as  $g \gg k$ , generalizing a result of John Harer and others for  $n = 1$ .