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„Diffeomorphisms of solid tori.“

Abstract:
The homotopy groups of the diffeomorphism group of a high dimensional manifold with infinite fundamental group can be infinitely generated. The simplest example of this sort is the solid torus T=S^1\times D^{d-1}. In fact, using Hatcher, Igusa, and Waldhausen's approach to pseudoisotopy theory, it is possible to show that in the range of degrees up to (roughly) d/3, the homotopy groups of Diff(T) contain infinitely generated torsion subgroups.

In this talk, I will discuss an alternative point of view to study Diff(T) which does not invoke pseudoisotopy theory: when d=2n, we interpret Diff(T) as the "difference" between diffeomorphisms and certain self-embeddings of the manifold X_g which is the connected sum of T with the g-fold connected sum of S^n \times S^n.
We will see how infinitely generated torsion subgroups appear from this perspective, and that they can be found even up to degrees d/2. This is ongoing joint work with O. Randal-Williams.