Topology Seminar

Oscar Randal-Williams

of The University of Oxford will be speaking on

Diffeomorphisms of discs

on September 14 at 4:30 in
MIT Room Zoom

In dimensions other than 4, the difference between groups of diffeomorphisms and of homeomorphisms of an n-manifold M is governed by an h-principle, meaning that it reduces to understanding these groups for $M = \mathbb{R}^n$. The group of diffeomorphisms is simple, by linearising it is equivalent to $O(n)$, but the group $Top(n)$ of homeomorphisms of $\mathbb{R}^n$ has little structure and is difficult to grasp. It is profitable to instead consider the n-disc $M = D^n$, because the group of homeomorphisms of a disc (fixing the boundary) is contractible by Alexander's trick: this removes homeomorphisms from the picture entirely, and makes the problem one purely within differential topology. I will explain some of the history of this problem, as well as recent work with A. Kupers in this direction.

For information, write: `adelayyz@mit.edu`