

TOPOLOGY SEMINAR

Guest Speaker: Patrick Orson
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Date: Tuesday, November 16, 2021

Time: 2:30 PM

Location: Zoom

Zoom Link: <https://notredame.zoom.us/j/97262637721>

Lecture Title:

Mapping class groups for simply-connected 4-manifolds

Abstract

The mapping class group of a compact simply-connected 4-manifold is the set of self-diffeomorphisms (or self-homeomorphisms, in the topological category), up to isotopy. For a manifold with nonempty boundary, one assumes the self-automorphisms fix the boundary pointwise. In both the smooth and topological categories, I will describe sufficient conditions for two automorphisms to be pseudoisotopic. Pseudoisotopy is weaker than isotopy, but in the topological category we are able to use this theorem to compute the mapping class group in many situations, extending results of Quinn from the closed case. We use our theorem to prove new topological unknotting results for embedded 2-spheres in 4-manifolds homotopic to the 2-sphere. This is joint work with Mark Powell.

