Department of Mathematics
University of Notre Dame

Porter Morgan - University of Massachusetts Amherst

TOPOLOGY SEMINAR

Guest Speaker: Porter Morgan

University of Massachusetts Amherst

Date: Tuesday, May 5, 2026
Time: 11:00 AM
Location: 125 Hayes-Healy Center
Zoom Link: NA

Lecture Title:

Irreducible 4-manifolds with low first Chern number

Abstract

Let R be a closed, smooth, oriented 4–manifold with order two fundamental group. An irreducible copy of R is a smooth manifold that's homeomorphic to R and doesn't decompose into non-trivial connected sums. The main result of this talk is the following: if R has an odd intersection form and non-negative first Chern number, then in all but seven cases, it admits an irreducible copy. There are numerous methods for constructing irreducible copies. For the bulk of this talk, we'll focus on a strategy used to reach homeomorphism types with low first Chern numbers. In doing so, we will take fiber sums and blow-downs of Lefschetz fibrations equivariantly. This is joint work with Mihail Arabadji.