

TOPOLOGY SEMINAR

Guest Speaker: Christopher Schommer-Pries

University of Notre Dame

Date: Tuesday, November 1, 2022

Time: 2:15 PM

Location: 117 Hayes-Healy Hall

Zoom Link: NA



Lecture Title:

Topological field theories that detect stable diffeomorphism

Abstract

Topological field theories (TFTs) provide invariants of smooth manifolds. However, what precisely these invariants measure and which manifolds can be distinguished by TFTs remains largely an open problem. In this talk we will report on recent joint work with David Reutter on a class of topological field theories (the "generalized Dijkgraaf-Witten theories") obtained by doing "finite path integration" of certain invertible topological field theories. We obtain positive results: Manifolds satisfying a certain finiteness condition are indistinguishable by generalized Dijkgraaf-Witten theories if and only if they are stably diffeomorphic. This includes 4-manifolds with finite fundamental group and 6-manifolds with finite π_1 and π_2 , and in some cases leads to examples of topological field theories that distinguish exotic smooth structures.