Department of Mathematics
University of Notre Dame

TOPOLOGY SEMINAR

Guest Speaker: Aliakbar Daemi
Washington University in St. Louis

Date: Tuesday, March 30, 2021
Time: 2:30 PM
Location: Zoom
Zoom Link: notredame.zoom.us/j/97262637721

Lecture Title:

Chern-Simons functional, singular instantons, and the clasp numbers

Abstract
Any homology class of degree 2 in a simply connected 4-manifold can be represented by an oriented embedded surface as well as a normally immersed sphere. In order to measure the complexity of one such homology class, one can look for the minimum genus among representatives given by embedded surfaces. Similarly, the minimum number of double points among representatives given by immersed spheres provides another measure for complexity of the homology class. It is natural to ask how these two quantities are related to each other. In my talk, I'll discuss some tools which could be useful to study the difference between these two measures on the complexity of homology classes. In particular, I'll explain that how they can be used to show that positive clasp number of a knot can be arbitrarily larger than its slice genus, answering a question raised by Kronheimer and Mrowka. If time permits, I'll also talk about some evidence towards an extension of the slice-ribbon conjecture to torus knots. This talk is based on a joint work with Chris Scaduto.

Aliakbar Daemi - Washington University in St. Louis