Department of Mathematics
University of Notre Dame

GEOMETRIC ANALYSIS SEMINAR

Speaker: Jesse Madnick
University of Oregon

Date: Thursday, February 29, 2024
Time: 11:00 AM
Location: 258 Hurley Bldg
Zoom URL: NA

Lecture Title:
The Morse Index of Quartic Minimal Hypersurfaces

Abstract

Given a minimal hypersurface S in a round sphere, its Morse index is the number of variations that are area-decreasing to second order. In practice, computing the Morse index of a given minimal hypersurface is extremely difficult, requiring detailed information about the Laplace spectrum of S. Indeed, even for the simplest case in which S is homogeneous, the Morse index of S is not known in general. In this talk, we compute the Morse index of two such minimal hypersurfaces. Moreover, we observe that their spectra contain (irrational) eigenvalues that are not expressible in radicals. Time permitting, we'll discuss some open problems and work-in-progress. This is joint work with Gavin Ball (Wisconsin) and Uwe Semmelmann (Stuttgart).

Jesse Madnick - University of Oregon