

GRADUATE STUDENT GEOMETRY SEMINAR

Guest Speaker: Jason Mitrovich
University of Notre Dame

Date: Friday, February 16, 2024

Time: 2:00 PM

Location: 117 Hayes-Healy Bldg

Zoom URL: NA



Lecture Title:

The Mountain Pass Theorem and Semilinear Equations

Abstract

The mountain pass theorem (MPT) is a critical tool in the study of critical points for nonlinear functionals. In this talk I will first discuss Ambrosetti and Rabinowitz's original motivation centered around semi-linear equations. Then I will state the theorem for Hilbert spaces and provide geometric intuitions before transitioning into the background for a slight generalization. With this setup, I will sketch the ideas for the original proof using a deformation lemma. With the remaining time, I will use the MPT to show the existence of weak solutions to a class of semi-linear problems.