Department of Mathematics
University of Notre Dame

GRADUATE STUDENT GEOMETRY SEMINAR

Guest Speaker: Luis Atzin Franco Reyna
University of Notre Dame

Date: Wednesday, November 8, 2023
Time: 12:00 PM
Location: 258 Hurley Bldg
Zoom URL: NA

UNIVERSITY OF
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College of Science
Mathematics

Lecture Title:
Classification of nonnegatively curved 4-manifolds

Abstract

Manifolds with positive or nonnegative sectional curvature are important and interesting mathematical objects. Some fundamental results, like Gromov's Betti number Theorem, Bonnet-Myers or Synge's Theorem have helped understand the topology of these manifolds. However, we are far from being able to classify all of them. A classification of these manifolds in lower dimensions has been proven successful in the case when they have a large group of isometries. In this talk we will give a sketch of the proof of the classification of all closed, simply-connected, nonnegatively curved 4-manifolds with circle symmetry. This will lead us to a crash course in Alexandrov geometry, a pivotal tool essential for the proof. We will also see that the classification eventually boils down to showing that some curve in the 3-sphere is the unknotted.

Luis Atzin Franco Reyna - University of Notre Dame