Department of Mathematics
University of Notre Dame

TOPOLOGY SEMINAR

Guest Speaker: Lvzhou Chen
Purdue University

Date: Tuesday, November 29, 2022
Time: 2:15 PM
Location: 117 Hayes-Healy Hall
Zoom Link: NA

Lecture Title:
The Kervaire conjecture and the minimal complexity of surfaces

Abstract
We use topological methods to solve special cases of a fundamental problem in group theory, the Kervaire conjecture, which has connection to various problems in topology. The conjecture asserts that, for any nontrivial group G and any element w in the free product G*Z, the quotient (G*Z)/<<w>> is still nontrivial. We interpret this as a problem of estimating the minimal complexity (in terms of Euler characteristic) of surface maps to certain spaces. This gives a conceptually simple proof of Klyachko's theorem that confirms the Kervaire conjecture for any G torsion-free. We also obtain new results concerning injectivity of the map G->(G*Z)/<<w>> when w is a proper power.

Lvzhou Chen - Purdue University