Department of Mathematics
University of Notre Dame

TOPOLOGY SEMINAR

Guest Speaker: Eric Samperton

Purdue University

Date: Tuesday, October 3, 2023
Time: 2:30 PM
Location: 258 Hurley Bldg
Zoom Link: NA

Lecture Title:
Knots, hyperbolic geometry and quantum computers

Abstract

I'll mostly focus on giving an introduction and motivation to complexity-theoretic questions in knot theory, and 3-manifold topology more generally. There are some fundamental and intrinsic reasons that topologists should care, as well as some external reasons having to do with applications of topology to certain proposed fault-tolerant quantum computing schemes. Questions pertinent to these applications mostly revolve around TQFT invariants of knots and 3-manifolds. I'll conclude the talk with one or two theorems I've helped prove in this area, including one saying, roughly, that hyperbolic geometry can not be used to speed up calculations performed on topological quantum computers.

Eric Samperton - Purdue University