TOPOLOGY SEMINAR

Guest Speaker: Matthew Day

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Date: Tuesday, April 18, 2023
Time: 2:30 PM
Location: 258 Hurley Hall
Zoom Link: NA

Lecture Title:

Quotients of the braid group and the integral pair module of the symmetric group

Abstract

The braid group (which encodes the braiding of n strands) has a canonical projection to the symmetric group (recording where the ends of the strands go). We ask the question: what are the extensions of the symmetric group by abelian groups that arise as quotients of the braid group, by a refinement of this canonical projection? To answer this question, we study a particular twisted coefficient system for the symmetric group, called the integral pair module. In this module, we find the maximal submodule in each commensurability class. We find the cohomology classes characterizing each such extension, and for context, we describe the second cohomology group of the symmetric group with coefficients in the most interesting of these modules. This is joint work with Trevor Nakamura.