Colloquium

Unless stated otherwise, colloquia are scheduled for Thursdays 4:00-5:00pm in WH-100E with refreshments served from 3:45-4:00 pm in WH-102.

Organizers: Michael Dobbins, Vladislav Kargin, Cary Malkiewich, Adrian Vasiu, and Emmett Wyman

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Fall 2025

Thursday Nov 6 4:00-5:00pm, WH-100E
Speaker: **Andrew Obus** (CUNY)
Topic: ***The lifting problem for covers of curves, particularly its group-theoretical aspects***

Abstract: Whenever a mathematical object is given in characteristic p, one can ask whether it is the reduction, in some sense, of an analogous structure in characteristic zero. If so, the structure in characteristic zero is called a "lift" of the structure in characteristic p. The most famous example is Hensel's Lemma about lifting solutions of polynomials in Z/p to solutions in the p-adic integers Z_p.

The "lifting problem" we consider is more geometric: given a smooth curve X in characteristic p with an action of a finite group G, is there a curve in characteristic zero with G-action that reduces to X? Unsurprisingly, the answer is related to the group theory of G (for instance, if p does not divide |G| or if G is cyclic, then the curve with the G-action always lifts, but if G has an abelian, non-cyclic, non-p-subgroup that fixes a point on X, then the curve does not lift with the action). After giving an introduction to the lifting problem and some examples, we will discuss well-established ways that the problem interacts with group theory, as well as more recent advances relating the problem to representation theory.

Spring 2026

March 13th
PETER HILTON MEMORIAL LECTURE
SPECIAL TIME AND LOCATION: March 13, 3:30pm, Alumni Lounge at Old O'Connor Hall
Speaker: **Martin Bridson** (University of Oxford)
Title: ***Chasing finite shadows of infinite groups through geometry***

Abstract: There are many situations in geometry or elsewhere in mathematics where it is natural or convenient to explore infinite groups of symmetries via their actions on finite objects. But how hard is it find these finite manifestations and to what extent does the collection of all such actions determine the infinite group?

In this colloquium, I will sketch some of the rich history of such problems and then describe some of the great

advances in recent years. I'll describe pairs of distinct groups that have the same finite images and I'll sketch the proof of some “profinite rigidity results”, i.e. theorems showing that in certain circumstances one can identify an infinite group if one knows its set of finite images.

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