BI-CO MATHEMATICS COLLOQUIUM

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"Analogies Between Number Theory and Geometry: Monodromy of Tamely Ramified Covers"

Monday, November 1, 2021
Talk at 4:00 – Park 338
Tea at 3:30 – Park 361, Math Lounge

Abstract:
Galois theory describes the rich connection between field theory and group theory. Similarly, the fundamental group in topology connects group theory to the study of topological spaces. In this talk, we formalize this analogy with the étale fundamental group $\pi_1(X)$. Over fields of characteristic zero, $\pi_1(X)$ closely resembles its topological analogue, but in characteristic p, dramatic differences and new phenomena have inspired many conjectures. Let k be an algebraically closed field of characteristic p and let X be the projective line over k with three points removed. In joint work with Booher, Chen, and Liu, we show that for each prime $p \geq 5$, there are families of tamely ramified covers with monodromy the symmetric group S_n or alternating group A_n for infinitely many n, producing these covers from moduli spaces of elliptic curves.

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