Algebra Seminar

Arithmetic Geometry and Stacky Curves

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Abstract: Solutions to many problems in number theory can be described using the theory of algebraic stacks. In this talk, I will describe a few Diophantine equations, such as the "generalized Fermat equation" $Ax^p + Bx^q = Cz^r$, whose integer solutions can be found using an appropriate stacky curve: a curve with extra automorphisms at prescribed points. I will also describe how stacky curves can be used to study rings of modular forms both classically and in characteristic p. Parts of the talk are joint work in progress with Juanita Duque-Rosero, Chris Keyes, Manami Roy, Soumya Sankar and Yidi Wang, and separately with David Zureick-Brown.

Tuesday, September 12, 2023, 4:00 pm
Mathematics and Science Center: MSC N302

Mathematics
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