

BOSTON UNIVERSITY NUMBER THEORY SEMINAR

# Motivic Periods and Solutions to Diophantine Equations

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Monday, March 19 at 4:15 pm  
111 Cummington Mall, MCS B21  
Tea and cookies in MCS 144 at 4:00 pm

**Abstract:** Starting in 2004, Minhyong Kim developed a new method for studying rational and integral points on hyperbolic curves. The method extends the classical Chabauty-Skolem method to include not only information about the Jacobian of the curve but about a non-abelian quotient of the curve's fundamental group. The method produces  $p$ -adic analytic functions that vanish on the set of rational or integral points. In this talk, we will discuss our approach to calculating such functions, which involves introducing the notion of motivic periods, and more specifically, motivic special values of polylogarithms. This approach is based on past work of I. Dan-Cohen and S. Wewers as well as Francis Brown, and it represents ongoing work of I. Dan-Cohen and the speaker for the projective line minus three points. Finally, we will discuss a possible extension of this motivic method to all hyperbolic curves.