Number Theory Seminar

Some Interactions Between L-functions and Sieves

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ABSTRACT: I will talk about some recent interactions between L-functions and sieve theory.

In the first part of the talk I'll discuss joint work with Kaisa Matomaki on sign changes of Fourier coefficients of eigencuspforms. I'll motivate the problem and I will explain how our work depends on sieve-theoretic analogues of mollifiers. Mollifiers are typically used to understand the zero-distribution of L-functions.

In the second part of the talk (time permitting) I'll discuss an "L-function analogue" of the Brun-Hooley sieve (joint work with Kannan Soundararajan). This has several applications, among them results on the distribution of the Tate-Shafarevich group of primes twists of an elliptic curve, or results on the value distribution of the Riemann zeta-function.

Wednesday, January 29, 2014
2:40 - 4:00 PM
Room 527 Wachman Hall
Department of Mathematics