Dissertation Defense

Topics in analytic number theory

Robert Lemke Oliver
Emory University

Abstract: In this thesis, the author proves results using the circle method, sieve theory and the distribution of primes, character sums, modular forms and Maass forms, and the Granville-Soundararajan theory of pretentiousness. In particular, he proves theorems about partitions and q-series, almost-prime values of polynomials, Gauss sums, modular forms, quadratic forms, and multiplicative functions exhibiting extreme cancellation. This includes a proof of the Alder-Andrews conjecture, generalizations of theorems of Iwaniec and Ono and Soundararajan, and answers to questions of Zagier and Serre, as well as questions of the author in the Granville-Soundararajan theory of pretentiousness.

The talk will focus on three topics: Gauss sums over finite fields, eta-quotients and theta functions, and the pretentious view of analytic number theory.

Thursday, April 4, 2013, 2:30 pm
Mathematics and Science Center: E408

Advisor: Ken Ono

Mathematics and Computer Science
Emory University