Dissertation Defense

Maass forms and modular forms: applications to class numbers and partitions

Olivia Beckwith
Emory University

Abstract: This dissertation is about arithmetic information encoded by analytic characteristics (such as Fourier coefficients) of classical modular forms and a real-analytic generalization of modular forms called harmonic Maass forms. For example, I use the theory of harmonic Maass forms to extend and refine a theorem of Wiles on class number divisibility. I also prove asymptotic bounds for Rankin-Selberg shifted convolution L-functions in shift aspect. In partition theory, I use the circle method to describe the expected distribution of parts of integer partitions over residue classes, and I use effective estimates for partition functions to obtain simple formulas for functions arising in group theory.

Monday, April 2, 2018, 3:00 pm
Mathematics and Science Center: W302

Advisor: Ken Ono

Mathematics and Computer Science
Emory University