

## ***ALGEBRAIC GEOMETRY AND COMMUTATIVE ALGEBRA SEMINAR***

**Speaker: Andrei Jorza**  
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**Date:** Wednesday, February 21, 2018

**Time:** 3:00 PM

**Location:** 258 Hurley Hall

***Lecture Title:***

**Comparing Hecke coefficients of automorphic forms**

***Abstract***

The distribution of Hecke/Fourier coefficients of classical and Hilbert modular forms is well understood and the Sato-Tate conjecture describes their limit distribution. Little information is known in more general contexts, including  $GL(2)$  over arbitrary number fields. In recent work with Liubomir Chiriac we prove a number of distributional results on Hecke coefficients of automorphic representations. Among our applications are: (a) we show that sums of Hecke coefficients are negative for a positive density of primes, (b) we show a conjecture of Serre that Hecke coefficients are at least 1 in absolute value for a positive density of primes, and (c) we show that Hecke coefficients can be negative for a positive proportion of primes congruent to, e.g.,  $1 \pmod{8}$ . The latter result is new even for elliptic curves.