

**MATHEMATICS AND STATISTICS
COLLOQUIUM ANNOUNCEMENT**

Friday, January 8
3:30 - 4:30 PM
ARTS 217

SPEAKER

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TITLE

The angular distribution of lattice points and applications to some
problems in geometric probability.

ABSTRACT:

The distribution of Farey fractions (roots of unity) is known to play an important role in a number of problems in number theory, including RH. This talk will discuss recently established connections with some geometric probability problems, involving sets of angles between lattice points. Applications will include:

- (1) The limiting nearest neighbor distribution in the set of angles between visible lattice points in dilated regions $Q\Omega, Q \rightarrow \infty$.
- (2) Statistical properties of the lengths of trajectories in billiards with pockets in squares or honeycombs.
- (3) The distribution of angles between geodesic rays corresponding to hyperbolic lattice points.