

Departmental Colloquium

Random Matrices, Heat Flow, and Lie Groups

Todd Kemp (University of California San Diego)

Abstract: Random matrix theory studies the behavior of the eigenvalues (or singular values) of random matrices as the dimension grows. Initiated by Wigner in the 1950s, there is now a rich and well-developed theory of the universal behavior of such random eigenvalues in models that are natural generalizations of the Gaussian case. In this talk, I will discuss a generalization of these kinds of results in a new direction. A Gaussian random matrix can be thought of as an instance of Brownian motion on a Lie algebra; this opens the door to studying the eigenvalues (and singular values) of Brownian motion on Lie groups. I will present recent progress understanding the asymptotic spectral distribution of Brownian motion on unitary groups and general linear groups. The tools needed include probability theory, combinatorics, and representation theory.

Tea at 4:15 SEO 300

| |
|--|
| Friday, September 23 at 3:00 PM in SEO 636 |
|--|