Math Colloquium
Monday, Dec 7, 2009

Speaker: H. T. Yau (Harvard)

Title: Universality of Random Matrices and Dyson Brownian Motion

Abstract:

The universality for eigenvalue spacing distributions is a central question in the random matrix theory.

In this talk, we introduce a new general approach based on comparing the Dyson Brownian motion with a new related dynamics, the local relaxation flow. This method can be applied to prove the universality for the eigenvalue spacing distributions for the symmetric, hermitian, self-dual quaternion matrices and the real and complex Wishart matrices. A central tool in this approach is to estimate the entropy flow via the logarithmic Sobolev inequality