Speaker: Van Vu, Yale

Title: Random Matrices: The universality phenomenon for non-hermitian random matrices.

Abstract:

The study of the universality phenomenon for random hermitian matrices witnessed important progresses in the last 10 years.

However, relatively little has been known in the non-hermitian case, which has extra difficulties. For example, the universality of the global law -the circular law conjecture (which is the non-hermitian analogue of Wigner semi-circle law)- had been attacked for several decades and was completely solved only few years ago.

In this talk, we present a very recent universality result for local laws (correlation functions) of eigenvalues of non-hermitian random matrices. As an application, we determine the number of real eigenvalues of a random matrix with iid (non-gaussian) real entries.

If time allows, we will discuss several open questions.

(Joint work with Terence Tao.)