

**Indiana University-Purdue University
Indianapolis**
Department of Mathematical Sciences

STATISTICS SEMINAR

12:15pm—1:15pm, Tuesday, January 29, 2019
LD 265

Speaker: Ruixuan Zhang
Department of Mathematical Sciences, IUPUI

Title: Sparse regular random graphs: Spectral density and eigenvectors

Abstract:

In this paper, we examine the empirical distribution of the eigenvalues and the eigenvectors of adjacency matrices of sparse regular random graphs. We find that when the degree sequence of the graph slowly increases to infinity with the number of vertices, the empirical spectral distribution converges to the semicircle law. Moreover, we prove concentration estimates on the number of eigenvalues over progressively smaller intervals. We also show that, with high probability, all the eigenvectors are delocalized.

Reference:

Dumitriu, Ioana. Pal, Soumik. "Sparse Regular Random Graphs: Spectral Density and Eigenvectors. *The Annals of Probability*, Vol. 40, No. 5 (September 2012), pp. 2197-2235.