

Indian Statistical Institute

Applied Statistics Unit

SEMINAR NOTICE

Speaker: Anirban Chatterjee, University of Pennsylvania

Title: Higher-Order Graphon Theory: Fluctuations, Inference, and Degeneracies

Date: 27 June, 2023

Time: 16:15 PM

Venue: ASU Seminar Room

Online Platform: Google Meet (meet.google.com/njz-dpou-hqr)

Abstract: In this talk, we present the asymptotic distribution of subgraph counts in random graphs sampled from a Graphon. Extending the notion of edge regularity to the regularity with respect to arbitrary subgraphs, we will show that with different convergence rates, the sample subgraph counts can have Gaussian fluctuations or it can have both Gaussian and non-Gaussian components, where the non-Gaussian component is (possibly) infinite weighted sum of centered chi-squared random variables with the weights determined by the spectral properties of a derived graphon. We will also present an extension of the results to find the asymptotic distribution of multiple subgraph counts. Furthermore, we present a multiplier bootstrap-based approach for providing confidence sets of the population subgraph densities and show an application of the theory to test for structure in a graph. Finally, we will show an example where the Gaussian as well as the non-Gaussian component is degenerate, and also establish non-degeneracy in some examples.

All are invited to attend.

Please write to SOMENATH DAS somenath1011@isical.ac.in in case you do not receive the invitation link 48 hours before the seminar time.