SHORT TALKS

15/December/2017

Rishideep Roy: (IIM, Bangalore)   17:15 - 17:30

Deepan Basu: (ISI, Kolkata)   17:30 - 17:45
   Existence and Generalizations of Kesten's Incipient Infinite Cluster

   For critical planar percolation, Kesten formalized the Infinite Cluster at its "birth". We will talk about its various generalizations in both planar and non-planar setting, and summarize a few open problems which stem from it.

Hariharan Narayanan: (TIFR, Mumbai)   17:45 - 18:00
   Sampling high dimensional convex sets using rapidly mixing Markov Chains

Koushik Saha: (IIT, Bombay)   17:15 - 17:30

Linear eigenvalue statistics of random matrices with a variance profile

For each n, let $A_n = (\sigma_{ij})$ be an $n \times n$ deterministic matrix and $X_n = (X_{ij})$ be an $n \times n$ random matrix with i.i.d. entries. We consider the Hadamard product of A_n and X_n, and denote it by Y_n. Recently, there are several works on the limiting spectral distribution of Y_n with different type of variance profile. In this talk, we shall discuss some problems on linear eigenvalue statistics of Y_n.

Siva Athreya: (ISI, Bangalore)   17:30 - 17:45

One-dimensional Voter Model Interface Revisited

Consider the voter model on the integers starting with all 1's to the left of the origin and all 0's to the right of the origin. We will discuss relation between the associated random walk kernel and the evolution of the boundaries of the interface region between 1's and 0's.

Piyush Srivastava: (TIFR)   17: 45 - 18:00

Structure recovery in graphical models

This talk is about the problem of recovering block structures in graphical models from observed labellings. Such problems arise, e.g., in the general paradigm of "community detection", where one knows that a system consists of components that can be divided into two different "communities", but needs to find which community each component is in by looking at some observed behaviour of the individual components. We will look at a recent approach inspired from statistical mechanics that is based on a variant of the mean field Ising model and see how the phase transitions in this model relate to the statistical problem of recovering block structures.

Based on joint work with Quentin Berthet and Philippe Rigollet.

Sayan Banerjee: (UNC, Chapel Hill)   12:35 - 12:50

Coupling diffusions and degenerate geometries

I will discuss how couplings of diffusions (constructions of joint realizations on the same space) and associated rates (how fast one can make the coupled copies meet) provides important information on the geometry of sub-Riemannian manifolds. Based on joint works with Wilfrid Kendall, Maria Gordina and Phanuel Mariano.

Mahan Mj.: (TIFR, Mumbai)   12:50 - 13:05

Sphere-filling curves

Sphere filling curves are continuous maps from the circle to the sphere. These arise naturally in the study of surface group representations into PSL(2,C) and in complex one dimensional dynamics. We will briefly sketch what is known and ask if there is any serious relationship with the Brownian map.