INDIAN STATISTICAL INSTITUTE

Theoretical Statistics and Mathematics Unit, Kolkata

LECTURE

Date: January 24, 2024
Time: 04:15 PM

VENUE:

ASU Seminar Room
(8th Floor, S.N. Bose Bhavan), ISI Kolkata

TITLE:

The Moran model with random resampling rates

SPEAKER:

Frank den Hollander

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ABSTRACT:

In this lecture we consider the two-type Moran model with N individuals. Each individual is assigned a resampling rate, drawn independently from a probability distribution $\mathbb{P}$ on $\mathbb{R}_+$, and a type, either 0 or 1. Each individual resamples its type at its assigned rate, by adopting the type of an individual drawn uniformly at random. Let $Y^N(t)$ denote the empirical distribution of the resampling rates of the individuals with type 0 at time Nt. We show that if $\mathbb{P}$ has countable support and satisfies certain tail and moment conditions, then in the limit as $N \to \infty$ the process $(Y^N(t))_{t\geq 0}$ converges in law to the process $(S(t)\,\mathbb{P})_{t\geq 0}$, in the so-called Meyer-Zheng topology, where $(S(t))_{t\geq 0}$ is the Fisher-Wright diffusion with diffusion constant D given by $1/D = \int_{\mathbb{R}_+} (1/r)\,\mathbb{P}(\mathrm{d}r)$.

Joint work with Siva Athreya (Bangalore) and Adrian Röllin (Singapore).

ALL ARE CORDIALLY INVITED