**On a Model of Evolution of Subspecies**

SPEAKER: Rahul Roy, Indian Statistical Institute

TIME: 11:00 am-12:00 pm, Tuesday, December 3, 2019

VENUE: Room 310, Pudong Campus, 1555 Century Avenue

(上海纽约大学310教室, 上海市浦东新区世纪大道1555号)

**ABSTRACT**

Ben-Ari and Schinazi (2016) introduced a stochastic model to study `virus-like evolving population with high mutation rate'. This model is a birth and death model with an individual at birth being either a mutant with a random fitness parameter in $[0,1]$ or having one of the existing fitness parameters with uniform probability; whereas a death event removes the entire population of the least fit site. We change this to incorporate the notion of `survival of the fittest', by requiring that a non-mutant individual, at birth, has a fitness according to a preferential attachment mechanism, i.e., it has a fitness $f$ with a probability proportional to the size of the population of fitness $f$. Also death just removes one individual at the least fit site. This preferential attachment rule leads to a power law behaviour in the asymptotics, unlike the exponential behaviour obtained by Ben-Ari and Schinazi (2016).

This is joint work with Hideki Tanemura (Keio University).

**BIOGRAPHY**

Rahul Roy is a professor at the Indian Statistical Institute, New Delhi. He is a Fellow of the Indian Academy of Sciences.

His interests in probability and stochastic processes are primarily in the fields of percolation and random graphs.