



**S N BOSE NATIONAL CENTRE  
FOR BASIC SCIENCES**

*Block JD, Sector III, Salt Lake, Kolkata 700 106*

## **DEPARTMENTAL SEMINAR**

# **Physics of Complex Systems**

**26<sup>th</sup> June, 2023**

**12.00 noon**

**ONLINE / FERMION**

### **SPEAKER**

**Prof. Parthanil Roy,  
Professor, Theoretical Statistics and Mathematics Division,  
ISI Bengaluru**

### **TITLE OF THE TALK**

# **Branching Random Walks: Two Conjectures and a Theorem**

### **ABSTRACT**

Branching random walk is a system of growing particles starting from one particle, which splits into a number of particles with each new particle moving independently of each other. The same dynamics goes on leading to a branching random walk, which arises naturally in physics, biology, ecology, etc. In this overview talk, we shall mainly try to address the following question: if we run this model for a very very long time and take a snapshot of the particles, what would the entire system look like? In particular, we shall discuss how our work has verified two conjectures in an important situation. These conjectures were formulated in 2011 by Éric Brunet and Bernard Derrida. (Based on a joint work with Ayan Bhattacharya, IIT Bombay and Rajat Subhra Hazra, Leiden University.)

### **HOST FACULTY**

**Prof. Punyabrata Pradhan, Professor  
DEPT. OF PHYSICS OF COMPLEX SYSTEMS**

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