



Bose Colloquium



S. N. Bose National Centre for Basic Sciences
(An Autonomous Research Institute established under DST, GOI)



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4.00 PM



Webinar Link



YouTube Link



Title:

Random Walks in Driven, Arrested and Coded Systems

Abstract:

Although the random walk is a familiar paradigm in physics, it continues to give rise to surprising results, sometimes in surprising contexts. In this lecture I discuss three examples.

Field-driven transport in a random medium: Biased random walkers on random structures feel a competition between drift and trapping. Interestingly there is a transition to a large-fluctuation state, which may be sudden (first order) or continuous.

Relaxation in arrested states: Under rapid cooling, a frustrated antiferromagnet gets stuck in interesting states with slow dynamics. Domain walls perform random walks with a hard core constraint, implying stretched exponential decays with ultra-long relaxation times.

Messages carried by fluctuating codes: Seemingly random time-dependent variations of a code can be used to hide a message. The elements of the message perform random walks in a fluctuating medium; the message is revealed by deciphering the identity of the walkers

Speaker:

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