



Theoretical Statistics and Mathematics Unit, Kolkata
INDIAN STATISTICAL INSTITUTE

SEMINAR

Date: August 25, 2025

Time: 04:15 PM

VENUE:

L-Infinity

(5th Floor, A.N. Kolmogorov Bhavan), ISI Kolkata

TITLE:

An asymmetric generalization of the Elephant Random Walk with regularly varying memory

SPEAKER:

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ABSTRACT:

The Elephant Random Walk is a generalization of the Simple Symmetric Random Walk, where at every epoch the walker chooses a step uniformly at random from the past and either repeats it with some probability or performs an independent innovation with the complementary probability. We generalize the model by allowing the selection probability of a past step to be proportional to a regularly varying sequence (called the memory sequence). Further, we shall consider an asymmetric variant where the probability of repetition depends on the sign of the step chosen from the past. We study the asymptotic behavior of the generalized asymmetric walk and show the existence of a phase transition based on summability of sequences associated with the memory sequence. Further in the symmetric case, we show that our results can be extended to incorporate more general step sizes.

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