

The College of Arts & Sciences
Department of Mathematical Sciences
Colloquium

Professor Xue-Mei Li

Imperial (UK)
EPFL (Switzerland)

Thursday, November 13, 2025
Campus Rec Center Room 3230
4:00-5:00pm

Long-Range Memory in Stochastic Differential Equations

Autocorrelated stochastic processes have long been observed in time series data and extensively studied in statistics. Yet, only recently has long-range dependence emerged as a central theme in the theory of stochastic differential and partial differential equations. This talk explores the role of long-range temporal and spatial correlations in shaping multi-scale stochastic dynamics. We begin with classical slow/fast systems for stochastic differential equations, traditionally grounded in Markovian frameworks and Itô calculus. We then examine how these foundational tools must adapt when the driving noise exhibits memory.

**Refreshments will be served 3:15– 3:45 pm in the Faculty Lounge
4118 French Hall West**