



CNMS DISCOVERY SEMINAR SERIES

Wednesday, November 4, 2009
2:00 pm
Conference Center, 5200 (202-B)

“Discrete Stochastic Simulation of Spatially Inhomogeneous Biochemical Systems”

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Abstract:

In microscopic systems formed by living cells, the small numbers of some reactant molecules can result in dynamical behavior that is discrete and stochastic rather than continuous and deterministic. An analysis tool that respects these dynamical characteristics is the stochastic simulation algorithm (SSA), which applies to well-stirred chemically reacting systems. However, cells are hardly homogeneous! Spatio-temporal gradients and patterns play an important role in many biochemical processes. In this lecture we report on recent progress in the development of methods for spatial stochastic and multiscale simulation, and outline some of the many interesting complications that arise in the modeling and simulation of spatially inhomogeneous biochemical systems.

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