Department of Applied and Computational Mathematics and Statistics Colloquium

Stanislav Burov

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University of Chicago

will give a lecture entitled:

Revealing stochastic physics: complex dynamics in soft matter systems from colloidal suspensions to cells

Abstract

This talk will describe quantitative analyses of particle tracking data for complex systems and, more generally, means for characterizing systems far from equilibrium. I will show how to exploit stochastic properties of single particle trajectories to establish "sanity" tests for experimentally collected data. I also introduce a novel method for studying transport in disordered media and demonstrate its use for active systems comprised of cytoskeletal molecular motors and filaments. Biological implications of the motions will be discussed. In particular, the anomalous dynamics that I discovered for insulin-containing vesicles in pancreatic beta cells provides a mechanism that accounts for observed insulin secretion profiles.

Monday, February 17, 2014
4:30 p.m. to 5:30 p.m.
127 Hayes-Healy Center

Colloquium Tea **4:00 p.m. to 4:30 p.m.** **154 Hurley Hall**