



Chihoon Lee, assistant professor of statistics at Colorado State, is interested in probability and stochastic analysis; constrained diffusion processes, queueing networks and stochastic control; stochastic nonlinear filtering, particle methods; and call center management: forecasting and staffing.

2011-12 Colloquium

Tuesday, November 15 in Carver 268 at 4:10

Some stability properties of a reflected fractional Brownian motion on the positive orthant

We consider a multidimensional reflected fractional Brownian motion process (rfBm) on the positive orthant with drift and Hurst parameter $1/2 < H < 1$. Under a natural stability condition on the drift vector and reflection directions, we show uniform return time results to some compact sets hold. Also, under slightly stronger stability assumptions, we establish a geometric drift towards a compact set for the 1-skeleton rfBm chain. These results can be viewed as steps towards the further analysis of rfBm with the aim of establishing recurrent properties for reflected processes driven by non Markovian processes. Motivation for this study is that rfBm appears as a limiting workload process for fluid queueing network models fed by a large number of heavy tailed ON/OFF sources in heavy traffic.