Bozenna Pasik-Duncan
University of Kansas

Advances in noise modeling in stochastic systems and control

Many continuous time stochastic systems that are modeled by SDE and SPDE have been limited to noise processes being Brownian motions. Brownian motion models have a well developed stochastic calculus and limiting behaviors that reflect the martingale, Markov and Gaussian properties of Brownian motion. However for many physical systems the empirical data do not justify the use of Brownian motion as the model for random disturbances. In fact Brownian motions provide models that are often far from the physical data. Thus it is necessary to find more general noise models and tractable methods to solve the associated problems of control or adaptive control. These other noise models include more general Gaussian processes and non-Gaussian processes. The talk focuses on new developments and challenges in noise models for stochastic control and adaptive control problems.