# SCMS Seminar

## On the Connection Between Deterministic Dynamical Systems and Their Small Noise Perturbations


**Prof. Jifa Jiang**

**Shanghai Normal University**


**Lecture**

**Time:** 4:00-5:00 pm., Friday, Sep. 22, 2017

**Venue:** Room 2001, East Main Guanghua Tower, Handan Campus


**Abstract:** This talk focuses on the connection between deterministic dynamical systems and their small stochastic perturbations. Let $\mu\varrho$ be stationary measure for stochastic process $X\varrho$ with small $\varrho$ and $X0$ be a semiflow on a Polish space. Assume that $\{\mu\varrho : 0 < \varrho \leqslant \varrho0\}$ is tight. Then all their limits in weak sense are $X0$−invariant and their supports are contained in Birkhoff center of $X0$. Applications are made to various stochastic evolution systems, including stochastic ordinary differential equations, stochastic partial differential equations, and stochastic functional differential equations driven by Brownian motion or L´evy process. Peculiar examples are presented to show that saddle points are stochastically stable with respect to non-degenerate noise.