

# 学术报告

## **Explicit Numerical Approximations for Nonlinear Stochastic Differential Equations in Finite and Infinite Horizons**

**Prof. Xiaoyue LI (李晓月 教授)**

Northeast Normal University (东北师范大学)

**Time:** 16:00-17:00, October 24 (Wednesday) 2018

**Venue:** Room 112, Center for Applied Mathematics

**Abstract:** Solving stochastic differential equations (SDEs) numerically, explicit Euler-Maruyama (EM) schemes are used most frequently under global Lipschitz conditions for both drift and diffusion coefficients. In contrast, without imposing the global Lipschitz conditions, implicit schemes are often used for SDEs but require additional computational effort; along another line, tamed EM schemes and truncated EM schemes have been developed recently. Taking advantages of being explicit and easily implementable, truncated EM schemes are proposed in this paper. Convergence of the numerical algorithms is studied, and  $p$ th moment boundedness is obtained. Furthermore, asymptotic properties of the numerical solutions such as the exponential stability in  $p$ th moment and stability in distribution are examined. Several examples are given to illustrate our findings.

欢迎大家参加！