

数学与系统科学研究院

计算数学所学术报告

报告人: 李步扬 副教授

( 香港理工大学 )

报告题目:

**Sharp convergence rates of time discretization for stochastic time-fractional PDEs subject to additive space-time white noise**

邀请人: 黄记祖 副研究员

报告时间: 2018 年 8 月 27 日 (周一)

上午 10:00-11:00

报告地点: 科技综合楼三层

311 报告厅

## Abstract:

The stochastic time-fractional equation  $\partial_t \psi - \Delta \partial_t^{1-\alpha} \psi = f + \dot{W}$  with space-time white noise  $\dot{W}$  is discretized in time by a backward-Euler convolution quadrature for which the sharp-order error estimate  $\|(\mathbb{E} \|\psi(\cdot, t_n) - \psi_n\|_{L^2(\mathcal{O})})^2\|^{\frac{1}{2}} = O(\tau^{\frac{1}{2} - \frac{\alpha}{d}})$  is established for  $\alpha \in (0, 2/d)$ , where  $d$  denotes the spatial dimension,  $\psi_n$  the approximate solution at the  $n^{\text{th}}$  time step, and  $\mathbb{E}$  the expectation operator. In particular, the result indicates sharp convergence rates of numerical solutions for both stochastic subdiffusion and diffusion-wave problems in one spatial dimension. Numerical examples are presented to illustrate the theoretical analysis.

欢迎大家参加！