数学与系统科学研究院

计算数学所学术报告

报告人：　邹广安 讲师

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报告题目：

Some theoretical and numerical results on stochastic Navier–Stokes equations

邀请人：　洪佳林 研究员

报告时间：**2018** 年 **7** 月 **18** 日（周三）

下午 **15:00-16:00**

报告地点：　数学院南楼二层

222 教室

Abstract:

In this talk, we consider the extended stochastic Navier–Stokes equations with Caputo derivative driven by fractional Brownian motion. We firstly derive the pathwise spatial and temporal regularity of the generalized Ornstein–Uhlenbeck process. Then we discuss the existence, uniqueness, and Hölder regularity of mild solutions to the given problem under certain sufficient conditions, which depend on the fractional order $\alpha$and Hurst parameter H. The vorticity-stream function method combined with Crank-Nicolson Fourier pseudo-spectral method are presented for solving the stochastic Navier–Stokes equations. Numerical results clearly exhibit that in the presence of stochastic forcing can affect the shapes of vortex in fluid flow. Furthermore, the phenomenon of eddy shedding and the formation of some new vortexes can be observed in a random medium. This enables us to perform optimal control experiments for the development of vortex structures.

欢迎大家参加！