

数学与系统科学研究院

计算数学所学术报告

报告人: **Dr. Liying Zhang**

(*China University of Mining and Technology, Beijing*)

报告题目:

parareal algorithm for SDE

邀请人: 洪佳林 研究员

报告时间: **2018年7月4日 (周三)**

晚上 19:00-20:00

报告地点: 数学院南楼二层

222 教室

Abstract:

This talk is divided into two parts.

The first part is about convergence analysis of parareal algorithm based on Milstein scheme for SDEs. A two-level temporal parallelizable algorithm is proposed, in which the Milstein scheme is taken as the coarse propagator and the exact solution as the fine propagator. Convergence of the parareal algorithm is proved superlinearly in the sense of mean square, and is achieved high precision in few iterations. Numerical experiments are dedicated to illustrate the best choice of the iteration number for the proposed parareal algorithm for the linear and nonlinear model.

The second part is the numerical analysis of parareal algorithm based on stochastic- θ scheme for SDEs. We present a fast and precise numerical scheme for approximation of stochastic differential equations. The main idea is by using parareal algorithm, which both the coarse operator G and fine operator F are taken stochastic- θ scheme. We prove the convergence of parareal algorithm in the sense of mean square. Numerical examples are shown to verify the best choice of iteration number k , as well as the convergence order.

欢迎大家参加！