

数学与系统科学研究院

计算数学所学术报告

报告人: 张通 副教授

(河南理工大学)

报告题目:

stability and convergence of one and second order scheme for PDE with smooth and nonsmooth initial data

邀请人: 毛士鹏 副研究员

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301 报告厅

Abstract:

In this report, we consider the stability and convergence results of numerical schemes for PDEs with smooth and nonsmooth initial data. In the first part, four kinds of numerical methods based on backward Euler scheme for the Boussinesq equations, and the corresponding H^2 stability results are provided. In the second part, the stability and convergence of the second order Crank-Nicolson/Adams-Bashforth scheme for the Burgers equation with H^2 and H^1 initial data are considered. The almost unconditionally stable with H^2 and H^1 initial data are provided. The optimal error estimates of the numerical solution are derived with H^2 initial data, and convergence order of approximate solution in L^2 norm is reduced by 0.5 due to the nonsmooth initial data. Finally, some numerical examples are provided to verify the established stability theory and convergence results with the smooth and nonsmooth initial data.

欢迎大家参加！