数学与系统科学研究院

计算数学所学术报告

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报告题目：

Local and global error analysis for a time-fractional initial-boundary value problem on quasi-graded meshes using barrier functions

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报告时间：**2020** 年 **11** 月 **24** 日（周二）

下午 **15:00-16:00**

报告地点：科技综合楼

305 教室

Abstract:

An initial-boundary value problem with a Caputo time derivative of fractional order between one and two is considered, solutions of which typically exhibit a singular behaviour at an initial time. For this problem, we give a simple and general numerical-stability analysis using barrier functions, which yields sharp pointwise-in-time error bounds on quasi-graded temporal meshes with arbitrary degree of grading. L1-type and Alikhanov-type discretization in time are considered. In particular, those results imply that milder (compared to the optimal) grading yields optimal convergence rates in positive time. Semi-discretizations in time and full discretizations are addressed. The theoretical findings are illustrated by numerical experiments.

欢迎大家参加！