

数学与系统科学研究院

计算数学所学术报告

(一)

报告人: 鞠立力 教授

(美国南卡罗莱那大学)

报告题目:

**Overlapping Localized Exponential Time
Differencing Methods for Diffusion
Problems**

邀请人: 崔涛 副研究员

报告时间: 2018 年 1 月 15 日 (周一)

下午 15:00--17:00

报告地点: 数学院科技综合楼

Z311 报告厅

报告摘要:

**The localized exponential time differencing
(ETD) based on overlapping domain**

decomposition has been recently introduced for extreme-scale phase field simulations of coarsening dynamics, which displays excellent parallel scalability in supercomputers. This work serves as the first step toward building a solid mathematical foundation for this approach. We study the overlapping localized ETD schemes for a model time-dependent diffusion equation discretized in space by the standard central difference. Two methods are proposed and analyzed for solving the fully discrete localized ETD systems: the first one is based on Schwarz iteration applied at each time step and involves solving stationary problems in the subdomains at each iteration, while the second one is based on the Schwarz waveform relaxation algorithm in which time-dependent subdomain problems are solved at each iteration. The convergences of the associated iterative solutions to the corresponding fully discrete localized ETD solution and to the exact semidiscrete solution

are rigorously proved. Numerical experiments are also carried out to confirm theoretical results and to compare the performance of the two methods.

(二)

报告人： 张怀教授

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报告题目：

青藏高原构造演化数值模拟

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