

数学与系统科学研究院

计算数学所学术报告

报告人: 鞠立力 教授

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报告题目:

**Exponential Time Differencing
Schemes for the Epitaxial Growth
Model without Slope Selection**

邀请人: 崔涛 副研究员

报告时间: 2016 年 12 月 22 日 (周四)

下午 14:00-15:00

报告地点: 数学院南楼七层

702 教室

Abstract:

In this talk, we present a class of exponential time differencing (ETD) schemes for solving the epitaxial growth model without slope selection. A linear convex splitting is first applied to the energy functional of the model, and then Fourier collocation and ETD-based multistep approximations are used respectively for spatial discretization and time integration of the corresponding gradient flow equation. Energy stabilities and error estimates of the first and second order ETD schemes are rigorously established in the fully discrete sense. We also numerically demonstrate the accuracy of the proposed schemes and simulate the coarsening dynamics with small diffusion coefficients. The results show the logarithm law for the energy decay and the power laws for growth of the surface roughness and the mound width, which are consistent with the existing theories in the literature.

欢迎大家参加！