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：

Regularized numerical methods and analysis for the logarithmic Schrödinger equation

邀请人：　张硕 副研究员

报告时间：**2021** 年 **10** 月 **12** 日（周二）

上午 **10:00-11:00**

报告地点：科技综合楼

311 教室

Abstract:

We propose some regularized models for the singular logarithmic Schrödinger equation (LogSE) and establish the error bounds. In order to suppress the round-off error and to avoid the blow-up of the logarithmic nonlinearity, some regularized logarithmic Schrödinger equations (RLogSE) are proposed with a small regularization parameter $0 < \varepsilon \le 1$ and linear convergence is established between the solutions of RLogSE and LogSE in terms of ε. Then we use the first-order splitting integrator to solve the regularized model and establish a nontrivial error bound $O(\tau^{1/2}\ln(\varepsilon^{-1}))$ with $\tau>0$ the time step, which implies an error bound at $O(\varepsilon+ \tau^{1/2}\ln(\varepsilon^{-1}))$ for the LogSE by the Lie-Trotter splitting method. Numerical results are reported to confirm the error bounds and to demonstrate rich and complicated dynamics of the LogSE.

欢迎大家参加！