

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:

**A fully discrete spectral method for
the nonlinear time fractional
Klein-Gordon equation**

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报告地点: 数学院南楼七层

702 教室

Abstract:

The numerical approximation of the nonlinear time fractional Klein-Gordon equation in a bounded domain is considered. The time fractional derivative is described in the Caputo sense with the order γ ($1 < \gamma < 2$). A fully discrete spectral scheme is proposed on the basis of finite difference discretization in time and Legendre spectral approximation in space. The stability and convergence of the fully discrete scheme are rigorously established. The convergence rate of the fully discrete scheme in H^1 norm is $\mathcal{O}(\tau^{3-\gamma} + N^{1-m})$, where τ , N , and m are the time-step size, polynomial degree, and regularity in the space variable of the exact solution, respectively. Numerical examples are presented to support the theoretical results.

欢迎大家参加！