数学与系统科学研究院

计算数学所学术报告

报告人： **Prof. Fengyan Li**

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报告题目：

Energy Stable Numerical Methods for Maxwell's Equations in Nonlinear Optical Media

邀请人： 郑伟英 研究员

报告时间：**2019 年 10 月 18 日（周五）**

下午 16:00-17:00

报告地点： 数学院南楼二层

205 教室

Abstract：

The propagation of electromagnetic waves is modeled by time-dependent Maxwell's equations coupled with constitutive laws that describe the response of the media. In this work, we examine a nonlinear optical model that describes electromagnetic waves in linear Lorentz and nonlinear Kerr and Raman media. And the model satisfies a provable energy relation. To design efficient, accurate, and energy-stable computational methods, we apply high order discontinuous Galerkin discretizations in space. The challenge to achieve provable stability for fully-discrete methods lies in the temporal discretizations of the nonlinear terms. To overcome this, novel modification is proposed for the second-order leap-frog and implicit trapezoidal time integrators. The performance of the methods will be demonstrated numerically. In the end, we will briefly discuss some other related developments.

欢迎大家参加！