数学与系统科学研究院

计算数学所学术报告

报告人： **Prof. Junliang Lv**

（ *Jilin University* ）

报告题目：

An Adaptive Finite Element DtN Method for Maxwell's Equations in Biperiodic Structures

邀请人： 郑伟英 研究员

报告时间：**2019 年 12 月 14 日（周六）**

下午 14:00-16:00

报告地点： 数学院南楼七层

702 教室

Abstract：

In this talk ， we consider the diffraction of an electromagnetic plane wave by a biperiodic structure where the wave propagation is governed by the three-dimensional Maxwell equations. Based on transparent boundary condition, the grating problem is formulated into a boundary value problem in a bounded domain. Using a duality argument technique, we derive an a posteriori error estimate for the finite element method with the truncation of the nonlocal Dirichlet-to-Neumann (DtN) boundary operator. The a posteriori error consists of both the finite element approximation error and the truncation error of boundary operator which decays exponentially with respect to the truncation parameter. An adaptive finite element algorithm is developed with error controlled by the a posterior error estimate, which determines the truncation parameter through the truncation error and adjusts the mesh through the finite element approximation error. Numerical experiments are presented to demonstrate the competitive behavior of the proposed adaptive method.

欢迎大家参加！