

数学与系统科学研究院

计算数学所学术报告

报告人: 张凯 教授

(吉林大学)

报告题目:

**A robust numerical method for the
Maxwell equations with random
interfaces via shape
calculus and low-rank
approximation**

邀请人: 洪佳林 研究员

报告时间: 2016 年 9 月 3 日 (周六)

下午 15:00~16:00

报告地点: 数学院南楼二层

208 会议室

Abstract:

A robust numerical method via the shape derivatives and low-rank approximation is developed for computations of three-dimensional Maxwell's equations with random interfaces. Based on a shape calculus, we estimate the statistical moments of the stochastic Maxwell equations in terms of perturbation magnitude. In order to capture the oscillations with high resolution near the interface, we adopt the adaptive edge element with third order polynomials to solve the deterministic equations approximating the expectation. For the second moment, an efficient low-rank approximation based on pivoted Cholesky decomposition is proposed to compute the two-point correlation function to approximate the variance of stochastic Maxwell's equations. Numerical experiments are presented to illustrate our theoretical results.

欢迎大家参加！