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：

de Rham Complex is not necessary: solving Maxwell equations by nodal-continuous FEM

邀请人： 林群 院士

报告时间：2014 年 12 月 14 日（周日）

下午 **17:00-18:30**

报告地点： 数学院南楼七层 **702** 会议室

Abstract：

In this talk, I will report our nodal-continuous FEM for solving Maxwell equations with non H1 space very weak solutions. Theoretical and numerical results are presented to support our method. As is well-known, Maxwell equations live in non smooth domains with reentrant corners and edges, and discontinuous, anisotropic and inhomogeneous materials would occupy the domain. Consequently, the solution is generally non smooth and belongs to a non H1 space. In other words, the solution is highly strongly singular, with its gradient not being in L2 space and growing to infinity. Standard FEM fails, wrongly converging to an H1 function. Our method is suitable for the case where the solution is outside H1 space but also it is suitable for the case where the solution is smooth lying in H1 space. Optimal error bounds hold for both cases. A feature which distinguishes from the edge element method is that the de Rham Complex sequence does not satisfied in nodal-continuous method, and consequently, no restrictions from the de Rham Complex sequence are needed.

欢迎大家参加！