数学与系统科学研究院

计算数学所网络学术报告

报告人： **Dr. Chupeng Ma**

（ *Heidelberg University* ）

报告题目：

Novel design and analysis of generalized FEMs based on locally optimal spectral approximations

邀请人： 黄记祖 副研究员

报告时间：2021 年 7 月 8 日（周四）

下午 **15:00-16:00**

报告工具：腾讯会议 **ID**：（**737 792 661**）

Abstract：

In this talk, I will discuss the generalized finite element method (GFEM) for solving second order elliptic equations with heterogeneous coefficients without assumptions of periodicity or scale separation. Optimal local approximation spaces for the GFEM constructed by the eigenfunctions of local eigenvalue problems are presented. At the continuous level, in addition to a nearly exponential decay rate of the local approximation errors with respect to the dimensions of the local spaces, the rate of convergence with respect to the size of the oversampling region is also established. At the discrete level, error estimates of the method with finite element approximation of the local eigenvalue problems are given. Finally, an efficient and accurate method based on mixed formulation for solving the discrete eigenvalue problems is presented.

欢迎大家参加！