

数学与系统科学研究院

计算数学所学术报告

报告人: **Dr. Lianhua He**

( *CERMICS - Ecole des Ponts ParisTech, France* )

报告题目:

**Two-grid methods for a class of  
nonlinear elliptic eigenvalue  
problems**

邀请人: 戴小英 副研究员

报告时间: **2013 年 8 月 16 日 (周五)**

**上午 10:00-11:00**

报告地点: **科技综合楼三层 311**

**计算数学所报告厅**

## Abstract:

In this talk, we introduce and analyze some two-grid methods for nonlinear elliptic eigenvalue problems of the form  $-\operatorname{div}(A\nabla u) + Vu + f(u^2)u = \lambda u$ ,  $\|u\|_{L^2} = 1$ . We provide a priori error estimates for the ground state energy, the eigenvalue  $\lambda$ , and the eigenfunction  $u$ , in various Sobolev norms. In particular we focus on the  $\mathbb{P}_1$  and  $\mathbb{P}_2$  finite element discretizations, and on the Fourier spectral approximation (for periodic problems), taking numerical integration error into account. Finally we provide some numerical examples to illustrate our analysis.

欢迎大家参加!