数学与系统科学研究院

计算数学所博士后定期学术报告

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报告题目：

Multigrid methods for the parameter dependent problems

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下午 **16：00~17：00**

报告地点：　　数学院南楼七层

702 会议室

Abstract:

We investigate multigrid methods for the parameter dependent problems. We construct and analyze multigrid methods from the viewpoint of space decomposition and subspace correction. For parallel subspace correction methods, we develop a framework for the nearly singular problems and use this framework to analyze actual problems.

For the elliptic problems with jumps in coefficients, we construct a modified multigrid method. For both successive subspace correction methods and parallel subspace correction methods, we prove the uniform convergence of our modified multigrid method. For the planar nearly incompressible elasticity problem with the Scott-Vogelius finite element discretization, we prove the uniform convergence of the conjugate gradient method with the BPX-type preconditioner.

We also study the multigrid methods on adaptive refined finite element meshes. We introduce a new local projection and prove the uniform convergence of the multilevel algorithm which performs relaxation on new nodes and their immediate neighbors. By this techniques, we can study the parameter dependent problems on the adaptive meshes.

欢迎大家参加！