数学与系统科学研究院

计算数学所系列学术报告

报告人： **Prof. Ronald H.W. Hoppe**

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报告题目：

Numerical Methods for Optimal Control of PDEs

邀请人： 许学军研究员

时间安排：

Lecture 1 : August 12 下午 1:30-4:30

Lecture 2 : August 16 下午 1:30-4:30

Lecture 3 : August 18 下午 1:30-4:30

Lecture 4 : August 20 下午 1:30-4:30

报告地点： 科技综合楼三层 301

计算数学所小报告厅

Abstract：

This series of lectures addresses numerical methods for the approximate solution of optimal control problems associated with elliptic and parabolic PDEs including distributed and Neumann as well as Dirichlet boundary control. We consider both the unconstrained case as well as constraints on the control and/or the state.

The methods will be based on the first order necessary optimality conditions and use finite element discretizations with respect to shape

regular triangulations of the computational domain. The numerical solution of the discretized problems focusses on solvers and a posteriori error estimators for mesh adaptation. In particular, we discuss gradient based methods, primal-dual active set strategies, non-smooth Newton methods, and interior-point methods. For the a posteriori error analysis, we consider residual-type estimators as well as the goal-oriented dual weighted approach.

Applications include optimal control problems in finance, life and material sciences.

欢迎大家参加!