数学与系统科学研究院

计算数学所学术报告

报告人：**Prof. Xin-wei Liu**

(Hebei University of Technology)

报告题目：

A sequential quadratic programming method without a penalty function or a filter for nonlinear equality constrained optimization

邀请人：　袁亚湘研究员

报告时间：2010 年 5 月 11 日（周二）

上午 11:00-12:00

报告地点：科技综合楼 311

计算数学所报告厅

摘要:

We present a sequential quadratic programming method without using a penalty function or a filter for solving nonlinear equality constrained optimization. In each iteration, the linearized constraints of the quadratic programming are relaxed to satisfy two mild conditions, the step-size is selected such that either the value of the objective function or the measure of the constraint violations is sufficiently reduced. As a result, our method has two nice properties. Firstly, we do not need to assume the boundedness of the iterative sequence; Secondly, we do not need any restoration phase which is necessary for filter methods. We prove that the algorithm will terminate at either an approximate Karush-Kuhn-Tucker point or an

approximate Fritz-John point, or an approximate infeasible stationary point which is an approximate stationary point for minimizing the ℓ_2 norm of the constraint violations. By controlling the exactness of the linearized constraints and introducing a second-order correction technique, without requiring linear independence constraint qualification, the algorithm is shown to be locally superlinearly convergent. The numerical results show that the algorithm is robust and efficient.

欢迎大家参加！