

数学与系统科学研究院

计算数学所学术报告

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报告题目:

**Smoothing SQP Algorithm for
Non-Lipschitz Optimization with
Complexity Analysis**

邀请人: 优化与应用研究中心

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Abstract:

We propose a smoothing sequential quadratic programming (SSQP) algorithm for solving a class of nonsmooth nonconvex, perhaps even non-Lipschitz minimization problems, which has wide applications in statistics and sparse reconstruction. At each step, the SSQP algorithm solves a strongly convex quadratic minimization problem with a diagonal Hessian matrix, which has a simple closed-form solution. The SSQP algorithm is easy to implement and has almost no time cost to solve the convex quadratic minimization subproblems. We show that the worst-case complexity of reaching an ε scaled stationary point is $O(\varepsilon^{-2})$. Moreover, if the objective function is locally Lipschitz, the SSQP algorithm with a slightly modified updating scheme can obtain an ε Clarke stationary point at most $O(\varepsilon^{-3})$ steps.

This is a joint work with Wei Bian.

欢迎大家参加!