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:

Complexity Analysis beyond Convex Optimization

邀请人: 中科院数学院优化与应用研究中心

<u>报告时间</u>: 2013 年 5 月 23 日(周四) 上午 9:00-10:00

<u>报告地点</u>: 科技综合楼三层 **301** 计算数学所小报告厅

Abstract:

A powerful approach to solving difficult optimization problems is convex relaxation. In a typical application, the problem is first formulated as a cardinality-constrained linear program (LP) or rank-constrained semidefinite program (SDP), where the cardinality or rank corresponds to the target support size or dimension. Then, the nonconvex cardinality or rank constraint is either dropped or replaced by a convex surrogate, thus resulting in a convex optimization problem. In this talk, we explore the use of a non-convex surrogate of the cardinality or rank function, namely the so-called Schatten quasi-norm. Although the resulting optimization problem is non-convex, we show, for many cases, that a first and second order critical point can be approximated to arbitrary accuracy in polynomial time by an interior-point algorithm. We also generalize and summarize our complexity analysis results to more general non-convex optimization, which recently becomes a popular research topic and has wide applications.

欢迎大家参加!