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

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报告地点：　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！