数学与系统科学研究院

计算数学所学术报告

报告人：**Prof. Stephen Wright**

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报告题目：

Convex Relaxations for Vector Permutation Problems

邀请人：　刘歆 博士

报告时间：**2014** 年 **9** 月 **1** 日（周一）

下午 **15:30-16:30**

报告地点：　数学院南楼 **202**

会议室

Abstract:

The Birkhoff polytope (the convex hull of the set of permutation matrices) is frequently invoked in formulating relaxations of optimization problems over permutations. The Birkhoff polytope is represented using O(n^2) variables and constraints, significantly more than the n variables one could use to represent a permutation as a vector. Using a recent construction of Goemans, we show that when optimizing over the convex hull of the permutation vectors (the permutahedron), we can reduce the number of variables and constraints to O(n log n) in theory and O(n log2 n) in practice. We modify the recent convex formulation of the 2-SUM problem introduced by Fogel et al. to use this polytope, and demonstrate how we can attain results of similar quality in significantly less computational time for large n. To our knowledge, this is the first usage of Goemans' compact formulation of the permutahedron in a convex optimization problem. We also introduce a simpler regularization scheme for this convex formulation of the 2-SUM problem that yields good empirical results.

This talk represents joint work with Cong Han Lim (University of Wisconsin-Madison).

欢迎大家参加！