

数学与系统科学研究院

计算数学所学术报告

报告人: Prof. Christopher Thomas Ryan

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报告题目:

Mixed-integer representability **bilevel**

邀请人: 刘歆 副研究员

报告时间: 2018 年 8 月 30 日 (周四)

上午 10:00-11:00

报告地点: 科技综合楼三层

311 报告厅

Abstract:

We study the representability of sets that admit extended formulations using mixed-integer bilevel programs. We show that feasible regions modeled by continuous bilevel constraints (with no integer variables), complementarity constraints, and polyhedral reverse convex constraints are all finite unions of polyhedra. Conversely, any finite union of polyhedra can be represented using any one of these three paradigms. We then prove that the feasible region of bilevel problems with integer constraints exclusively in the upper level is a finite union of sets representable by mixed-integer programs and vice versa. Further, we prove that, up to topological closures, we do not get additional modeling power by allowing integer variables in the lower level as well. To establish the last statement, we prove that the family of sets that are finite unions of mixed-integer representable sets forms an algebra of sets (up to topological closures).

This is joint work with Amitabh Basu (Johns Hopkins) and Sriram Sankaranarayanan (Johns Hopkins).

欢迎大家参加！