

数学与系统科学研究院

计算数学所学术报告

报告人: 戴金雨 讲师

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报告题目:

A new KKT based branch and bound algorithm for a separable singly constrained quadratic program subject to upper and lower bounds

邀请人: 戴彧虹 研究员

报告时间: 2022 年 3 月 27 日 (周日)

上午 9:00-10:00

报告地点: 数学院南楼

702 教室

Abstract:

The separable singly constrained quadratic program with upper and lower bounds (SSQP) arises from many applications and receives a lot of attention. In the early 1980s, Pardalos and Kovoor analyzed this problem of convex case, providing a necessary and sufficient condition for a solution to be a KKT point. Furthermore, they presented an algorithm for solving such problem. In this paper, we shall extend the results by Pardalos and Kovoor to the nonconvex case and provide a necessary and sufficient condition that characterizes the KKT points of nonconvex SSQP. Integrating the new KKT condition into the branch and bound framework, we propose a hybrid algorithm for finding the global optimal solutions of SSQP. Numerical experiments show that our new algorithm runs faster than the KKT based algorithm by Burer and Vandembussche (2008).

报告人简介:

Jinyu Dai received his Ph.D. degree in mathematics from Tsinghua University, Beijing, China, in 2019. During October 2017 to October 2018, he visited Prof. Shu-Cherng Fang's research group at the North Carolina State University. In 2019, he worked as a post doctor at Academy of Mathematics and Systems Science, Chinese Academy of Sciences. He is currently a lecturer of School of Science at Beijing University of Posts and Telecommunications. His research interests lie in mathematical programming, quadratic programming and their applications. So far he has published papers on journals such as Operations Research Letters, Journal of Industrial and Management Optimization, etc.

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