

数学与系统科学研究院

计算数学所学术报告

报告人: **Prof. Defeng Sun**

(*Department of Mathematics, National University of Singapore*)

报告题目:

On the linear convergence rate of proximal augmented Lagrangian method and ADMM for convex optimization: past, present and future

邀请人: **戴彧虹 研究员**

报告时间: **2015 年 12 月 18 日(周五)**

上午 11:00~12:00

报告地点: **科技综合楼三层**

311 报告厅

Abstract:

In this talk, we start with describing what have already been known in the literature on the linear convergence rate of proximal augmented Lagrangian method (ALM) and alternating direction method of multipliers (ADMM) for solving convex optimization problems. We shall explain that a complete picture for piecewise quadratic convex optimization problems could be drawn explicitly in early nineties of last century. The beautiful theory developed by Robinson on piecewise polyhedral functions and the sub-differential characterization of piecewise quadratic convex functions established by J. Sun and Rockafellar play important roles in drawing this picture. We then introduce new developments on semi-proximal ALM and ADMM beyond the reach of proximal point algorithms. These new developments make possible the applications of semi-proximal ALM and ADMM to multi-block convex optimization problems such as the convex quadratic semidefinite programming with doubly non-negative constraints. Finally, we shall provide a roadmap to prove the linear convergence rate of the cited algorithms for non-piecewise quadratic convex optimization problems. This roadmap heavily relies on our deep understanding on second order variational analysis.

报告受数学卓越中心资助

欢迎大家参加!