

数学与系统科学研究院

计算数学所学术报告

报告人: Dr. Xudong Li

(*Princeton University*)

报告题目:

**Exploring the Second Order Sparsity in Large
Scale Optimization**

邀请人: 袁亚湘院士

优化与应用研究中心

报告时间: 2017 年 12 月 14 日 (周四)

下午 16:00--17:00

报告地点: 数学院科技综合楼

三层 301 报告厅

报告摘要:

In this talk, we shall demonstrate how the second order sparsity (SOS) in important optimization Problems such as the sparse optimization models, semidefinite programming, and many others can be explored to induce efficient algorithms. The SOS property allows us to incorporate the semismooth Newton methods into the augmented Lagrangian method framework in a way that the subproblems involved only need low to medium costs, e.g., for lasso problems with sparse solutions, the costs for solving the subproblems at each iteration of our second order method are comparable or even lower than those in many first order methods.

Consequently, with the fast convergence rate in hand, usually asymptotically superlinear linear, we now reach the stage of being able to solve many challenging large scale convex optimization problems efficiently and robustly. For the purpose of illustration, we present a highly efficient software called LassoNAL for solving the well-known Lasso-type problems.

欢迎大家参加！