数学与系统科学研究院

计算数学所学术报告

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报告题目：

Group Sparse Estimation via the $\ell^0(\ell^2)$ Penalty: Theory and Algorithm

邀请人： 季霞 副研究员

报告时间：2016 年 8 月 1 日（周一）

下午 15:00~16:00

报告地点： 科技综合楼三层

311 报告厅

Abstract:

In this talk we propose and analyze a novel approach for estimating group sparse signals. It is based on regularized least squares with an $\ell^0(\ell^2)$ penalty, which penalizes the number of nonzero groups. One distinct feature of the approach is that it has the built-in decorrelation mechanism within each group, and thus can handle the challenging strong inner-group correlation. We provide a complete analysis of the regularized model, e.g., existence of a global minimizer, invariance property, support recovery, and characterization and properties of block coordinatewise minimizers. Further, the regularized functional can be minimized efficiently and accurately by a primal dual active set algorithm with a provable finite-step global convergence. At each iteration, it involves solving least squares problems on the active set only, and merits fast local convergence, which makes the method extremely efficient for recovering group sparse signals. Extensive numerical experiments are presented to illustrate salient features of the model and the efficiency and accuracy of the algorithm. A comparative experimental study indicates that it is competitive with existing approaches, including group lasso and greedy approaches.

欢迎大家参加！