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：

Iterative Reweighted Singular Value Minimization Methods for l_p Regularized Unconstrained Matrix Minimization

邀请人：中科院数学院优化与应用研究中心

报告时间：**2013** 年 **12** 月 **11** 日（周三）

下午 **15:30-17:00**

报告地点：　科技综合楼三层 **311**

计算数学所报告厅

Abstract:

In this talk we consider general l_p regularized unconstrained matrix minimization problems. In particular, we first introduce a class of first-order stationary points for them. Then we show that the first-order stationary points introduced by Chen, Niu and Yuan (2012) for an l_p regularized vector minimization problem are equivalent to those of an l_p regularized matrix minimization reformulation. Also, we establish that any local minimizer of the l_p regularized matrix minimization problems must be a first-order stationary point. Moreover, we derive lower bounds for nonzero singular values of the first-order stationary points and hence also of the local minimizers of the l_p matrix minimization problems. The iterative reweighted singluar value minimization (IRSVM) approaches are also proposed to solve these problems in which each subproblem has a closed-form solution. We show that any accumulation point of the sequence generated by these methods is a first-order stationary point of the problems. In addition, we present a nonmontone proximal gradient method for solving the l_p matrix minimization problems and establish its global convergence. Our computational results demonstrate that the proposed IRSVM approaches generally outperform some existing state-of-the-art methods in terms of solution quality and/or speed.

欢迎大家参加！