

数学与系统科学研究院

计算数学所博士后定期学术报告

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报告题目:

**A limited memory subspace
minimization conjugate gradient
algorithm for unconstrained
optimization**

报告时间: **2019 年 10 月 16 日(周三)**

下午 16:00-17:00

报告地点: **科技综合楼三层**

311 报告厅

Abstract:

The orthogonality is an important property of linear conjugate gradient method. It is however observed that the orthogonality of gradients in linear conjugate gradient method is often lost, which usually causes the slow convergence of conjugate gradient method. Based on BBCG3 (Sci. China. Math. 59(8), 1511-1524, 2016) and SMCG_BB (J. Optim. Theory Appl. 180(3), 879-906, 2019), we combine the limited memory technique with subspace minimization conjugate gradient method and present a limited memory subspace minimization conjugate gradient algorithm for unconstrained optimization in this paper. In the proposed method, when the orthogonality is lost, a new quasi-Newton method in the subspace is exploited to improved the orthogonality of gradients. Additionally, a modified strategy for choosing the initial stepsize is exploited. The global convergence of the proposed method is established under the weaker conditions compared with the other limited memory conjugate gradient method. Some numerical experiments are conducted, which indicate that the proposed method has a great improvement over SMCG_ BB and is comparable to the latest limited memory conjugate gradient software package CG_DESCENT (6.8) developed by Hager and Zhang (SIAM J. Optim. 23(4), 2150-2168, 2013) for the CUTer library.

欢迎大家参加！