数学与系统科学研究院

计算数学所定期学术报告

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报告题目：

Recent Advances on the Randomized Kaczmarz Method

报告时间：**2021** 年 **4** 月 **22** 日（周四）

下午 **16:00-17:00**

报告地点：数学院南楼

204 教室

Abstract:

For solving large scale system of linear equations by iteration methods, we introduce an effective probability criterion for selecting the working rows from the coefficient matrix and construct a greedy randomized Kaczmarz method. It is proved that this method converges to the unique least-norm solution of the linear system when it is consistent. Theoretical analysis demonstrates that the convergence rate of the greedy randomized Kaczmarz method is much faster than the randomized Kaczmarz method, and numerical results show that the greedy randomized Kaczmarz method is more efficient than the randomized Kaczmarz method, too. In addition, by introducing a relaxation parameter in the involved probability criterion, we further generalize the greedy randomized Kaczmarz method, obtaining a class of relaxed greedy randomized Kaczmarz methods. Both theoretical validation and numerical verification show that these methods can be more efficient than the greedy randomized Kaczmarz method if the relaxation parameter is chosen appropriately.

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