

数学与系统科学研究院

计算数学所学术报告

报告人: **Dr. Wen Zaiwen**

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报告题目:

**Solving A Low-Rank Factorization  
Model for Matrix Completion by A  
Nonlinear Successive  
Over-Relaxation Algorithm**

邀请人: **戴彧虹研究员**

报告时间: **2010年6月28日(周一)**

**下午 4: 00**

报告地点: **科技综合楼三层 311**

**计算数学所报告厅**

**Abstract: The matrix completion problem is to recover a low-rank matrix from a subset of its entries. The main solution strategy for this problem has been based on nuclear-norm minimization which requires computing singular value decompositions -- a task that is increasingly costly as matrix sizes and ranks increase. To improve the capacity of solving large-scale problems, we propose a low-rank factorization model and construct a nonlinear successive over-relaxation (SOR) algorithm that only requires solving a linear least squares problem per iteration. Convergence of this nonlinear SOR algorithm is analyzed. Numerical results show that the algorithm can reliably solve a wide range of problems at a speed at least several times faster than many nuclear-norm minimization algorithms.**

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