

数学与系统科学研究院  
计算数学所学术报告

报告人: Prof. Thomas F. Coleman

(Professor, Combinatorics and  
Optimization Dean, Faculty of Mathematics  
University of Waterloo)

报告题目: Fast Newton Methods

邀请人: 袁亚湘研究员

报告时间: 2007年9月27日(周四)

下午 15:30—16:30

报告地点: 科技综合楼三层 311

计算数学所报告厅

## Abstract:

Many vector-valued functions, representing expensive computations, are also structured computations. In this case the calculation of the Newton step can be greatly accelerated by exploiting this structure. It is often not necessary, nor economic, to form the true Jacobian in the process of computing the Newton step; instead, a more cost-effective auxiliary Jacobian matrix is used. This auxiliary matrix can be sparse even when the true Jacobian matrix is dense; consequently, sparse matrix technology can be used, to great speed advantage, both in forming the auxiliary matrix and in solving the auxiliary linear system.

**欢迎大家参加！**