数学与系统科学研究院

计算数学所系列学术报告

报告人： **Prof. Arieh Iserles**

（ *University of Cambridge* ）

报告题目：

Back to basics: Finite differences and differentiation matrices

邀请人： 洪佳林 研究员

报告时间：2013 年 4 月 8 日（周一）

上午 **10:30~11:30**

报告地点： 科技综合楼三层 **311**

计算数学所报告厅

Abstract：

Stability analysis of finite-difference methods for transport equations poses a problem, how to approximate the first derivative to high order with a skew-symmetric differentiation matrix. In this talk we motivate this question and show that the highest order of a differentiation matrix on a uniform grid is just 2. This motivates our analysis of conditions on non-uniform grids that allow us to derive skew-symemtric differentiation matrices of arbitrarily high order. Having derived these conditions, we present order-3 and order-4 methods and discuss open problems.

欢迎大家参加！