# 数学与系统科学研究院

## 计算数学所学术报告

**报告人**：**Prof. Hermann Brunner**

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**报告题目**：

# Numerical analysis of Volterra integral equations

**邀请人**：　周爱辉研究员

**报告时间**：**2011 年 2 月 24 日（周四）**
　　　　　　**上午 10：00-11：00**

**报告地点**：　科技综合楼三层 **311**
　　　　　　计算数学所报告厅

# Abstract：

In the first part of this talk I shall give a brief overview of the development of the theory of Volterra integral equations, from Vito Volterra's fundamental 1896/1897 papers to recent (2010) results on the spectra of noncompact Volterra operators. This will be followed by a description of the 'state of the art' in the numerical analysis of Volterra integral equations, focusing on collocation methods in spaces of piecewise polynomials.

While the optimal (super-)convergence properties of collocation solutions are now well understood in the case of 'classical' Volterra integral equations, many key questions remain to be answered for equations with variable (and state-dependent) delays and equations described by weakly singular, noncompact Volterra integral operators. In particular, even the general convergence analysis for certain classes of first-kind integral equations originally studied by Volterra is still far from being complete. The talk will conclude with a discussion of some current work and open problems.

欢迎大家参加！