数学与系统科学研究院

计算数学所学术报告

报告人： **Prof. Roland Becker**

（ Laboratoire de Mathématiques Appliquées. Université de Pau et des Pays de l'Adour， France ）

报告题目：

Nitsche's method for incompressible flows

邀请人： 毛士鹏 副研究员

报告时间：**2014** 年 **7** 月 **25** 日（周五）

下午 **15:00-16:00**

报告地点： 科技综合楼三层 **301**

计算数学所小报告厅

Abstract：

In this talk we study the finite element formulation of general boundary conditions for incompressible flow problems. Distinguishing between the contributions from the inviscid and viscid parts of the equations, we use Nitsche's method to develop a discrete weighted weak formulation valid for all values of the viscosity parameter, including the limit case of the Euler equations. In order to control the discrete kinetic energy, additional consistent terms are introduced. We treat the limit case as a (degenerate) system of hyperbolic equations, using a balanced spectral decomposition of the flux Jacobian matrix, in analogy with compressible flows. Following the theory of Friedrich's systems, the natural characteristic boundary condition is generalized to the considered physical boundary conditions. Then we consider further applications of this technique to residual-based stabilization and domain decomposition. Several numerical experiments, including standard benchmarks for viscous flows as well as inviscid flows are presented.

欢迎大家参加！