数学与系统科学研究院

计算数学所学术报告

报告人： **Prof. Xiaobing Feng**

(Department of Mathematics University of Tennessee)

报告题目：

Some Recent Developments on Numerical Methods for Complex Fluids

邀请人： 许学军研究员

报告时间： **2008 年 7 月 17 日(周四)**

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：

In addition to well known numerical difficulties for approximating and computing flow of non−complex

fluids, new numerical challenges also arise when the underlying fluids are complex fluids. In this talk, I shall focus on two such new challenges: The first numerical challenge is to cope with the nonconvex length constraint (for the director vector field for flow of liuid crystals). The second is to resolve moving interfaces of complex flows and droplet system. For the first difficuty, numerical methods which are based on the Ginzburg–Landau approximation will be discussed and new convergence results for those methods will be reviewed. In addition, recent advances on developing numerical methods which exactly satisfy the nonconvex constraint at the mesh points will also be discussed. For the second difficulty, the powerful phase field method and its finite element approximations will be reviewed and discussed. Numerical experiment results will be presented to illustrate the performance of the above mentioned methods.

欢迎大家参加！