数学与系统科学研究院

计算数学所学术报告

邀请人： 林群院士

报告时间： 2010 年 6 月 8 日（周二）
下午 4：00～5：30

报告地点： 科技综合楼三层 301
计算数学所小报告厅

报告人 1： Prof. JERRY BONA

（Department of Mathematics, Statistics and Computer Science, The University of Illinois at Chicago）

报告题目： Derivation, Analysis and Application of Model Equations for Surface Water Waves

Abstract：

After a brief appraisal of the historical context, we show how model equations for water waves are derived. A theory indicating the efficachy of such models is then reviewed. Finally, the lecture turns to applications, among which are tsunami propagation, rogue wave formation and beach protection strategies.

报告人 2： **Prof. HONGQIU CHEN**

（**Department of Mathematical Sciences,**

University of Memphis, Memphis, TN）

报告题目：

Long-wave limit of solutions of nonlinear, dispersive wave equations

Abstract:

We consider some non-linear, dispersive evolution equations and interest is in the relationship between solutions posed on bounded domains and corrsponding solutions posed on unbounded spatial domains. Such questions have their origins in numerical simulations of problems that arise naturally posed on a half line or on the entire real axis. Problems on the half line come up in modeling laboratory experiments and in the use of nonlinear, dispersive wave equations to address coastal engineering problems. Initial-value problems posed on the entire real axis are often used when one considers disturbances whose spatial extent is far from lateral boundaries. Numerical simulation of

such problems inevitably relies upon posing the evolution equation on a bounded domain with suitable Dirichlet, Neumann or periodic boundary conditions. To analyze how well numerical simulations approximate the initial posing of the problem, one needs comparisons between the solutions of the partial differential equations posed on bounded and unbounded domains. Explicit, and reasonably sharp estimates of the difference between solutions posed on bounded and on unbounded domains are one of the major outcomes of our analysis.

欢迎大家参加!