数学与系统科学研究院

计算数学所学术报告

(定期学术报告)

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报告题目：

Multiscale Modeling and Simulation

邀请人： 明平兵研究员

报告时间： 2008 年 4 月 17 日(周四)

下午 4:00—5:00

报告地点： 科技综合楼三层 311

计算数学所报告厅

Abstract： **Multiscale modeling and simulation is a quickly evolving area of research that will have a fundamental impact on computational science and applied mathematics. The traditional mathematical modeling is based on single−level physical laws, with**

applying the three conversation laws (mass momentum、energy) and constitutive relation, forming PDE (such as Navier–Stokes equation). Computational methods and mathematical modeling are two individual processes. With the rapid development of computer, computational method and its technique is getting huge achievement accordingly. Multiscale modeling is driven mainly by the use of mathematical models in applied sciences, in particular material sciences, chemistry, fluid dynamics and biology. Problems in those area are often multi–physical laws of different character, following is in common use: Quantum Mechanics, Molecular Dynamics, Kinetic Theory and Continuum Theory. The aim of multiscale modeling is to model the theoretical input to a coarse–grained model from a more detailed microscopic model, by passing the necessity of empirical modeling.

In this talk, a coupled multiscale approach will be discussed. We will also introduce soft matter/complex fluids and the device simulation of semiconductor technology. 欢迎大家参加！