数学与系统科学研究院

计算数学所学术报告

报告人： **Prof. Shengtai Li**

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报告题目：

Fast and accurate simulations of proto-planet migration in disks

邀请人： 袁礼研究员

报告时间：**2010 年 12 月 8 日（周三）**

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：

We develop a simulation code for interaction between the proto-planetary disk and embedded proto-planets. Several numerical schemes are considered and compared to solve both viscous and inviscid hydrodynamics (Euler) equations in a 2-D polar grid. The coupling between the disk and planet motions is carefully examined. Several capabilities are added to the code to accommodate the need for different simulations: multiple planets, and 1D axis-symmetric or fully 2D self-gravity solver, variable viscosity, accretion, and Lagrangian adaptive mesh refinement (AMR) around planet. Our hydro algorithm is at least an order of magnitude faster than standard Godunov solver. Our parallelized 2D self-gravity solver costs less than 10% of the total computational cost. The embedded Lagrangian AMR speeds up our computation by another order of magnitude.

欢迎大家参加！