

数学与系统科学研究院
计算数学所定期学术报告

报告人: **Prof. Heng-Bin An**

(*Beijing Institute of Applied Physics and Computational Mathematics*)

报告题目:

**Parallel Solution for Multigroup
Radiation Transfer Equations**

邀请人: 白中治 研究员

报告时间: **2014 年 3 月 6 日 (周四)**

下午 16: 00~17: 00

(15: 30~16: 00 茶歇)

报告地点: **科技综合楼三层 311**

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Abstract:

In inertial confinement fusion (ICF) numerical simulations, it is necessary and very important to solve multi-group radiation transfer (MGRT) equations. Usually, the cost of solution for MGRT equations is more than 90% of the whole simulation. The source iteration method is often used to solve MGRT equations, and one typical parallel solution method for MGRT equations is the spacial domain decomposition (spacial parallelism) method. In numerical simulations, the scalability of application code is limited if only spacial parallel strategy is used. By exploring the character of the source iteration method, a two level parallel strategy is designed for solving MGRT equations. In this strategy, first divide the equations into several sets, and in each source iteration, solve the equations in different sets in parallel. And then for solving each equation, the spacial parallel strategy is used. The scalability of application code is improved dramatically with the two level parallel strategy.

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