数学与系统科学研究院

计算数学所学术报告

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报告题目：

The Parallel Algorithm of Node–based Finite Element method

邀请人： 曹礼群研究员

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下午 4:00—5:30

报告地点： 科技综合楼三层 311

计算数学所报告厅

Abstract：

A new parallel mechanism for Node–based Seamless Finite Element Method was proposed, which possessed the following

three prominent points: realizing the workload balance for the parallel processes naturally, achieving synchronization of all the schedules under complex parallel environment, and filling up the gap between pre−processing and main processing. To support the scheme, three specific solutions of the parallel mechanism were proposed, all of which achieved the highly efficient parallel seamless connection between the FEM mesh generation process and structure analysis process. To realize the mechanism, the key step is to pose a local mesh generation algorithm. Here Node−based Local Mesh Generation (NLMG) algorithm is shown, which is free of mesh inconsistency and is one of core algorithms in the Node−based Local Finite Element Method (NLFEM) to achieve the seamless link between mesh generation and stiffness matrix calculation, and the seamless link helps to improve the parallel efficiency of

FEM. To ensure the quality of mesh, node placement method is researched. At last, some discussion parallel methods about how to solve the global stiffness equations system are shown.

欢迎大家参加！