

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:

**Domain decomposition methods for
large problems of elasticity**

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**报告地点: 科技综合楼三层311
计算数学所报告厅**

Abstract:

The domain decomposition methods considered are preconditioned conjugate gradient methods designed for the very large algebraic systems of equations which often arise in finite element practice. They are designed for massively parallel computer systems and the preconditioners are built from solvers on the substructures into which the domain of the given problem is partitioned. In addition, to obtain scalability, there must be a coarse problem, with a small number of degrees of freedom for each substructure. The design of this coarse problem is crucial for obtaining rapidly convergent iterations and poses the most interesting challenge in the analysis.

Results for two families of domain decomposition methods from the overlapping Schwarz and the FETI–DP/BDDC families will be discussed with a special emphasis on almost

incompressible elasticity approximated by mixed finite element methods. Some of these algorithms are now used extensively at the SANDIA, Albuquerque laboratories and will soon be made available as public domain software.

Our work is being carried out in close collaboration with Clark R. Dohrmann of the Sandia National Laboratories, Albuquerque, NM and Axel Klawonn and Oliver Rheinbach of the University of Duisburg–Essen, Germany.

欢迎大家参加！