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Einladung zu einem Vortrag von

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(TU Chemnitz)

Donnerstag, 20. März 2003
15:30 Uhr, T 811

"Multi-level solver for the p-Version of the FEM"

From the literature it is known that the conjugate gradient method with domain decomposition preconditioners is one of the most efficient methods for solving systems of linear algebraic equations resulting from p-version finite element discretizations of elliptic boundary value problems. The ingredients of such a preconditioner are a preconditioner for the Schur complement, a preconditioner related to the Dirichlet problems in the subdomains, and an extension operator from the boundaries of the subdomains into their interior. In the case of Poisson's equation, we propose a preconditioner for the problems in the subdomains which can be interpreted as the stiffness matrix resulting from an h-version finite element discretization of a degenerate operator.

- A multi-grid algorithm with a special line smoother,
- a wavelet preconditioner and
- an Algebraic Multi-Level Iteration preconditioner

are defined in order to solve the corresponding systems of finite element equations.