Kolloquium Angewandte Mathematik
Prof. Thomas Apel (BAU1)
Prof. Matthias Gerdts (LRT1)
Prof. Joachim Gwinner (LRT1)
Vertretungs-Prof. Sven-Joachim Kimmerle (BAU1)
Prof. Markus Klein (LRT1)

der Bundeswehr
Universität *München*

Vortragsankündigung

Am **Dienstag, den 25.04.2017,** hält **um 15:00 Uhr**

Stefan Dohr
(TU Graz)

einen Gastvortrag über das Thema

Space-time boundary element methods for the heat equation

Der Vortrag findet im **Raum 2301** in **Gebäude 33** statt.

Vortragszusammenfassung

In this talk we describe the boundary element method for the discretization of the time-dependent heat equation. In contrast to standard time-stepping schemes we consider an arbitrary decomposition of the boundary of the space-time cylinder into boundary elements. Besides adaptive refinement strategies this approach allows us to parallelize the computation of the global solution of the whole space-time system. In addition to the analysis of the boundary integral operators and the derivation of boundary element methods for the Dirichlet initial boundary value problem we state convergence properties and error estimates of the approximations. Those estimates are based on the approximation properties of boundary element spaces in anisotropic Sobolov spaces. The systems of linear equations are solved with the GMRES method. For an efficient computation of the solution we need preconditioners. Based on the mapping properties of the single layer and the hypersingular boundary integral operator we construct a preconditioner for the discretization of the first boundary integral equation. Moreover we describe the basic idea of the FEM-BEM coupling method for parabolic transmission problems. The theoretical results are confirmed by numerical tests.

Alle Interessierten sind dazu herzlich eingeladen.