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MATHEMATIKKOLLOQUIUM

Das Institut für Informatik lädt zu folgendem Vortrag ein:

Dr. Marcus J. Grote
Universität Basel

Discontinuous Galerkin Method and Local Time Stepping for Wave Propagation

The accurate and reliable simulation of wave phenomena is of fundamental importance in a wide range of engineering applications such as fiber optics, wireless communication, sonar and radar technology, non-invasive testing and imaging. To address the wide range of difficulties involved, we consider symmetric interior penalty discontinuous Galerkin (IP-DG) methods, which easily handle elements of various types and shapes, irregular non-matching grids, and even locally varying polynomial order.
Moreover, in contrast to standard (conforming) finite element methods, IP-DG methods yield an essentially diagonal mass matrix; hence, when coupled with explicit time integration, the overall numerical scheme remains truly explicit in time. To circumvent the CFL stability condition imposed on the time step by the smallest elements in the underlying mesh, we further propose energy conserving explicit local time stepping schemes.
The optimal order order of convergence and the versatility of the method are illustrated via numerical experiments.

Zeit: **Dienstag, 13. März 2007 um 17:15 Uhr**

Ort: **Viktor-Franz-Hess-Haus, Technikerstraße 25, HS D**

Otmar Scherzer

Gäste sind herzlich willkommen!