Einladung zum
Vortrag

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On stabilized finite element methods for the Stokes problem in the small timestep limit

Recent studies indicate that consistently stabilized methods for unsteady incompressible flows, obtained by a method of lines approach, may experience difficulty when the time step is small relative to the spatial grid size. Using as a model problem the unsteady Stokes equations, we show that the semi-discrete pressure operator associated with such methods is not uniformly coercive. We prove that for sufficiently large (relative to the square of the spatial grid size) time steps, implicit time discretizations contribute terms that stabilize this operator. However, we also prove that if the time step is sufficiently small, then the fully discrete problem necessarily leads to unstable pressure approximations. This is joint work with Pavel Bochev and Max Gunzburger.

Donnerstag, 20. September 2007   Seminarraum LNM
14:00 Uhr   MW 1237
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