INSTITUT FÜR ANGEWANDTE ANALYSIS UND NUMERISCHE SIMULATION

mathematik ians fakultät8

Universität Stuttgart

$$\inf_{W\in\mathcal{W}(\mathcal{G})}\sup_{V\in\mathcal{V}(\mathcal{G})}\frac{\mathcal{B}[W,V]}{\|W\|_{\mathcal{W}}\|V\|_{\mathcal{V}}}>0$$

having a coffee in a Banach space makes you feel complete

Vortragsankündigung Oberseminar

Sommersemester 2019

17:00 Uhr im Pfaffenwaldring 57, Raum 7.122

$$f(u_+)-f(u_-)=s(u_+-u_-)$$

06.06.2019 **Miloslav Feistauer** (Charles University in Prague)

Numerical solution of two-phase flow by the finite element-discontinuous Galerkin and level set method

Abstract:
The subject of the lecture is the numerical simulation of two-phase flow of immiscible fluids. Their motion is described by the incompressible Navier-Stokes equations with piecewise constant density and viscosity. The interface between the fluids is defined with the aid of the level-set method using a transport first-order hyperbolic equation. The Navier-Stokes system equipped with initial and boundary conditions and transmission conditions on the interface between the fluids is discretized by the Taylor-Hood $P2/P1$ conforming finite elements in space and the second-order BDF method in time. The transport level-set problem is solved with the aid of the space-time discontinuous Galerkin method (DGM). The second part of the lecture is devoted to the theoretical analysis of the DGM for the level-set problem. Numerical experiments demonstrate the applicability, accuracy and robustness of the developed method.
The results were obtained in cooperation with Eva Bezchlebová, Vít Dolejší and Petr Sváček.

Alle Interessenten sind herzlich eingeladen!

$$\|U-u\|_{\mathcal{W}}\le C\left(\sum_{E\in\mathcal{G}}\varepsilon_{\mathcal{G}}^2(U;E)\right)^{1/2}$$

$$\partial_t w+\operatorname{div}_x f(w)=0$$

```
39 typedef Dune::ACFem::MassModel<EllipticModelType> MassModelType;
40 MassModelType bareMassModel(implicitEllipticModel);
41
42 auto massModel(mu * (mat.Z_a) * J + mat.Z_w) * bareMassModel);
```

Die Professoren des Instituts für Angewandte Analysis und Numerische Simulation

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