

## Programme for Monday, September 23, 2013

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9:00 **Opening**

*Room: "Terrassensaal"*

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**Multiscale Methods**

*Chairman: A. Meyer*

*Room: "Terrassensaal"*

9:10 **Robert Scheichl**

Novel Monte Carlo FE methods for random elliptic PDEs.

10:00 **Matthias Maier**

A posteriori error estimation for a heterogeneous multiscale finite element method.

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10:25

*Tea and coffee break*

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**Fluid Dynamics**

*Chairman: S. Franz*

*Room: "Terrassensaal"*

10:50 **Dirk Broersen**

A Petrov-Galerkin discretization with optimal test space of a mild-weak formulation of convection-diffusion equations in mixed form.

11:15 **Katharina Höhne**

On the asymptotic analysis of the stationary Oseen equations.

11:40 **Gunar Matthies**

Higher order variational time discretizations for the Oseen equations.

12:05 **Matthias Gsell**

Direct numerical simulation of incompressible fluids.

**Contact Problems / Elasticity**

*Chairman: A. Meyer*

*Room: "Annaberg-Buchholz"*

**Martina Weise**

On the  $\mathcal{Q}_2$ - $\mathcal{Q}_0$ -element for (nearly) incompressible material under large deformations.

**Benjamin Müller**

Mixed LSFEM for geometrically and physically nonlinear elasticity problems.

**Elena Rukavishnikova**

The finite element method for Dirichlet problem with strong singularity of solution on the boundary.

**Viktor Rukavishnikov**

Weighted finite element method for the elasticity problem with singularity.

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12:30

*Lunch*

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**Programme for Monday, September 23, 2013**

**(continued)**

**Time-Dependent Problems**

*Chairman:* T. Apel

*Room:* "Terrassensaal"

14:00 **Jens Lang**

Convergence and adaptivity at the PDE/stiff ODE interface.

14:50 **Markus Bause**

Higher order space-time discretizations for hyperbolic and parabolic problems I: Motivation and schemes.

15:15 **Uwe Köcher**

Higher order space-time discretizations for hyperbolic and parabolic problems II: Algebraic solver and numerical studies.

15:40

*Tea and coffee break*

**Time-Dependent Problems**

*Chairman:* J. Lang

*Room:* "Terrassensaal"

16:15 **Lennard Kamenski**

Stability of explicit time integration schemes for finite element approximations of linear parabolic equations with anisotropic meshes..

16:40 **Stephan Weller**

Higher order Galerkin methods as time discretization for free surface flows.

17:05 **Karen Kuhn**

Stability and efficiency of a recursive multirate Rosenbrock method.

17:30

**Fluid Dynamics / Singularly Perturbed Problems**

*Chairman:* R. Scheichl

*Room:* "Annaberg-Buchholz"

**Kristin Held**

Finite Element simulations for a coupled bulk-surface convection diffusion problem.

**Sebastian Franz**

Superconvergence for higher-order Galerkin FEM for convection-diffusion problems.

**Miloslav Vlasak**

A priori error analysis of nonlinear singularly perturbed problems.

**Alexander Linke**

On the role of the Helmholtz decomposition in mixed methods for incompressible flows and a new variational crime.

19:00

*Conference Dinner*

## Programme for Tuesday, September 24, 2013

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### Isogeometric Analysis

*Chairman:* G. Haase

*Room:* "Terrassensaal"

9:00 **Bert Jüttler**

Adaptive refinement in isogeometric analysis.

9:50 **Sebastian Westerheide**

A geometry-independent framework for coupled volume and surface problems on evolving domains.

10:15

*Tea and coffee break*

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### Fluid Dynamics / Singularly Perturbed Problems

*Chairman:* M. Bause

*Room:* "Terrassensaal"

10:45 **Fleurianne Bertrand**

Least squares methods with interface approximation for two phase Stokes flow.

11:10 **Giulia Deolmi**

Effective boundary conditions for compressible flows over a rough surface.

11:35 **Khalid Adrigal**

Higher order variational time discretisations for convection-diffusion problems in time-dependent domains.

12:00 **Steffen Müntenmaier**

Least-squares finite element methods for coupled generalized Newtonian Stokes-Darcy flow.

### Variational Inequalities

*Chairman:* O. Steinbach

*Room:* "Annaberg-Buchholz"

**Steffen Weißer**

Arbitrary order BEM-based FEM on star-shaped elements.

**Linus Wunderlich**

Abstract  $L^2$  analysis for variational inequalities of Signorini type.

**Peter Gangl**

Topology optimization of electric machines based on topological sensitivity analysis.

**Jörg Frohne**

Efficient numerical methods for the large-scale parallel solution of thermomechanical contact problems under consideration of mesh separation.

12:30

*Conference Photo*

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*Lunch*

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14:30

*Excursion*

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## Programme for Wednesday, September 25, 2013

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### Software

*Chairman:* R. Schneider

*Room:* "Terrassensaal"

9:00 **Gundolf Haase**

Non-linear FEM solvers on accelerator devices.

9:25 **Lars Ludwig**

SOFE - a new simple and sophisticated object oriented *hp*-FEM software in MATLAB.

9:50 **Alexander Nikolas Breuer**

Towards optimal performance of SeisSol, an unstructured ADER-DG code..

10:15 **Stefan Findeisen**

First step towards parallel and adaptive computation of Maxwell's equations.

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10:40

*Tea and coffee break*

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### Anisotropic Problems / A-posteriori Error Estimators

*Chairman:* G. Matthies

*Room:* "Terrassensaal"

11:10 **Rene Schneider**

Adaptive anisotropic mesh refinement based hierarchical refinement indicators.

11:35 **Ariel Lombardi**

The discrete compactness property for edge elements on anisotropic meshes.

12:00 **Thomas Apel**

Anisotropic mesh refinement in polyhedral domains: error estimates with data in  $L^2(\Omega)$ .

12:25 Closing

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12:30

*Lunch*

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