

Program

Monday, July 1st

09:00 - 09:15

Opening

09:15 - 10:00

Chair: Jörg Schröder

A. J. Gil (Keynote)

On the use of mixed formulations for computational polyconvexity and multi-variable convexity

10:00 - 11:00

Chair: Jörg Schröder

A. Dominicus, F. Gaspoz, C. Kreuzer

Convergence of an adaptive C0-interior penalty galerkin method for the biharmonic problem

J. Gedicke, A. Khan

Arnold-Winther mixed finite elements for stokes eigenvalue problems

A. Krischok, C. Linder

A stability framework for multi-field saddle point problems with applications to irreversible problem

11:00 - 11:20

Coffee break

11:20 - 12:20

Chair: Christian Wieners

Z. Li, S. Cen, C.-F. Li

The approach for the unsymmetric elements based on analytical trial functions in geometric nonlinear analysis

D. Peterseim, P. Henning

Sobolev gradient flow for the gross-pitaevskii eigenvalue problem: global convergence and computational efficiency

R. Reichel, S. Klinkel

A finite element formulation in boundary representation for the analysis of heterogeneous structures in nonlinear solid mechanics

12:30 - 13:45

Lunch break

14:00 - 14:45

Chair: Gerhard Starke

M. Vohralik (Keynote)

Potential and flux reconstructions for optimal a priori and a posteriori error estimates

14:45 - 15:45

Chair: Gerhard Starke

D. Couture-Peck, F. Berard, A. Garon

Transfinite mesh update in monolithic fluid-structure simulations

C. Nisters, J. Schröder

Investigation of different time integrator schemes in a least-squares finite element formulation for sea ice dynamics on large scales.

G. Scovazzi, N. Abboud, O. Colomes, X. Zeng

Stabilized methods for transient solid dynamics: How ideas originally developed for fluids dynamics can apply

15:45 - 16:30

Coffee break / Poster Session

16:30 - 18:30

Chair: Alexander Düster

R. Pfefferkorn, P. Betsch

Extension of the nonlinear eas method based on the structure of polyconvex strain-energy functions

F. Bertrand, B. Kober, M. Moldenhauer, G. Starke

Equilibrated stress approximation and error estimation with application to solid mechanics

J. Riesselmann, J. Ketteler, M. Schedensack, D. Balzani

Robust C0-continuous finite elements for finite strain gradient elasticity

M. Marino, P. Wriggers

Novel energetic decompositions for mixed formulations in transversely isotropic elasticity

P.M. Pimenta, S. Maassen, C. Costa e Silva, J. Schröder

Simple equilibrium finite elements for geometrically exact Bernoulli-Euler beams and Kirchhoff-Love shells

S. Bieber, B. Oesterle, E. Ramm, M. Bischoff

An equal interpolation mixed method for plate and shell problems

Tuesday, July 2nd

9:00 - 9:45

Chair: Peter Wriggers

L. Beirao da Veiga (Keynote)
Introducing virtual elements in 3D

9:45 - 10:45

Chair: Peter Wriggers

F. Auricchio, E. Bonetti, C. Lovadina, G. Scalet
Thermal finite element modeling of additive manufacturing

L. Hug, P. Di Stolfo, W. Garhuom, A. Düster, A. Schröder, S. Kollmannsberger, E. Rank
The finite cell method: new hp-type discretizations and non-linear applications

10:45 - 11:10

Coffee break

11:10 - 12:10

Chair: Daniel Peterseim

R. Maier, P. Morgenstern, T. Takacs
Construction of analysis-suitable t-splines through local higher-dimensional representations

H.G. Matthies, F. Fahrenndorf, L. de Lorenzis, B. Rosic, S.K. Shivanand
Beyond collocation: reducing the number of integration points in geometric and stochastic finite-element analysis

S. Chowdhury, N. Nataraj, D. Shylaja
Morley finite element for a distributed optimal control problem governed by the von Karman equations

12:30 - 13:45

Lunch break

14:00 - 14:45

Chair: Carsten Carstensen

J. Hu (Keynote)
Adaptive and multilevel mixed finite element methods

14:45 - 15:45

Chair: Carsten Carstensen

F. Aldakheel, N. Noii, T. Wick, P. Wriggers
An adaptive global-local approach for phase-field modeling of anisotropic brittle fracture

K. Mang, M. Walloth, T. Wick, W. Wollner
A posteriori estimators for the adaptive solution of quasi-static fracture phase-field models

K. Mang, M. Walloth, T. Wick, W. Wollner
Numerical application of an error estimator for a phase-field fracture model in incompressible materials

15:45 - 16:15

Coffee break

16:15 - 18:15

Chair: Ralf Müller

H. R. Bayat, P. Schreyer, S. Rezaei, S. Reese

Interfacial crack propagation modeling in the framework of the cohesive discontinuous galerkin method

S. Reese, O. Barfusz and T. Brepols

Reduced integration-based continuum elements for gradient-extended damage and fracture

C. Bilgen, K. Weinberg

An investigation of various crack-driving forces of the phase-field model

M. Kästner, P. Hennig, A.C. Hansen-Dörr, F. Dammaß

Diffuse modelling of weak and strong discontinuities

D. Olesch, R. Müller, C. Kuhn

Comparison of different finite element approximations of phase field fracture models

S. Bartels, M. Milicevic, M. Thomas

Convergence of a numerical method for quasistatic, rate-independent damage evolution

19:00 -

Conference Dinner

Wednesday, July 3rd

9:00 - 9:45

Chair: Stefanie Reese

N. Aage (Keynote)

Advanced density based topology optimization methods

9:45 - 11:05

Chair: Stefanie Reese

F. Auricchio, A. Viguerie, S. Bertoluzza

Two-level methods for the simulation of additive and nonhomogenous material problems

F.-J. Barthold, W. Kijanski

Optimal material design based on variational design sensitivity analysis

U. Khristenko, A. Constantinescu, P. Le Tallec, J.T. Oden, B. Wohlmuth

Surrogate material model using the level-set of gaussian random field with matern covariance

R. Mahnken, X. Ju

Error-controlled homogenization based on two approaches of model adaptivity

11:05 - 11:20

Coffee break

11:20 - 12:20

Chair: Markus Kästner

T. Chiles, M. Montanari, R. Sevilla, N. Petrinic

Quadrilateral element nurbs-enhanced finite element method (NEFEM) for plane stress

S.C. Divi, C.V. Verhoosel, A. Reali, F. Auricchio, E.H. van Brummelen

An error-estimate-based adaptive integration scheme for immersed isogeometric analysis

C. Hesch

Extended mortar methods for isogeometric analysis

12:20 - 12:30

Closing

12:30 - 13:45

Lunch break

14:00 - 16:00

SPP Discussion