

Program

Monday, August 21th

09:00 - 09:15

Opening

09:15 - 10:00

Chair: Jörg Schröder

S. Klinkel (Keynote)

THE ANALYSIS OF SOLIDS IN BOUNDARY REPRESENTATION - A NURBS BASED FORMULATION

10:00 - 11:00

Chair: Jörg Schröder

S. Bartels, M. Milicevic and M. Thomas

FINITE ELEMENT APPROXIMATION OF FUNCTIONS OF BOUNDED VARIATION AND APPLICATION TO MODELS OF DAMAGE

M. Kästner, P. Henning, P. Morgenstern and D. Peterseim

ADAPTIVE PHASE-FIELD MODELLING OF FRACTURE - ANALYSIS AND APPLICATIONS

C. Hesch and M. Dittmann

LARGE DEFORMATION DUCTILE FRACTURE AND HIERARCHICAL REFINEMENT FOR ISOGOMETRIC ANALYSIS

11:00 - 11:20

Coffee break

11:20 - 12:20

Chair: Fleurianne Bertrand

C. Bilgen, A. Kopanicakova, C. Hesch, R. Krause and K. Weinberg

LARGE-SCALE SIMULATION OF PNEUMATIC AND HYDRAULIC FRACTURE WITH A PHASE-FIELD APPROACH

T. Noll, C. Kuhn and R. Müller

SOLUTION SCHEMES FOR A PHASE FIELD MODEL OF DUCTILE FRACTURE

G.-S. Liou

SEMI-ANALYTIC SOLUTIONS FOR TRIANGULARLY DISTRIBUTED HARMONIC LOADINGS ON AXIALLY SYMMETRIC AREA IN LAYERED HALF-SPACE

12:30 - 13:45

Lunch break

14:00 - 15:00

Chair: Peter Wriggers

C. Wieners

HYBRID DISCONTINUOUS GALERKIN METHODS IN SOLID MECHANICS

S. Reese, H.R. Bayat and S. Wulfinghoff

ON THE EQUIVALENCE BETWEEN DISCONTINUOUS GALERKIN AND REDUCED INTEGRATION WITH HOURGLASS STABILIZATION

H.R. Bayat, S. Kastian, S. Wulfinghoff and S. Reese

ON THE USE OF DISCONTINUOUS GALERKIN METHOD AND ITS VARIANTS
WITH INSIGHT INTO 3D LOCKING PROBLEMS

15:00 - 15:45

Chair: Peter Wriggers

A. Buffa (Keynote)

ADAPTIVITY, PATCH GLUING AND TRIMMING: ADVANCES IN THE
MATHEMATICAL THEORY OF SPLINE-BASED METHODS

15:45 - 16:15

Coffee break

16:15 - 18:15

Chair: Daniel Balzani

M. Giacomini, L. Borchini, R. Sevilla and A. Huerta

FAST AND ACCURATE APPROXIMATION OF PARAMETERIZED FLOW
PROBLEMS

P. Wriggers

LOW ORDER VIRTUAL ELEMENT METHOD

A. Kraus, P. Wriggers, B. Hudobivnik

IMPROVED STABILIZATION TECHNIQUE FOR THE VIRTUAL ELEMENT
METHOD WITH HIGHER ORDER APPROXIMATIONS

W.T. Rust, P. Wriggers, B. Hudobivnik and B.D. Reddy

APPLICATION OF THE VIRTUAL ELEMENT METHOD TO LARGE DEFORMATION
CONTACT

V. Ruas

A NEW TECHNIQUE TO GENERATE HIGH ORDER SIMPLEX FINITE-ELEMENT
SOLUTIONS WITHOUT CURVED ELEMENTS

E. Karimian and M. Oliaei

SMOOTHED FEM IN COUPLED PROBLEMS

Tuesday, August 22th

9:15 - 10:00

Chair: Carsten Carstensen

T.J.R. Hughes (Keynote)
ISOGEOMETRIC FINITE ELEMENTS

10:00 - 11:00

Chair: Carsten Carstensen

B. Wohlmuth and L. Wunderlich
ISOGEOMETRIC MORTAR METHODS IN SOLID MECHANICS

D. Juhre and R. Makvandi
ON THE ADVANTAGES OF C1 AND C2-CONTINUOUS ISOGEOMETRIC ANALYSIS
OVER THE CLASSICAL FEM FOR HIGHER GRADIENT ELASTICITY

A. Seitz, W.A. Wall and A. Popp
COMBINING ISOGEOMETRIC AND FINITE ELEMENT ANALYSIS
ISOGEOMETRIC CONTACT SURFACES FOR FINITE ELEMENTS

11:00 - 11:20

Coffee break

11:20 - 12:20

Chair: Sören Bartels

M. Chasapi, S. Klinkel and B. Simeon
A NURBS BASED GALERKIN METHOD FOR THE NONLINEAR ANALYSIS OF
SOLIDS IN BOUNDARY REPRESENTATION

P. Morgenstern
MESH REFINEMENT FOR T-SPLINES IN ANY DIMENSION

F. Fahrenndorf, L. De Lorenzis and H. Gomez
RECENT PROGRESS ON ISOGEOMETRIC REDUCED QUADRATURE
TECHNIQUES

12:30 - 13:45

Lunch break

14:00 - 14:45

Chair: Gerhard Starke

P. Pimenta (Keynote)
FINITE ELEMENT ANALYSIS OF VERY THIN SHELLS: RECENT RESULTS

14:45 - 15:45

Chair: Gerhard Starke

O. Barfusz, M. Schwarze and S. Reese

EVALUATION OF LAYERED STRUCTURES USING AN EFFICIENT REDUCED INTEGRATION-BASED SOLID-SHELL CONCEPT

A. Jafarzadeh, A. Taghvaeipour and M.R. Eslami

THERMO-MECHANICAL ANALYSIS OF THE CYLINDRICAL COMPOSITE SHELLS WITH SUPERELEMENTS

F. Schieweck, P. Skrzypacz and D. Wei

A MIXED FINITE ELEMENT METHOD FOR THE RAMBERG-OSGOOD BAR

15:45 - 16:15

Coffee break

16:15 - 17:55

Chair: Christian Wieners

C. Carstensen, P. Bringmann, F. Hellwig and P. Wriggers

NONLINEAR DISCONTINUOUS PETROV-GALERKIN METHODS

T. Steiner, P. Wriggers, F. Hellwig and C. Carstensen

A LOW-ORDER DISCONTINUOUS PETROV-GALERKIN FINITE ELEMENT METHOD FOR LINEAR ELASTICITY

P. Betsch, M. Franke and A. Janz

POLYCONVEXITY AND THE DESIGN OF MIXED FINITE ELEMENTS

R.L. Gates, M.R. Bittens and U. Nackenhorst

HP-ADAPTIVE FINITE ELEMENT EXTERIOR CALCULUS IN HIGHER DIMENSIONS

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

STABILIZED METHODS FOR TRANSIENT SOLID DYNAMICS: HOW IDEAS ORIGINALLY DEVELOPED FOR FLUIDS DYNAMICS CAN APPLY

19:00 -

Conference Dinner

Wednesday, August 23th

9:15 - 10:00

Chair: Stefanie Reese

D. Boffi (Keynote)

MIXED FINITE ELEMENTS AND ADAPTIVE SCHEMES FOR MODAL ANALYSIS

10:00 - 11:00

Chair: Stefanie Reese

M. Igelbüscher, A. Schwarz, K. Steeger and J. Schröder

FIRST-ORDER SYSTEM LEAST-SQUARES FINITE ELEMENTS FOR FINITE ELASTO-PLASTICITY

N. Viebahn and K. Steeger

AN EFFICIENT HELLINGER-REISSNER FORMULATION FOR INCOMPRESSIBLE LINEAR ELASTICITY WITH CONTINUOUS INTER-ELEMENT TRACTION VECTORS

F. Bertrand, M. Moldenhauer and G. Starke

EXTENDING STRESS RECONSTRUCTION TECHNIQUES TO HYPERELASTIC MATERIAL MODELS

11:00 - 11:20

Coffee break

11:20 - 12:20

Chair: Alexander Schwarz

S. Hubrich, A. Düster, E. Rank, S. Kollmannsberger, A. Özcan, A. Schröder and P. Di Stolfo
NUMERICAL INTEGRATION FOR LINEAR AND NONLINEAR PROBLEMS IN HIGH-ORDER IMMERSSED BOUNDARY METHODS BASED ON THE MOMENT FITTING

P. Di Stolfo, A. Schröder, A. Özcan, S. Kollmannsberger, E. Rank, S. Hubrich and A. Düster
A-POSTERIORI ERROR ESTIMATION FOR IMMERSSED BOUNDARY METHODS

S. Kollmannsberger, A. Düster, S. Hubrich, E. Rank, A. Özcan, A. Schröder and P. Di Stolfo
HIGH-ORDER IMMERSSED-BOUNDARY METHODS IN SOLID MECHANICS: DISCRETIZATION AND APPLICATION

12:20 - 12:30

Closing

12:30 - 13:45

Lunch break

14:00 - 16:00

SPP Discussion