

NUMERICAL METHODS FOR MULTI-MATERIAL FLUID FLOW (MULTIMAT 2015)

WÜRZBURG, GERMANY,
SEPTEMBER 7 - 11, 2015

SCHEDULE



SCHEDULE

	2015/09/07 Monday	2015/09/08 Tuesday	2015/09/09 Wednesday	2015/09/10 Thursday	2015/09/11 Friday
09:00 - 10:15	Barlow Dumas Francois	Brauenig Clair Waltz	Shashkov Owen Del Pino	Barlow Burton Maire	Owen Raskin Ma
10:15 - 10:45	Coffee Break				
10:45-12:25	Sidilkover Rider Miller Popov	Loubère Boscheri Dumbser Blanchard	Luttwak Menshov Serezhkin Zakharov	Morgan Chiravalle Charest Vazquez-Gonzalez	Cook Williams Zhang Doebbling
12:25 - 14:00	Lunch				
14:00-15:40	Bochev Kramer Hill De Vuyst	Dobrev Liska Váchal Kuchařík	Peterson Costes Poudroux Kenamond	Posters	Qi Hahn Sváček
15:40 - 16:10	Coffee Break				
16:10 - 17:50	Hoch Claisse Breil Bukač	Siefert Kolev Masser Georges	Robinson Dai Ferguson Ragusa	Posters (until 17:00)	

POSTERS

Baolin	Basting C.	Basting S.	Bayraktar	Bement	Chen
Coffing	Costes	Dawes	Fung	Gasc	Gibson
Holec	Klíma	Kosík	Lohmann	Mabuza	Marboeuf
Morel	Ragusa	Rieben	Rousculp	Smith	

MONDAY

Session 09:00 - 10:15 (chairman Kuzmin)

- 09:00 - 09:25 Andrew Barlow
Further developments of an interface-aware subscale dynamics closure model for multimaterial cells
- 09:25 - 09:50 Laurent Dumas
A new volume-preserving and continuous interface reconstruction method for multimaterial flow
- 09:50 - 10:15 Marianne Francois
Interface reconstruction algorithms in 2D and 3D for many-core and multi-core computer architectures

Session 10:45 - 12:25 (chairman Owen)

- 10:45 - 11:10 David Sidilkover
Factorizable methods for compressible flow computations: Recent developments
- 11:10 - 11:35 William Rider
Evolution Equations for Developing Improved High-Resolution Schemes
- 11:35 - 12:00 Douglas Miller
An Edge-Centered Tensor Artificial Viscosity
- 12:00 - 12:25 Bojan Popov
Maximum principle preserving finite element method for nonlinear conservation laws

Session 14:00 - 15:40 (chairman Rider)

- 14:00 - 14:25 Pavel Bochev
A variational flux recovery approach for elastodynamics problems with interfaces
- 14:25 - 14:50 Richard Kramer
A Conformal Decomposition Finite Element Method with Guaranteed Quality Dynamic Discretization
- 14:50 - 15:15 Ryan Hill
Local slide line merging capability
- 15:15 - 15:40 Florian De Vuyst
Stable and accurate compressive interface capturing advection schemes

Session 16:10 - 17:50 (chairman Loubère)

- 16:10 - 16:35 Philippe Hoch
Local stability for third-order schemes on conical unstructured meshes
- 16:35 - 17:00 Alexandra Claisse
2D Axisymmetric extension of the Lagrangian CSTS (Conservative Space- and Time-Staggered) hydrodynamic scheme
- 17:00 - 17:25 Jerome Breil
A 3D Anisotropic Diffusion Scheme on ALE-AMR Meshes
- 17:25 - 17:50 Martina Bukač
A partitioned numerical scheme for the interaction between fluid, an elastic structure and a poroelastic material

TUESDAY

Session 09:00 - 10:15 (chairman Maire)

- 09:00 - 09:25 Jean-Philippe Braeunig
Adaptation of multimaterial Lagrange-Remap schemes for efficient parallel computation.
- 09:25 - 09:50 Guillaume Clair
A multidimensional finite-volume direct ALE cell-centered scheme for hydrodynamics simulations
- 09:50 - 10:15 Gabriel Georges
A cell-centered Finite Volume method for solving multi-dimensional hyper-elasticity equations written under total Lagrangian form

Session 10:45 - 12:25 (chairman Braeunig)

- 10:45 - 11:10 Raphaël Loubère
A direct high accurate ALE numerical scheme with a posteriori stabilization technique
- 11:10 - 11:35 Walter Boscheri
Direct Arbitrary-Lagrangian-Eulerian ADER-MOOD Finite Volume Schemes for Multidimensional Hyperbolic Conservation Laws
- 11:35 - 12:00 Michael Dumbser
A novel a posteriori subcell finite volume limiter for the discontinuous Galerkin method on space-time adaptive grids
- 12:00 - 12:25 Ghislain Blanchard
Towards effective (very) high accurate remapping method on polyhedrons using a posteriori limiting

Session 14:00 - 15:40 (chairman Menshov)

- 14:00 - 14:25 Veselin Dobrev
Multi-material Remap Algorithms for High-order Finite Element Arbitrary Lagrangian-Eulerian (ALE) Simulations
- 14:25 - 14:50 Richard Liska
Divergence preserving reconstruction of nodal components of the vector field from its normal components to the faces
- 14:50 - 15:15 Pavel Váchal
Symmetry and Volume Compatibility in an r - z Staggered Scheme
- 15:15 - 15:40 Milan Kuchařík
Multi-Scale Pressure-Residual-Based Anti-Hourglass Scheme in Compatible Staggered Lagrangian Method

Session 16:10 - 17:50 (chairman Waltz)

- 16:10 - 16:35 Christopher Siefert
Implicit Solvers for Higher-Order Discretizations
- 16:35 - 17:00 Tzanio Kolev
Closure Models for High-Order Finite Element Hydrodynamics
- 17:00 - 17:25 Thomas Masser
A Comparative Study of Thermodynamic Closures for Multimaterial Cells in Lagrange-Plus-Remap Algorithms

WEDNESDAY

Session 09:00 - 10:15 (chairman Rieben)

- 09:00 - 09:25 Mikhail Shashkov
Adaptive Reconnection-based Arbitrary Lagrangian Eulerian Methods
- 09:25 - 09:50 J. Michael Owen
Conservative, Multimaterial ReALE Hydro on a Staggered Grid
- 09:50 - 10:15 Stéphane Del Pino
An asymptotic preserving multidimensional ALE method for the Scannapieco-Cheng model

Session 10:45 - 12:25 (chairman Liska)

- 10:45 - 11:10 Gabi Luttwak
On Extension of Monotonicity to Multi-Dimensional Flows
- 11:10 - 11:35 Igor Menshov
An Eulerian Method for Computing Gas-Solid Two-Phase Flows
- 11:35 - 12:00 Alexey Serezhkin
Numerical Simulation of Detonation in Condensed Porous Explosives
- 12:00 - 12:25 Pavel Zakharov
A Composite Riemann Solver for Improving Interface Capturing in Multimaterial Calculations

Session 14:00 - 15:40 (chairman Barlow)

- 14:00 - 14:25 Kara Peterson
Optimization-based mesh correction with volume and convexity constraints
- 14:25 - 14:50 Joris Costes
Mesh regularization for an ALE code based on the limitation of the fluid vorticity
- 14:50 - 15:15 Joachim Pouderoux
ShaPo: A Framework for Generating 2D Voronoi Meshes
- 15:15 - 15:40 Mark Kenamond
Advances in Dendritic Mesh Generation, LA-UR 15-21449

Session 16:10 - 17:50 (chairman Morel)

- 16:10 - 16:35 Allen Robinson
A UQ Enabled Aluminum Tabular Multiphase Equation-of-State Model
- 16:35 - 17:00 William Dai
On Operator-splitting Technique for Plasma 3-T Radiation Diffusion in Two and Three Dimensions
- 17:00 - 17:25 Jim Ferguson
Radiative-shock solutions from grey Sn-transport with temperature- and density-dependent cross-sections
- 17:25 - 17:50 Jean Ragusa
Entropy-based artificial viscosity stabilization for non-equilibrium Grey Radiation-Hydrodynamics

THURSDAY

Session 09:00 - 10:15 (chairman Shashkov)

- 09:00 - 09:25 Philip Roe (to be presented by Andrew Barlow)
 A Simple, Accurate Lagrangian Hydrocode
- 09:25 - 09:50 Donald Burton
 Corner gradient reconstruction (CGR) and the reduction of dissipation in Lagrange cell-centered hydrodynamics (CCH)
- 09:50 - 10:15 Pierre-Henri Maire
 A Cell-centered Finite Volume method on Lagrangian grid for solving elastic-plastic flows in two-dimensional axisymmetric geometry

Session 10:45 - 12:25 (chairman Miller)

- 10:45 - 11:10 Nathaniel Morgan
 A 3D Arbitrary Lagrangian Eulerian hydrodynamic approach for tetrahedral meshes
- 11:10 - 11:35 Vincent Chiravalle
 A 3D Finite Element ALE Method using an Approximate Riemann Solution
- 11:35 - 12:00 Marc Charest
 A High-Order Central ENO Method for ALE Simulation of Three-Dimensional Compressible Flows
- 12:00 - 12:25 Thibaud Vazquez-Gonzalez
 A mimetic approach to enforce geometric and energetic consistency on a simple and robust fluid-dynamics ALE scheme

FRIDAY

Session 09:00 - 10:15 (chairman Robinson)

- 09:00 - 09:25 J. Michael Owen
Conservative Reproducing Kernel Smoothed Particle Hydrodynamics for Solids
- 09:25 - 09:50 Cody Raskin
CRKSPH - A Conservative Reproducing Kernel Smoothed Particle Hydrodynamics Scheme
- 09:50 - 10:15 Xia Ma
Comparison of Material Point Method (MPM) and Volume of Fluid (VOF) Method in simulation of HE material fragment impact

Session 10:45 - 12:25 (chairman Del Pino)

- 10:45 - 11:10 Andrew Cook
High-order Eulerian Simulations of Multi-material Flows
- 11:10 - 11:35 Robin Williams
Simulating ejecta production
- 11:35 - 12:00 Duan Zhang
Modeling Continuum to Disperse State Transitions
- 12:00 - 12:25 Scott Doebling
The LANL Code Verification Test Suite

Session 14:00 - 15:40 (chairman Basting S.)

- 14:00 - 14:25 Jin Qi
A remapping-free high-order ALE method based on undistorted temporal-spatial control volumes
- 14:25 - 14:50 Andreas Hahn
ALE-FEM for Two-Phase Flows with Surfactants
- 14:50 - 15:15 Petr Sváček
Numerical simulation of flow induced vibrations of a vocal fold model with consideration of different boundary conditions

SOCIAL PROGRAM

- Monday, 19:00 Welcome reception at the hotel
- Tuesday, 19:00 - 22:00 Boat cruise on the Main river
meeting at 18:15 in the hotel lobby
- Thursday, 18:00 - 22:00 Conference dinner in the court cellar of the Palace Residenz Würzburg
meeting at 17:45 in the hotel lobby
- Saturday, 09:30 - 18:00 Post-conference trip to Bamberg
meeting at 09:30 in the hotel lobby