ICMM9 Conference Program

9th International Conference on Material Modeling

1–3 September 2026 · Prague, Czech Republic

icmm9.fsv.cvut.cz

Monday, 31 August 2026

Time	Room	Session / presentation
19:00–21:00	**Atrium**	**Welcome reception**

Tuesday, 1 September 2026

Time	Room	Session / presentation
09:00–09:20	**C223**	**Opening**
09:25–10:40	**C223**	**Dislocations, Gradient Plasticity & Micromorphic Modeling**
		Chair: Reuven Segev
09:25–09:50		A Fast Fourier Transform-Based Method for Static Field Dislocation Mechanics Within a First Strain Gradient Elasticity Theory of Mindlin Type
		Speaker: Stéphane Berbenni
09:50–10:15		A Periodic, Non-Singular Dislocation Energy Kernel Based on Gradient Elasticity and Ewald Summation
		Speaker: Bernhard Heininger
10:15–10:40		Microcurl Modelling of Size Effects in Single Crystals
		Speaker: Samuel Forest
10:40–11:10	**Atrium**	**Coffee break**
11:10–12:50	**C223**	**Crystal Plasticity, Texture & Anisotropy**
		Chair: Stéphane Berbenni
11:10–11:35		A CPFEM-Based Virtual Testing Approach for Characterizing Anisotropic Plastic Behavior of Additively Manufactured Low-Carbon Lath Martensitic Steel
		Speaker: Hoyoung Lee
11:35–12:00		Characterizing and Modelling the Viscoplastic Anisotropy of Tin Single Crystals Using CPFEM
		Speaker: Alain Twisungemariya
12:00–12:25		Effects of Texture on Twin Propagation and Thickening in Magnesium Alloys
		Speaker: Filip Šiška
12:25–12:50		Assessment of Numerical Schemes for Solving Higher-Order Gradient Crystal Plasticity Model
		Speaker: Yuichi Tadano
12:50–14:00	**Atrium**	**Lunch**
14:00–15:40	**C223**	**Constitutive Foundations & Mathematical Material Modeling**
		Chair: Martin Horák
14:00–14:25		Geometrical Interpretation of Commutative-Symmetrical Stretch Tensor Products and the Decoupling of Material (An)isotropy From Deformation-Induced Anisotropy
		Speaker: Klaus Heiduschke
14:25–14:50		On Force Interactions for Electrodynamics-Like Theories
		Speaker: Reuven Segev

Time	Room	Session / presentation
14:00–15:40	**C223**	**Constitutive Foundations & Mathematical Material Modeling (continued)**
14:50–15:15		Polyconvexity with Moments and Sums of Squares *Speaker: Stephan Weis*
15:15–15:40		Sweeping Process in Stress-Based Models of Elastoplasticity *Speaker: Ivan Gudoshnikov*
15:40–16:10	**Atrium**	**Coffee break**
16:10–17:50	**C223**	**Fatigue, Fracture & Microstructural Damage in Metals** *Chair: Jan Zeman*
16:10–16:35		A Crystal-Plasticity Finite Element Framework to Assess the Fatigue Behavior of Turbine Blades Through Geometrically Necessary Dislocations Criteria and Conform Meshes *Speaker: Sam Gadoin*
16:35–17:00		Atomistic Investigation of Anisotropic Radiation-Induced Embrittlement *Speaker: Hojjat Mousavisogolitappeh*
17:00–17:25		Fatigue Life Prediction at the Microstructural Scale Considering Plastic Strain Localisation *Speaker: Mathieu Musy-Haspel*
17:25–17:50		Revealing Fracture-Resistant Design Principles in Harmonic-Structured High-Entropy Alloys Using Quasi In-Situ Experiments and Integrated Modeling *Speaker: Tang Gu*

Wednesday, 2 September 2026

Time	Room	Session / presentation
09:00–10:40	**C223**	**Generalized Continua, Metamaterials & Size Effects** *Chair: Martin Horák*
09:00–09:25		Modeling Metamaterials by Second-Order Rate-Type Constitutive Relations Between Only the Macroscopic Stress and Strain *Speaker: Vít Průša*
09:25–09:50		On the Size Effect in Cellular Foam Materials: A Combined Numerical and Experimental Investigation *Speaker: Fenil Maganbhai Lathiya*
09:50–10:15		Numerical Modeling of the Mechanical Behavior of New Architectured Materials Based on Bi-Crystallographic Analogies *Speaker: Nicolas Lallemand*
10:15–10:40		Well-Posed Continuum Damage Models Without the Agonizing Gradient *Speaker: Matti Schneider*
10:40–11:10	**Atrium**	**Coffee break**
11:10–12:50	**C223**	**Shape Memory Alloys & Transformation Mechanics** *Chair: Samuel Forest*
11:10–11:35		Constitutive Modeling of Coupled Dissipation Processes in the Mechanics of Shape Memory Alloys *Speaker: Miroslav Frost*
11:35–12:00		Numerical Solution of Coupled Dissipation Processes in the Mechanics of Shape Memory Alloys *Speaker: Petr Pelech*
12:00–12:25		Effects of Nanocrystalline Grain Size and Hydrogen on Stress-Induced Martensitic Transformation in NiTi Shape Memory Alloys: A Phase-Field Study *Speaker: Kehinde Ajayi*
12:25–12:50		Modeling the Interaction Between Localized Transformation and Functional Fatigue in Shape Memory Alloys *Speaker: Mahdi Neghabi*
12:50–14:00	**Atrium**	**Lunch**

14:00–15:40	**C223**	**Thermomechanics, Constitutive Response & High-Rate Loading**
		Chair: Paweł Dłużewski
14:00–14:25		A Unified Formulation of Gibbs Free Energy for Solids and Fluids
		Speaker: Thomas Böhlke
14:25–14:50		A Monolithic Mixed Finite Element Formulation for Thermomechanical Small-Strain Elastoplasticity with Temperature-Dependent Properties
		Speaker: Ahsan Kaleem
14:50–15:15		Experimental and Numerical Characterization of Johnson–Cook Model for Dog-Bone S355 Structural Steel at High Strain Rates and Elevated Temperatures
		Speaker: Hamed Hampaiyan Miandoab
15:15–15:40		Hard-Magnetic Soft Materials: Theory and Implementation
		Speaker: Marco Amato
15:40–16:10	**Atrium**	**Coffee break**
16:10–17:50	**C223**	**Polymers: Glass Transition, Melting & Programmed Response**
		Chair: Thomas Böhlke
16:10–16:35		A Physical State-Dependent Model for Semicrystalline Polymers: Modeling the Transition from Elasto-Plasticity to Viscous Flow
		Speaker: Sandra Köhler
16:35–17:00		An Internal Variable Approach to Model Relaxation Processes Near the Glass Transition Regime of Amorphous Thermoplastics
		Speaker: Frederik Hille
17:00–17:25		Glass Transition of Polymers from a Thermodynamic Point of View
		Speaker: Sabine Enders
17:25–17:50		Modeling Functionally Graded 4D Printed Shape Memory Polymers
		Speaker: Henrik Hembrock

Thursday, 3 September 2026

Time	Room	Session / presentation
09:00–10:40	**C223**	**Additive Manufacturing, Functionally Graded Materials & Computational Design**
		Chair: Michael Somr
09:00–09:25		A Thermo-Mechanical Particle Finite Element Method for Unified Fluid-Solid Formulation: Application to Phase Change and Metal Additive Manufacturing
		Speaker: Jean-Philippe Ponthot
09:25–09:50		Asymmetric Plasticity in Additively Manufactured 316L Stainless Steel BCC Lattice Architecture
		Speaker: Ignacio Ríos
09:50–10:15		Material-Aware Topology and Filament Path Optimization for Additive Manufacturing of Continuous Fiber-Reinforced Polymers
		Speaker: Bruno Musil
10:15–10:40		Programmable Anisotropy From Inflation Patterns in Pressurized Cellular Solids
		Speaker: Paul Lacorre
10:40–11:10	**Atrium**	**Coffee break**
11:10–12:50	**C223**	**Homogenization, Micromechanics & Multiscale Identification**
		Chair: Matti Schneider
11:10–11:35		Determination of Constitutive Parameters From 3D Strain Fields
		Speaker: Martin Diehl
11:35–12:00		Modeling Microstructural Evolution in Particulate Composites under Compression: A Mean-Field Homogenization Approach
		Speaker: Eléonore Bourdier
12:00–12:25		Multiscale Characterization and Modeling of the Thermo-Mechanical Behavior of Moso Bamboo
		Speaker: Lukas Speichinger
12:25–12:50		Modeling the Creep Behavior of Lamellar NiAl-(Cr,Mo) Composites Using Three-Scale Homogenization
		Speaker: Claudius Klein

12:50–14:00	**Atrium**	**Lunch**
14:00–15:40	**C223**	**Phase-Field, Phase Change & Chemo-Mechanical Microstructure Evolution**
		Chair: Milan Jirásek
14:00–14:25		A Consistent Homogenization Framework for Phase-Field Theory Based on Gurtin's Microforce Balance
		Speaker: Geralf Hütter
14:25–14:50		Augmented Lagrangian Treatment of Inequality Constraints in Phase-Field Modelling of Microstructure Evolution
		Speaker: Deepjyoti Dhar
14:50–15:15		Modeling of Phase Transitions during Hydride Formation in Palladium-Hydrogen Systems
		Speaker: Johannes Gisy
15:15–15:40		Finite Element Analysis of Residual Stress Field Formed in Bimaterial GaN/AlGaN Substrates
		Speaker: Paweł Dłużewski
15:40–16:10	**Atrium**	**Coffee break**
16:10–17:25	**C223**	**Concrete, Damage, Fracture & Localization**
		Chair: Milan Jirásek
16:10–16:35		Do We Need Complex Constitutive Models to Simulate the Concrete Gap Test?
		Speaker: Petr Havlásek
16:35–17:00		Localization Analysis in the Plastic Regime of Concrete Damage-Plastic Models
		Speaker: Michal Šmejkal
17:00–17:25		Microstructure-Based Discrete Lattice Modeling of Interlayer Fracture in 3D-Printed Concrete
		Speaker: Benjamin Werner
19:00–21:00	**Restaurant Mánes**	**Conference dinner**