

44th Solid Mechanics Conference

S^{44th}olMech 2026

CONFERENCE PROGRAMME



Institute of Fundamental
Technological Research,
Polish Academy of Sciences



Cracow University of Technology

September 7–10, 2026
Kraków, Poland

44th Solid Mechanics Conference



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Honorary Patronage



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About SolMech

The Solid Mechanics Conferences are a series of biennial international conferences organized by the Institute of Fundamental Technological Research of the Polish Academy of Sciences (IPPT PAN) since 1953. They aim to maintain high scientific standards and provide a friendly atmosphere for discussion of research topics in solid mechanics. This time, the Conference is hosted and co-organized by the Cracow University of Technology.

The SolMech conferences bring together researchers from around the world to present their scientific findings on a wide range of topics related to solid mechanics, addressing recent theoretical and numerical developments in the field, as well as trends and challenges involved in the practical application of research ideas. By gathering both eminent and young scientists, an opportunity is created for identifying new research directions and advancements in solid mechanics, and establishing interdisciplinary collaboration.

Kraków City

The Conference will take place in the royal city of Kraków, a unique symbol of Polish national identity. Enchantingly picturesque, rich in relics of all epochs, it represents the thousand-year-long history of the Polish nation.

In Kraków you can admire different styles of architecture, unique Romanesque objects, monumental Gothic edifices, and masterpieces by some of the most outstanding architects of the Renaissance and Baroque period. Probably the most famous landmark in Kraków is Wawel Castle situated on Wawel Hill overlooking the Vistula river and the Gothic St. Mary's Church famous for its magnificent altar carved by Wit Stwosz. In 1978 Kraków was entered in the UNESCO World Heritage Register.

Conference Venue

SolMech2026 will be held in the Interfaculty Education and Research Center (Międzywydziałowe Centrum Edukacyjno-Badawcze) called "Działownia", on the campus of the Cracow University of Technology, situated at 24 Warszawska Street (see the map p. 62).

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Organizing Committee

K. Kowalczyk-Gajewska (*Conference Chair*)
J. Pamin (*Conference Co-Chair*)
M. Mucha, P. Hołobut, M. Kurska

Presenting Authors

Monday, September 7

09:00–11:40 Registration and Coffee

11:40–12:15 Opening Ceremony

12:15–13:00 Room A Plenary 1: Deshpande Chair: Kowalczyk-Gajewska

13:00–14:00 Lunch

14:00–16:00 Session Block 1

Time	Room A TS10-1 Kowalczyk- Gajewska	Room B TS2-1 Giersig	Room C TS5-1 Rachowicz	Room D TS9-1 Arikawa Mościcki Pieczyska	Room E TS12-1 Kęćik Jankowski
14:00	Ogierman	Chudziński	Łoś	Hirano & Arikawa	Mendrok
14:20					Perlikowski
14:40	Fedeliński	Burczyński	Oleksy	Hayamizu	Zapoměl
15:00	Vadillo	Fedorov	Kowalski	Ciborowski	Litewka
15:20	Dæhli	Inoue	Waszkowiak	Vejvoda	Pawlak
15:40	Jagadish	Dłużewski	Pluciński	Shukla	Seifert

16:00–16:30 Coffee Break

16:30–18:30 Session Block 2

Time	Room A TS10-2 Vadillo	Room B TS11-1 Figiel	Room C TS5-2 Cecot	Room D TS9-2 Arikawa Mościcki Pieczyska	Room E TS12-2 Kęćik Perlikowski
16:30	Prakash	Brassart	Rachowicz	Frost	Kłoda Ostrowski
16:50	Baczmański		Dryzek	Ardayfio	
17:10	Virupakshi	Krzaczek	Jaworska	Arikawa	Bogucki
17:30	Wierzbowski	Nisar	Arai	Mościcki	
17:50	Mazumder	Rojek	Świątkiewicz	Pieczyska	Jankowski
18:10		Wardach- Święcicka	Zboiński	Shariff	

18:30–21:30 Welcome Reception

Tuesday, September 8

08:30–09:00		Morning Coffee			
09:00–09:45	Room A	Plenary 2: Kyriakides			Chair: Petryk
09:45–10:30	Room A	Plenary 3: Stupkiewicz			Chair: Menzel
10:30–11:00		Coffee Break			
11:00–13:00		Session Block 3			
Time	Room A TS10-3 Ganghoffer	Room B TS11-2 Figiel	Room C TS5-3 Zboiński	Room D TS7-1 Egner	Room E TS12-3 Perlikowski Jankowski
11:00	Brenner	Poluektov	Majchrzak	Dubey	Kęcik
11:20		Antretter	Piasecka- Belkhat		Denysenko
11:40	Essafi	Yadav	Nawara	Przygucki	Pešek
12:00	Girard	Rajaei Asl	Tóth	Kowalewski	Brank
12:20	Bornert	Iticha	Kumor	Sairam Goud	Dudariev
12:40	Bieniek	Abu-Salih	Kurt [Cancelled]	Asami	
13:00–14:00		Lunch			
14:00–16:00		Session Block 4			
Time	Room A TS10-4 Brenner	Room B TS11-3 Rojek	Room C TS5-4 Cecot	Room D TS7-2 Kowalewski	Room E TS1-1 Sumelka
14:00	Ganghoffer	Jabareen	Amadou Sanoko	Egner	Sun
14:20	Nosewicz			Bogusz	
14:40	Klein	Figiel	Klimczak	Lahbib	Wactawiak
15:00	Mercier	Panda	Rejwer- Kosińska	Rzepka	Itskov
15:20	Frydrych	Svanadze	Fialko	Dutta	Béda
15:40	Jelenić	Mačiūnas	Głowacki	Sebsebe	Łuczak
16:00–16:30		Coffee Break			
16:30–18:30		Session Block 5			
Time	Room A TS10-5 Mercier	Room B TS11-4 Rojek	Room C No session	Room D TS7-3 Rodríguez- Martínez	Room E TS1-2 Madej
16:30	Schrefler	Freydin		Tabin	Manecka- Padaż
16:50		Nadolski		Nejman	Zahid
17:10	Łydźba	Carbonell		Budiakivska	Wawrzyniak
17:30	Bodak	Rohan		Makowska	Szajek
17:50	Heród	Kansara		Tsuruta	Sitko
18:10		Kotrasova		Horio	

Wednesday, September 9

08:30–09:00		Morning Coffee			
09:00–09:45	Room A	Plenary 4: Lebensohn			Chair: Geers
09:45–10:30	Room A	Plenary 5: Lilleodden Skoczeń			Chair: Pamin
10:30–11:00		Coffee Break			
11:00–13:00		Session Block 6			
Time	Room A TS10-6 Kowalczyk- -Gajewska	Room B TS13-1 Skoczeń	Room C TS4-1 Baranowski	Room D TS7-4 Kowalewski	Room E TS15-1 Kuczma
11:00	Bieda	Leblond	Płatek	Rodríguez- -Martínez	Sabik
11:20	Pawłowski				
11:40	Lederer	Petryk	Krajewski	Liubyska	Lenartowicz
12:00	Ptaszny	Kursa	Marcin Nowak	Gupta	Łasecka- -Plura
12:20	Lewandowska	Denzer	Wiśniewska	Mawani	Kołodziejczak
12:40		Onozuka	Kumar	Libura	
13:00–14:00		Lunch			
14:00–16:00		Session Block 7			
Time	Room A TS6-1 Stupkiewicz	Room B TS13-2 Menzel	Room C TS4-2 Baranowski	Room D TS8-1 Pietruszczak Tejchman	Room E TS15-2 Kamiński Guminiak
14:00	Maresca	Altenbach	Teimouri	Pietruszczak	Kuczma
14:20		Strondl			Martowicz
14:40	Amini	Saksala	Lanc	Pokorska	Guminiak
15:00	Rezaee- -Hajidehi	Kouhia	Knitter- -Piątkowska	Cudny	Pawlus
15:20	Runesson	Wosatko	Pełczyński	Tejchman	Gujar
15:40	Jacobsson	Ziółkowski	Wachal		
16:00–16:30		Coffee Break			
16:30–17:50		Session Block 8			
Time	Room A TS6-2 Maresca	Room B TS13-3 Kouhia	Room C TS4-3 Sielicki	Room D TS8-2 Pietruszczak Tejchman	Room E TS14-1 Lewiński
16:30	Tüma	Mucha	Banić	Grabowski	Błachowski
16:50	Dhar	Schewe	Khvan	Krykowski	Marzok
17:10	Serpilli	Wcisło	Łacny	Hajivand Dastgerdi	Trivedi
17:30	Zemlyanova	Pandey	Desai		Singh
18:00–20:00		Walking Tours			

Thursday, September 10

08:30–09:45		Morning Coffee			
09:00–09:45	Room A	Plenary 6: Skoczeń [Moved to Wed. 09:45]			
09:45–10:30	Room A	Plenary 7: Geers		Chair: Lebensohn	
10:30–11:00		Coffee Break			
11:00–13:00		Session Block 9			
Time	Room A TS6-3 Rezaee- -Hajidehi	Room B TS13-4 Petryk	Room C TS4-4 Sielicki	Room D TS3-1 Majchrzak Milewski	Room E TS14-2 Błachowski
11:00	Sauer	R.Z. Schmidt	Bednarek	Ważydrąg	Tyburec
11:20		E. Schmidt			
11:40	Korelc	Kaciuba	Tsuchiya	Sienkiewicz	Bruggi
12:00	Ghesquière- -Diérickx	Grygierzec	Musha	Skorupa	Michał Nowak
12:20	Mróz [Cancelled]	Kozyra	Hwang	Wołowicz	Sobczak
12:40		Szyszek	Florek	Mikelashvili	Łazarczyk
13:00–14:00		Lunch			
14:00–16:00		Session Block 10			
Time	Room A TS6-4 Stupkiewicz	Room B TS13-5 Pamin	Room C TS4-5 Baranowski	Room D TS3-2 Majchrzak Milewski	Room E TS14-3 Bruggi
14:00	Bartosz	Darban	Šmilauer	Wilińska	Kowalski
14:20	H. He		Bohdal	Ampah- -Essel	Tajs- -Zielińska
14:40	Šarlija	Jurczak	Davarpanah T.G.	Wojnarowska	Szeptyński
15:00	Szczygieł	Ortwein	Kulakowska	Marcula	Tokunaga
15:20	Nösger	Wu [Cancelled]	Szybiński	K. Nowak	Lewiński
15:40		A.-M. He [Cancelled]	Toufik	John	
16:00–16:30		Coffee Break			
16:30–17:15	Room A	Plenary 8: Menzel		Chair: Stupkiewicz	
17:15–17:30		Closing Ceremony			
18:30–19:30		Guided tour of Aviation Museum			
19:30–23:00		Banquet Dinner			

Invited Plenary Lectures

Monday, September 7

12:15–13:00, Room A

V. Deshpande

University of Cambridge, UK

New Measurement Strategies for Data-Driven Mechanics

Tuesday, September 8

09:00–10:30, Room A

S. Kyriakides

University of Texas at Austin, USA

Compressive Behavior and Crushing of Foams:
Experiments and Modeling

S. Stupkiewicz

*Institute of Fundamental Technological Research,
Polish Academy of Sciences, Poland*

Diffuse-Interface Modelling of Microstructure Evolution
at Micro- and Macro-Scale

Wednesday, September 9

09:00–10:30, Room A

R.A. Lebensohn

Los Alamos National Laboratory, USA

Fast Fourier Transform (FFT)-Based Models for
Microstructure/Property Relationships of Polycrystalline
Materials

E.T. Lilleodden

Fraunhofer Institute for Silicon Technology (ISIT), Germany

Micromechanics: The “Strength” of Miniaturized Testing
[Cancelled]

Thursday, September 10

09:00–10:30, Room A

B. Skoczeń

Cracow University of Technology, Poland

From Fundamental Principles to Mechanics Near
Absolute Zero [Moved to Wed. 09:45]

R. Liupekevicius, V.G. Kouznetsova,

J.A.W. van Dommelen, **M.G.D. Geers**

Eindhoven University of Technology, The Netherlands

Advances in the Micromorphic Homogenization of
Dynamical Metamaterials

Thursday, September 10

16:30–17:15, Room A

A. Menzel

TU Dortmund University, Germany

and Lund University, Sweden

Modelling Electrical Conductivity Across Scales

Thematic Sessions

Organizers and Keynote Lectures

TS1: Advanced continuum theories

Organizers: W. Sumelka, Ł. Madej, G.Z. Voyiadjis,
Y. Sun, J. Lian

Keynote Lecture: **Y. Sun**¹, X. Huang²

¹ *Taiyuan University of Technology, China*

² *Hohai University, China*

Nonlocally Regularised Stress-Fractional Plasticity Model
Considering Fabric Anisotropy

TS2: Atomistic and nanoscale modelling

Organizers: M. Giersig, K. Kempa, M.J. Naughton,
D. Carnahan

Keynote Lecture: **P. Chudziński**

Institute of Fundamental Technological Research,

Polish Academy of Sciences, Poland

Why Nanostructures Are Different?

TS3: Biomechanics and biomaterials

Organizers: G. Milewski, E. Majchrzak

Keynote Lecture: **I. Ważydrąg**, G. Milewski, S. Łagan

Cracow University of Technology, Poland

In Silico Simulations of Functionally Graded Tricuspid
Artificial Aortic Valves

TS4: Computational and experimental mechanics in engineering applications

Organizers: P. Baranowski, K. Jamroziak,
J. Małachowski, P. Sielicki

Keynote Lecture: **R. Teimouri**^{1,2}, M. Guagliano¹,
S. Bagherifard¹

¹ *Politecnico di Milano, Italy*

² *Cracow University of Technology, Poland*

A Unified Physics-Based Framework for Incremental
Modelling of Residual Stress in History-Dependent
Manufacturing Processes

Keynote Lecture: M. Banaszek¹, **P. Płatek**¹,
M. Madeja², M. Kucewicz¹,
W. Stopyra², M. Stankiewicz¹,
T. Kurzynowski², P. Baranowski¹

¹ *Military University of Technology, Poland*

² *Wrocław University of Technology, Poland*

Studies of Energy Absorption of TPMS Structures
Manufactured via EBM From Ti6Al4V

Keynote Lecture: **T. Bednarek**^{1,2}, A. Zienert^{1,2},
J. Schuster^{1,2}

¹ *Fraunhofer Institute for Electronic Nano Systems, Germany*

² *Chemnitz University of Technology, Germany*

Multiscale Modelling of Physical Vapor Deposition for
Semiconductor Thin Films: From Reactor Dynamics to
Nanoscale Feature Evolution

TS5: Computer methods in solid mechanics

Organizers: W. Cecot, W. Rachowicz, R. Sauer,
G. Zboński

Keynote Lecture: **M. Łoś**, Tomasz Służalec, A. Vilkh, A.
M. Paszyński

AGH University of Kraków, Poland

Collocation-Based Robust Variational Physics-Informed
Neural Networks (CRVPINNs)

Keynote Lecture: **A.M. Amadou Sanoko**^{1,2},
S. Essongue^{1,2}, L. Lapostolle^{1,2},
J. Paux³, L. Morin^{1,2}

¹ *Université de Bordeaux, CNRS, France*

² *Arts et Métiers Institute of Technology, CNRS, France*

³ *Université Sorbonne Paris Nord, LSPM, CNRS, France*

Fast Numerical Method Based on Discrete Sine and
Cosine Transforms for Wave Propagation in
Heterogeneous Media

TS6: Contact and interface mechanics

Organizers: F.M. Andrade Pires, A. Javili,
S. Stupkiewicz

Keynote Lecture: L. La Rosa^{1,2}, **F. Maresca**¹

¹ *University of Groningen, The Netherlands*

² *CEA, DES, IRESNE, DEC, France*

Atomistic Modelling of Structure and Mobility of Twin
Boundaries in NiTi Shape Memory Alloys

Keynote Lecture: **R.A. Sauer**^{1,2,3}

¹ *Ruhr University Bochum, Bochum, Germany*

² *Gdańsk University of Technology, Poland*

³ *Indian Institute of Technology Guwahati, India*

A Chemo-Mechano-Thermodynamical Contact Formu-
lation for (De)Bonding

TS7: Experimental mechanics

Organizers: Z.L. Kowalewski, S.D. Pastramă,
A.M. Pascu

Keynote Lecture: **J.A. Rodríguez-Martínez**^{1,2}

¹ *University Carlos III of Madrid, Spain*

² *IMDEA Materials Institute, Spain*

Real-Time In-Situ X-Ray Imaging of Dynamic Shear
Fracture and Spallation in Porous Metals

Keynote Lecture: **V. Prakash Dubey**¹, M. Kopeć^{1,2},
P. Wood², Z.L. Kowalewski¹

¹ *Institute of Fundamental Technological Research,
Polish Academy of Sciences, Poland*

² *University of Derby, UK*

Orientation-Dependent Yield Surface Evolution and
Anisotropic Plasticity in LPBF-Manufactured SS316L

TS8: Geomechanics and granular materials

Organizers: J. Teichman, W. Wu

Keynote Lecture: **S. Pietruszczak**, M. Bakhtiari
McMaster University, Canada

Multiphysics Analysis of Salt-Induced Degradation in
Porous Materials

TS9: Mechanics of advanced materials and smart structures

Organizers: E. Pieczyska, D. Jarząbek, A.D. Lantada

Keynote Lecture: **K. Hirano**, M. Narita, **S. Arikawa**
Meiji University, Japan

Investigation on Improving the Performance of
Mechanical Metamaterials Expanded by Sound Waves

TS10: Micromechanics of heterogeneous and multi-component materials

Organizers: K. Kowalczyk-Gajewska, S. Mercier,
G. Vadillo, A. Srivastava

Keynote Lecture: **B.A. Schrefler**¹, S.M.S. Mortazavi²,
T. Ni², Y. Shu²

¹ *University of Padova, Italy*

² *Hohai University, China*

Supershear Mode I and Mode II Fracturing in Dry and
Saturated Porous Media

Keynote Lecture: **R. Brenner**¹, L. Morin^{2,3},
J. Paux⁴, S. Essongue^{2,3},
A.M. Amadou Sanoko^{2,3}

¹ *Sorbonne Université, CNRS, France*

² *Université de Bordeaux, CNRS, France*

³ *Arts et Metiers Institute of Technology, CNRS, France*

⁴ *Université Sorbonne Paris Nord, CNRS, France*

Anisotropic Elastic Properties of Smoothed Interphase in
Heterogeneous Materials

Keynote Lecture: **W. Ogierman**

Silesian University of Technology, Poland

Data-Driven Mean-Field Homogenization for the Analysis
of Composites With a Wide Range of Microstructural
Features

TS11: Multiphysics and coupled problems

Organizers: J. Rojek, Ł. Figiel, B. Peters

Keynote Lecture: **L. Brassart**

University of Oxford, UK

Chemo-mechanics of biodegradable polymers

Keynote Lecture: **M. Jabareen**¹, V. Nguyen-Xuân²,
M. Itskov², J.B. Le Cam³,
V.N. Khiêm²

¹ *Israel Institute of Technology, Israel*

² *RWTH Aachen University, Germany*

³ *Université de Rennes, CNRS, France*

Thermodynamic Regularization Based Computational
Framework for Strain-Induced Crystallization

TS12: Nonlinear dynamics, structural control and monitoring

Organizers: J. Hou, Ł. Jankowski, K. Kęcik,
K. Mendrok, P. Perlikowski

Keynote Lecture: **Ł. Kłoda**

Lublin University of Technology, Poland

Second Prize of the Committee for Mechanics of the Polish
Academy of Sciences for Outstanding Young Scientists

Multistable Shells Design for Energy Harvesting from
Mechanical Vibrations

Keynote Lecture: **M. Ostrowski**, G. Mikułowski,
B. Błachowski, Ł. Jankowski

Institute of Fundamental Technological Research,

Polish Academy of Sciences, Poland

Third Prize of the Committee for Mechanics of the Polish Academy
of Sciences for Outstanding Young Scientists

Robust Semi-Active Control for Energy Transfer Between
Structural Vibration Modes: Methodology and
Experiments

TS13: Plasticity, damage and fracture mechanics

Organizers: R. Kouhia, A. Menzel, J. Pamin, H. Petryk, B. Skoczeń

Keynote Lecture: **J.-B. Leblond**

Sorbonne Université and French Academy of Sciences, France

A New Method for Solving 3D Problems of Out-of-Plane or Out-of-Surface Crack Perturbations, with Some Applications to Mixed-Mode Propagation of Cracks

Keynote Lecture: **H. Darban**

Institute of Fundamental Technological Research,

Polish Academy of Sciences, Poland

Stress Intensity Factors at the Nanoscale by Atomistic Simulations

TS14: Structural optimization and optimum material design

Organizers: B. Błachowski, M. Bruggi, T. Lewiński

Keynote Lecture: **M. Tyburec**¹, M. Stingl², S. Ma¹

¹ *Czech Technical University in Prague, Czech Republic*

² *Friedrich-Alexander University Erlangen-Nuremberg, Germany*

Realizability-Aware Free Orthotropic Material

Optimization: From Convex Relaxations to Hashin–Shtrikman Bounds

TS15: Shells, plates, and lattices as macroscopic or microscopic structures

Organizers: M. Kuczma, N. Fantuzzi, M. Guminiak, M. Kamiński, P. Wriggers

Keynote Lecture: **A. Sabik**

Gdańsk University of Technology, Poland

Equivalent Single Layer Models of Laminated Plates and Shells: Achievements, Limitations and Future Directions

Outline of Monday, 7.09

09:00–11:40

Registration and Coffee

11:40–12:15

Opening Ceremony

12:15–13:00

Room A

Plenary Lecture 1

Chair: K. Kowalczyk-Gajewska

V. Deshpande

(ID008)

New measurement strategies for data-driven mechanics

13:00–14:00

Lunch

14:00–16:00

Session Block 1

Room A
TS10-1

Room B
TS2-1

Room C
TS5-1

Room D
TS9-1

Room E
TS12-1

16:00–16:30

Coffee Break

16:30–18:30

Session Block 2

Room A
TS10-2

Room B
TS11-1

Room C
TS5-2

Room D
TS9-2

Room E
TS12-2

18:30–21:30

Welcome Reception

14:00–16:00 Room A Session Block 1

TS10-1: Micromechanics of heterogeneous and multi-component materials
Chair: K. Kowalczyk-Gajewska

14:00–14:40 ID128 **Keynote Lecture**

W. Ogierman

Data-Driven Mean-Field Homogenization for the Analysis of Composites with a Wide Range of Microstructural Features

14:40–15:00 ID092

P. Fedeliński

Dynamic Interaction of Cracks and Rigid-Line Inclusions

15:00–15:20 ID143

G. Vadillo, J.A. Rodríguez-Martínez, L.E.B. Dæhli, A. Benallal

Macroscopic Yield Surfaces of Porous Solids with Anisotropic Matrix Behavior

15:20–15:40 ID150

D. Ram, O.S. Hopperstad, D. Morin, **L.E.B. Dæhli**
Influence of Boundary Conditions on the Response of Porous Unit Cells with Random Void Arrangements

15:40–16:00 ID240

V.H. Jagadish, A. Tripathy, S.M. Keralavarma
Numerical Simulation of Dynamic Failure Using an Instability Based Ductile Fracture Model

Room A TS10-1

14:00–16:00 Room B Session Block 1

TS2-1: Atomistic and nanoscale modelling
Chair: M. Giersig

14:00–14:40 ID296 **Keynote Lecture**

P. Chudziński

Why Nanostructures Are Different?

TS2-1

14:40–15:00 ID251

T. Burczyński, P. Chudziński, W. Kuś, M. Maździarz, A. Mrozek

Nanoscale Modelling of New 2D Materials

15:00–15:20 ID163

M. Fedorov, G. Marković, F.J. Dominguez-Gutierrez, Ł. Kurpaska

Influence of Mn on Plastic Deformation in Polycrystalline α -Ti-Mn Alloys

15:20–15:40 ID175

K. Inoue, A. Asazuma, S. Arikawa

The Influence of Kinks in Edge Dislocations of bcc Fe on the Acoustic Softening Effect

15:40–16:00 ID277

P. Dłużewski, P. Jarosik

Atomistic Reconstruction of Dislocation Sets Based on Tensor Algebra of Lattice Distortion Fields

14:00–16:00

Room C

Session Block 1

TS5-1: Computer methods in solid mechanics

Chair: W. Rachowicz

14:00–14:40 ID095 **Keynote Lecture**

M. Łoś, T. Służalec, A. Vilkh, M. Paszyński

Collocation-Based Robust Variational Physics-Informed Neural Networks (CRVPINNs)

14:40–15:00 ID334

W. Cecot, **M. Oleksy**, M. Klimczak, M. Dryzek, I. Jaworska

MsFEM Supported by an Artificial Neural Network

15:00–15:20 ID357

P. Kowalski, W. Waszkowiak, Ł. Doliński, A. Żak

From Simulation to SHM: Reducing Numerical Errors for Reliable Neural-Network-Based Damage Detection

15:20–15:40 ID316

W. Waszkowiak, Ł. Doliński, P. Kowalski, A. Żak
*Numerical Anisotropy in Finite Elements:
Where It Comes From and How to Eliminate It*

15:40–16:00 ID330

J. Jaśkowicz, **P. Pluciński**
*Exact Geometric Representation of Curved Domains in
Discontinuous Galerkin Method*

14:00–16:00

Room D

Session Block 1

TS9-1: Mechanics of advanced materials and smart structures

Chairs: S. Arikawa, T. Mościcki and E. Pieczyska

14:00–14:40 ID351 **Keynote Lecture**

K. Hirano, M. Narita, **S. Arikawa**
*Investigation on Improving the Performance of
Mechanical Metamaterials Expanded by Sound Waves*

14:40–15:00 ID352

J. Hayamizu, K. Kawabata, S. Arikawa
*Design of Actuation Performance of a Rubber Metal
Bimaterial*

15:00–15:20 ID073

T. Ciborowski, E. Wojtczak, M. Rucka
*Characterization of the Mechanical Response of
3D-Printed Metamaterials under Static Tensile,
Compressive and Bending Loads*

15:20–15:40 ID135

V. Průša, C. Rodriguez, L. Trnka, **M. Vejvoda**
*Modeling Metamaterials by Second-Order Rate-Type
Constitutive Relations Between Only the Macroscopic
Stress and Strain*

15:40–16:00 ID239

P. Shukla, S. Haldar
*Sierpinski–Knopp Fractal Based Architected Composite
for Improved Competing Mechanical Properties*

14:00–16:00

Room E

Session Block 1

TS12-1: Nonlinear dynamics, structural control and monitoring

Chairs: K. Kęcik and Ł. Jankowski

14:00–14:20 ID194

M. Gruchot, **K. Mendrok**

Modal Filter Synthesis with Use of Artificial Neural Networks

14:20–14:40 ID381

T. Burzyński, P. Brzeski, **P. Perlikowski**

Robustness of Cross-Well Dynamics in Multistable Energy Harvesters under Parameter Mismatch

14:40–15:00 ID365

J. Zapoměl, P. Šulc, J. Kozánek

Investigations of Rotors Supported by Passive Magnetic Bearings with Radial Magnetization

15:00–15:20 ID336

P. Litewka, R. Lewandowski

Extended Fractional Models in the Evaluation of Dynamic Characteristics of Plates with Viscoelastic Layers

15:20–15:40 ID201

Z.M. Pawlak

Two-Stage Identification of a Temperature- and Amplitude-Dependent Nonlinear Fractional Kelvin Model for Viscoelastic Damping Materials

15:40–16:00 ID287

A. Seifert, E. Arslan

Dynamic Analysis and Design Optimization of Washing Machine Suspensions

16:30–18:30 Room A Session Block 2

TS10-2: Micromechanics of heterogeneous and multi-component materials

Chair: G. Vadillo

16:30–16:50 ID295

A. Prakash

Understanding Stress and Strain Partitioning in Polycrystalline Materials Using Statistical Machine Learning

16:50–17:10 ID037

A. Baczmański, A. Ludwik, P. Kot, G. Garcés, E. Oñorbe, G. Bruno, K. Wierzbowski

In-Situ Synchrotron Diffraction and Self-Consistent Modelling Used to Determine Plastic Incompatibility Stresses in Textured AZ31 Magnesium Alloy

17:10–17:30 ID039

S. Virupakshi, K. Frydrych, K. Kowalczyk-Gajewska
Role of Deformation Twinning and Plastic Anisotropy on Void Growth in HCP Mg Polycrystals: A Crystal Plasticity Finite Element Study

17:30–17:50 ID045

K. Wierzbowski, D. Byrska-Wójcik, R. Długopolska, A. Dulęba, M. Wróbel, M. Wroński, A. Baczmański

Remarks on the Modeling of Deformation-Induced Crystallographic Textures

17:50–18:10 ID203

S.K. Mazumder, S. Virupakshi, K. Kowalczyk-Gajewska

Effect of Kinematic Hardening on the Polycrystalline Plasticity of FCC Materials, under Cyclic Deformation

16:30–18:30 Room B Session Block 2

TS11-1: Multiphysics and coupled problems

Chair: Ł. Figiel

16:30–17:10 ID040 **Keynote Lecture**

L. Brassart

Chemo-Mechanics of Biodegradable Polymers

17:10–17:30 ID178

M. Krzaczek, J. Teichman

A Novel DEM-based Coupled 3D Thermo-Hydro-Mechanical Mesoscopic Model with Phase Changes for Modelling Concrete Behavior

17:30–17:50 ID035

F. Nisar, M. Ziętara, A. Kruk, P. Jencyk, S. Nosewicz, M. Chmielewski, K. Kaszyca, J. Rojek

Thermo-Electric Phenomena in Spark Plasma Sintering

17:50–18:10 ID034

J. Rojek, F. Nisar, S. Nosewicz, M. Chmielewski, K. Kaszyca

Thermo-Electro-Mechanical Modelling of Spark Plasma Sintering within Discrete Element Framework

18:10–18:30 ID222

I. Wardach-Święcicka

Modelling of Granular Matter Behaviour in an External Temperature Field Using an Advanced CFD-DEM Method

16:30–18:30

Room C

Session Block 2

TS5-2: Computer methods in solid mechanics

Chair: W. Cecot

16:30–16:50 ID369

W. Rachowicz, A. Zdunek

Numerical Verification of Euler's Observation That Loading by Conservative Body Forces Is Equivalent to the Pressure Reaction for the Incompressible Elasticity

16:50–17:10 ID170

M. Dryzek, M. Nagirniak, W. Cecot

Comparative Study of Numerical and Analytical Solutions for an Elastic Half-Space under Rectangular Loading

17:10–17:30 ID374

I. Jaworska

Weak and Strong Form Multipoint Meshless Method for Elliptic Problems

17:30–17:50 ID307

M. Arai, K. Koyanagi

A Novel Approach for Impact Load Identification Based on the Cuckoo Optimization Algorithm

17:50–18:10 ID312

P. Świątkiewicz, Z. Więckowski

Soft Boundary Conditions in the Reissner–Mindlin Plate Analysis by the Equilibrium Finite Element Method

18:10–18:30 ID348

G. Zboński

Total and Modelling Error Estimation for the 3D-Based Hierarchical First-Order Shell Models

16:30–18:30

Room D

Session Block 2

TS9-2: Mechanics of advanced materials and smart structures

Chairs: S. Arikawa, T. Mościcki and E. Pieczyska

16:30–16:50 ID266

M. Frost, A. Moskovka, P. Sedlák, M. Horák, M. Kružík, M. Knappek

Finite-Strain Constitutive Model for Shape Memory Alloys Formulated in the Logarithmic Strain Space

16:50–17:10 ID345

B.N.A Ardayfio, P. Snopiński, Z. Brytan

Overcoming the Strength–Ductility Trade-Off in LPBF Duplex Stainless Steel via Heterogeneous Phase Structuring

17:10–17:30 ID359

S. Arikawa, Y. Tsuchida

Contraction Performance of a Structure Contracted by Sound Waves for Mechanical Metamaterials

17:30–17:50 ID371

T. Mościcki, E. Wojtiuk, K. Zielińska, M. Włoczewski

Mechanical Performance of a WB_2 -Al and WB_2 -Ag Composite Coatings Deposited by HiPIMS Magnetron Sputtering

17:50–18:10 ID378

E.A. Pieczyska, K.M. Golasiński, J. Tabin

Tensile Deformation of Stainless Steel and Shape Memory Alloys Inspected by Acoustic Emission and Full-Field Techniques – a Focus on Old and New Results

18:10–18:30 ID361

M.H.B.M. Shariff

Spectral Electromagnetic Couple-Stress Modelling of Stiff Fibre-Reinforced Composites

16:30–18:30

Room E

Session Block 2

TS12-2: Nonlinear dynamics, structural control and monitoring

Chairs: K. Kęcik and P. Perlikowski

16:30–17:00 ID285 **Keynote Lecture**

Ł. Kłoda

Multistable Shells Design for Energy Harvesting from Mechanical Vibrations

17:00–17:30 ID224 **Keynote Lecture**

M. Ostrowski, G. Mikułowski, B. Błachowski, Ł. Jankowski

Robust Semi-Active Control for Energy Transfer Between Structural Vibration Modes: Methodology and Experiments

17:30–17:50 ID221

D.J. Bogucki, M. Ostrowski, B. Błachowski

Application of Deep Q-Network for Semi-Active Vibration Control of Frame Structures

17:50–18:10 ID205

A. Barbay, B. Błachowski, D. Pisarski, G. Mikułowski, **Ł. Jankowski**

Robustness of Multi-Agent Reinforcement Learning Control for a Lockable-Mass Tuned Mass Damper

Outline of Tuesday, 8.09

8:30–9:00

Morning Coffee

9:00–9:45

Room A

Plenary Lecture 2

Chair: H. Petryk

S. Kyriakides

*Compressive Behavior and Crushing of Foams:
Experiments and Modeling*

(ID022)

9:45–10:30

Room A

Plenary Lecture 3

Chair: A. Menzel

S. Stupkiewicz

*Diffuse-Interface Modelling of Microstructure Evolution
at Micro- and Macro-Scale*

(ID007)

10:30–11:00

Coffee Break

11:00–13:00

Session Block 3

Room A

Room B

Room C

Room D

Room E

TS10-3

TS11-2

TS5-3

TS7-1

TS12-3

13:00–14:00

Lunch

14:00–16:00

Session Block 4

Room A

Room B

Room C

Room D

Room E

TS10-4

TS11-3

TS5-4

TS7-2

TS1-1

16:00–16:30

Coffee Break

16:30–18:30

Session Block 5

Room A

Room B

Room C

Room D

Room E

TS10-5

TS11-4

No Session

TS7-3

TS1-2

11:00–13:00

Room A

Session Block 3

TS10-3: Micromechanics of heterogeneous and multi-component materials

Chair: J.F. Ganghoffer

11:00–11:40 ID167 **Keynote Lecture**

R. Brenner, L. Morin, J. Paux, S. Essongue, A.M. Amadou Sanoko

Anisotropic Elastic Properties of Smoothed Interphase in Heterogeneous Materials

11:40–12:00 ID127

M. Essafi, R. Brenner, M.I. Idiart, N. Lahellec, R. Masson

Homogenized Descriptions for Elasto-(Visco)Plastic Composites Based on a Linear Viscoelastic Comparison Composite

12:00–12:20 ID113

G. Girard, K. Kowalczyk-Gajewska, S. Mercier, A. Molinari

Homogenization of Particulate Composites: Inclusion Packing Effects

12:20–12:40 ID237

T.-R. Liu, J. Bleyer, F. Legoll, **M. Bornert**

A General Self-Consistent Clustering Analysis for Computational Homogenization Using Minimal Offline Stage

12:40–13:00 ID043

K. Bieniek, K. Kowalczyk-Gajewska

Anisotropy of Elasto-Plastic Composite Materials Induced by Spatial Distribution of Inhomogeneities

11:00–13:00

Room B

Session Block 3

TS11-2: Multiphysics and coupled problems

Chair: Ł. Figiel

11:00–11:20 ID030

M. Poluektov

Transformation Front Kinetics in Deformable Ferromagnets

11:20–11:40 ID131

C. Posch-Peperkorn, V. Razumovskiy, P. Hammer, J. Todt, J. Keckes, **T. Antretter**

Modeling Hydrogen Redistribution in Steels Containing Retained Austenite

11:40–12:00 ID168

G. Yadav, R.A. Sauer, S.S. Gupta

Acoupled BEM-FEM Aproach for Nonlinear Electro-Elastostatics of CNT-Based MEMS Structures

12:00–12:20 ID079

M. Rajaei Asl, H. Darban

Atomistic Investigation of Size and Temperature Effects on the Compressive Behavior of Cracked Silicon Nanopillars

12:20–12:40 ID097

W. Iticha, T. Stręk

Computational Modelling of Heat Sinks Enhancement with Triply Periodic Minimal Surface Structures

12:40–13:00 ID180

S. Abu-Salih

Electromechanical Buckling and Postbuckling of Periodic Patterns of Stiff Film on a Compliant Dielectric Substrate – Analytical and Numerical Analyses

11:00–13:00

Room C

Session Block 3

TS5-3: Computer methods in solid mechanics

Chair: G. Zboński

11:00–11:20 ID317

J. Dziatkiewicz, **E. Majchrzak**

Analysis of Heating Processes in Domain of Double-Layered Thin Metal Films Using a Hyperbolic Two-Temperature Model

11:20–11:40 ID087

A. Piasecka-Belkhaty, A. Nawara

Numerical Modelling of Transient Heat Transfer in an Axisymmetric Cylindrical Container with Phase Change Materials

11:40–12:00 ID088

A. Nawara, A. Piasecka-Belkhat

Numerical Comparison of Selected Methods for Modelling Phase Change in Heat Transfer Problems

12:00–12:20 ID366

B. Tóth

Multi-Field Mixed hp-FE Framework for Modeling Laser Pulse Heating Processes in Irreversible Thermodynamics

12:20–12:40 ID329

M. Kumor, A. Ganczarski

Finite Element Modeling of Torsion in Functionally Graded Shafts

12:40–13:00 ID337

M. Kurt, C. Özgen, A.U. Yayla, A.M. Çatalkaya

Reduced Finite Element Modelling of Rivetted Joints Using Semi-Empirical Formulations [Cancelled]

11:00–13:00

Room D

Session Block 3

TS7-1: Experimental mechanics

Chair: H. Egner

11:00–11:40 ID078 **Keynote Lecture**

V.P. Dubey, M. Kopeć, P. Wood, Z.L. Kowalewski

Orientation-Dependent Yield Surface Evolution and Anisotropic Plasticity in LPBF-Manufactured SS316L

11:40–12:00 ID320

H. Przygucki, V.P. Dubey, T. Durejko, D. Przygucka, Z.L. Kowalewski, S. Jóźwiak, M. Kopeć

Experimental Identification of the Yield Surface for Inconel Alloys Manufactured by Using Laser Engineered Net Shaping

12:00–12:20 ID193

Z.L. Kowalewski, A. Brodecki, M. Kopeć

Monitoring the Progressive Degradation of Steel in Energy Facilities as a Result of Fatigue

12:20–12:40 ID115

K. Sairam Goud, M. Wilczynski, R. Korla, F.J. Dominguez, L. Kurpaska
Experimental Insights into a New Generation Irradiation Resistance Fe-30Mn-5Al-1C-3Mo Based Alloys

12:40–13:00 ID335

M. Asami, A. Asazuma, R. Sinmyo, S. Arikawa
Development of Highly Oriented CNF Long Filaments by Air Drying

11:00–13:00

Room E

Session Block 3

TS12-3: Nonlinear dynamics, structural control and monitoring

Chairs: P. Perlikowski and Ł. Jankowski

11:00–11:20 ID204

K. Kęcik, K. Liubytka
Theoretical and Experimental Investigation of a Pendulum Absorber-Harvester System

11:20–11:40 ID382

V. Denysenko, M. Balcerzak, A. Dąbrowski
Master Stability Function for Networks of Coupled Piecewise-Smooth Oscillators

11:40–12:00 ID372

L. Pešek, P. Snabl, C.S. Prasad
Extension of Reduced Modal Modelling of Turbine Wheel For Suppression of Self-Excited Torsional Vibration by Interblade Dry-Friction Tie-Boss and Shroud Dry-Friction Damping

12:00–12:20 ID003

B. Brank, D. Markovič
Improved Shell Quadrilateral for Explicit Dynamics

12:20–12:40 ID282

B. Dudariev, R. Radecki, W.J. Staszewski
Ultrasonic Colinear and Vibroacoustic Modulation Shear Wave Mixing for Structural Damage Detection

14:00–16:00

Room A

Session Block 4

TS10-4: Micromechanics of heterogeneous and multi-component materials

Chair: R. Brenner

14:00–14:20 ID010

H. Reda, A. Chazirakis, N. Sawa, **J.F. Ganghoffer**, V. Harmandaris

Gradient of Mechanical Properties in Polymer Nanocomposites: From Atomistic Scale to the Strain Gradient Effective Continuum

14:20–14:40 ID179

S. Nosewicz, G. Jurczak, M. Maździarz, P. Hołobut, K. Kowalczyk-Gajewska, W. Chromiński

Multiscale Prediction of the Elastic Response of NiAl-Based Materials Using Atomistic and Micromechanical Calculations

14:40–15:00 ID216

C. Klein, J. Vollhüter, S. Neumeier, A. Kauffmann, T. Böhlke

Multiscale Modeling of Creep Behavior in Eutectic NiAl-(Cr,Mo) Composites

15:00–15:20 ID129

F. Dailland, G. Girard, M. Martiny, M. Bouarroudj, F. Lechleiter, **S. Mercier**

Mechanical Homogenization at the Level of the Microvia in Printed Circuit Boards Containing Embedded Components

15:20–15:40 ID069

K. Frydrych, M. Maciak, A. Olejarz, W. Chmurzyński, M. Gawęda, M. Chmielewski

Modelling Mechanical and Radiation Shielding Properties of 316L-B₄C Metal Matrix Composites

15:40–16:00 ID262

G. Jelenić, E. Papa Dukić

On Range of Values of Cosserats' Material Parameters

14:00–16:00 Room B Session Block 4

TS11-3: Multiphysics and coupled problems
Chair: J. Rojek

- 14:00–14:40 ID227 **Keynote Lecture**
M. Jabareen, V. Nguyen-Xuân, M. Itskov,
J.B. Le Cam, V.N. Khiêm
Thermodynamic Regularization Based Computational Framework for Strain-Induced Crystallization
- 14:40–15:00 ID314
M. Okumus, **Ł. Figiel**
Gaussian Process Framework for Bayesian Inference of Hydrogen Permeation in Polymer Composites
- 15:00–15:20 ID213
D. Panda, H. Subramanian
Evolution of Residual Stresses in Polymer Composites Having Porosity
- 15:20–15:40 ID015
M. Svanadze
Potential Method in the Steady Vibration Problems for the Coupled Theory of Moore-Gibson-Thompson Thermoporoelasticity
- 15:40–16:00 ID215
D. Mačiūnas, S. Borodinas, R. Kačianauskas,
S. Nosewicz, R. Stonys
Homogenization-Driven Acoustic Performance Modeling in Particulate Composites for Noise Mitigation

Room B TS11-3

14:00–16:00 Room C Session Block 4

TS5-4: Computer methods in solid mechanics
Chair: W. Cecot

- 14:00–14:40 ID355 **Keynote Lecture**
A.M. Amadou Sanoko, S. Essongue, L. Lapostolle,
J. Paux, L. Morin
Fast Numerical Method Based on Discrete Sine and Cosine Transforms for Wave Propagation in Heterogeneous Media

TS5-4

14:40–15:00 ID062

M. Klimczak, M. Oleksy

Numerical Homogenization in Viscoelastic Analysis

15:00–15:20 ID315

E. Rejwer-Kosińska, L. Rybarska-Rusinek, A. Linkov

Evaluation of Field Intensity Factors in 3D Potential and Elasticity Problems

15:20–15:40 ID326

S. Fialko

Nonlinear Dynamic Analysis of Progressive Destruction, Leveling and Repair of Multi-Story Buildings

15:40–16:00 ID311

M. Głowacki, J. Orkisz

Improved Evolutionary Algorithms and MFDM Applied to Large Non-linear Optimization Problems of Mechanics

14:00–16:00

Room D

Session Block 4

TS7-2: Experimental mechanics

Chair: Z.L. Kowalewski

14:00–14:20 ID136

H. Egner, W. Egner, S. Mroziński, M. Piotrowski

Predicting Fatigue Life Using Energy-Based Damage Measures

14:20–14:40 ID318

P. Bogusz

Thermographic Measurements of Selected Materials During Uniaxial Tensile Testing

14:40–15:00 ID142

O. Lahbib, N. Massé, A. El-Hafidi, P. Leclaire

Viscoelastic Behavior Across the Glass Transition Temperature using Vibrational Testing

15:00–15:20 ID051

A. Rzepka, D. Ziaja

Elastic Wave-Based Identification of Applied Load in a Steel IPE Beam

15:20–15:40 ID347

S. Dutta, P. Rawat

Evaluation of Mode I and Mode II Fracture Toughness on Ramie, Basalt and Hybridised Reinforced Polymer Composites

15:40–16:00 ID149

A.E. Sebsebe, W. Sumelka, A. Wypych,
J. Jakubowicz, T. Jankowiak

Mechanical Properties of Thermally Sprayed Ceramic-Metallic Materials

14:00–16:00

Room E

Session Block 4

TS1-1: Advanced continuum theories

Chair: W. Sumelka

14:00–14:40 ID014 **Keynote Lecture**

Y. Sun, X. Huang

Nonlocally Regularised Stress-Fractional Plasticity Model Considering Fabric Anisotropy

14:40–15:00 ID084

K. Wacławski

Geometrical Description of Stress and Strain Tensor and Its Relation to Material Effort Hypotheses

15:00–15:20 ID090

M. Itskov

Some Results and Unusual Consequences of Elasticity without Hooke's Law

15:20–15:40 ID126

G. Béda, **P.B. Béda**

First- and Second-Order Strain-Gradient Materials in the Light of Singular Wave Analysis

15:40–16:00 ID183

B. Łuczak, W. Sumelka, G.Z. Voyiadjis

Fractional Evolution of Damage Anisotropy in Anisotropic Hyperelasticity: Theory and Validation for Roofing Felts

16:30–18:30

Room A

Session Block 5

TS10-5: Micromechanics of heterogeneous and multi-component materials

Chair: S. Mercier

Room A TS10-5

16:30–17:10 ID012 **Keynote Lecture**

B.A. Schrefler, S.M.S. Mortazavi, T. Ni, Y. Shu

Supershear Mode I and Mode II Fracturing in Dry and Saturated Porous Media

17:10–17:30 ID278

J. Rainer, D. Stefaniuk, **D. Łydźba**

Inverse Homogenization-Based Design of Canonical Microstructures

17:30–17:50 ID139

B. Bodak, A. Róžański

From Inverse Homogenization Problems to Closed-Form Models: Simplified Equivalent Microstructure Approach

17:50–18:10 ID137

P. Heród, A. Jerzyńska, S. Hernik, H. Egner

Mathematical and Numerical Modelling of Materials and Structures with Functionally Variable Properties

16:30–18:30

Room B

Session Block 5

TS11-4: Multiphysics and coupled problems

Chair: J. Rojek

Room B TS11-4

16:30–16:50 ID044

M. Freydin

Advances in Computational Aeroelasticity of Plates with Acoustic and Thermal Effects

16:50–17:10 ID108

R. Nadolski, M. Pietrzyk, Ł. Rauch

Data-Driven Models for Fast Prediction of Steel Property Distributions

17:10–17:30 ID111

J.M. Carbonell, H. Bakhshan, F. Rastellini

Modeling Surface Roughness and Tool Wear using Particle Methods

17:30–17:50 ID281

E. Rohan, V. Lukeš, F. Moravcová

Homogenization of Nonlinear Effects in Poroelastic Media with Large Contrast in Skeleton Elasticity and Self-Contact at Pore Level

17:50–18:10 ID107

U. Kansara, S. Pathan, V. Menezes

Shear Stress-Based Air Speed Indication System

18:10–18:30 ID243

K. Kotrasova, S. Harabinova

Earthquake-Induced Response of Cylindrical Liquid-Containing Tanks

16:30–18:30

Room D

Session Block 5

TS7-3: Experimental mechanics

Chair: J.A. Rodríguez-Martínez

16:30–16:50 ID186

J. Tabin, A. Brodecki, A. Szyszko, H. Nejman, Z. Ranachowski, P. Wąchal

DIC-Enhanced Experimental Platform with a Multi-Detector Array for Tensile Test at Cryogenic Temperatures

16:50–17:10 ID283

H. Nejman, J. Tabin, A. Szyszko, Z. Ranachowski, J. Kawałko

On the Origin of Discontinuous Plastic Flow in Austenitic Steels: An Acoustic Emission Study

17:10–17:30 ID161

D. Budiakivska, A. Styk, M. Kujawińska

Structured Light vs Digital Image Correlation for Shape Measurements

17:30–17:50 ID119

K. Makowska, Z.L. Kowalewski

Assessment of the Technical Condition of High-Strength Steel Structures Using the Barkhausen Noise Method

17:50–18:10 ID063

N. Tsuruta, T. Matsuo

Strength Evaluation of Cellulose Nanofiber Materials by Sequential Digital Image Correlation

18:10–18:30 ID236

K. Horio, K. Iizuka, S. Yuan, S. Yoneyama

Self-Sensing Behavior of Laser-Processed sCFRP Based on Electrical Resistance Change

16:30–18:30

Room E

Session Block 5

TS1-2: Advanced continuum theories

Chair: Ł. Madej

16:30–16:50 ID280

A. Manecka-Padaż, Z. Nowak, E.E. Rożko,
P. Chudziński

Cobalt Nanorods Buckling within Nonlocal Eringen Elasticity Theory: Numerical and Experimental Approach

16:50–17:10 ID130

F. Zahid, P. Stempin, W. Sumelka

Study of the Temperature Effect in Fractional Thermoelasticity at Micro- Nano Scale

17:10–17:30 ID089

P. Wawrzyniak, K. Szczurowski, J. Mączak,
A. Waszczuk-Młyńska, S. Krakowiak, A. Mackojć,
J. Seńko, W. Karaszewski

A Universal Laplace Transform–Based Algorithm for the Analysis of Statically Indeterminate Bending Beams Including Shear Deformation Effects in the Vlasov–Timoshenko Model

17:30–17:50 ID120

K. Szajek, W. Sumelka

Non-Local Space-Fractional Model for Complex Planar Bar-Type Structures Analysis

17:50–18:10 ID148

M. Sitko, S. Sitarz, L. Madej

Evaluation of Cellular Automata–Based Static Recrystallization Model Capabilities Supported by Parallel Execution

Outline of Wednesday, 9.09

8:30–9:00

Morning Coffee

9:00–9:45

Room A

Plenary Lecture 4
Chair: M.G.D. Geers

R.A. Lebensohn

*Fast Fourier Transform (FFT)-Based Models for
Microstructure/Property Relationships of
Polycrystalline Materials* (ID002)

9:45–10:30

Room A

Plenary Lecture 5
Chair: J. Pamin

B. Skoczeń

*From Fundamental Principles to Mechanics Near
Absolute Zero* (ID004)

E.T. Lilleodden

*Micromechanics: The “Strength” of Miniaturized
Testing* [Cancelled] (ID383)

10:30–11:00

Coffee Break

11:00–13:00

Session Block 6

Room A
TS10-6

Room B
TS13-1

Room C
TS4-1

Room D
TS7-4

Room E
TS15-1

13:00–14:00

Lunch

14:00–16:00

Session Block 7

Room A
TS6-1

Room B
TS13-2

Room C
TS4-2

Room D
TS8-1

Room E
TS15-2

16:00–16:30

Coffee Break

16:30–17:50

Session Block 8

Room A
TS6-2

Room B
TS13-3

Room C
TS4-3

Room D
TS8-2

Room E
TS14-1

18:00–20:00

Walking Tours

11:00–13:00

Room A

Session Block 6

TS10-6: Micromechanics of heterogeneous and multi-component materials

Chair: K. Kowalczyk-Gajewska

11:00–11:20 ID261

M. Bieda, M. Gieleciak, J. Donaghue, A. Smith, N. Iyappan, A. Jarzębska, Ł. Maj, M. Kulczyk

Static Recrystallization of Biodegradable Zinc Alloy Using in Situ and Ex Situ Heating Experiments

11:20–11:40 ID116

M. Pawłowski, M. Kopernik, J. Więcek-Chmielarz, R. Major

Microscale Phase-Field Study of Crystal Growth and Particle Dynamics in Directionally Solidified Colloidal Suspensions

11:40–12:00 ID290

M. Lederer, K. Nalepka

Superelasticity Generated by Instability

12:00–12:20 ID152

J. Ptaszny

Modelling Inhomogeneous Materials by the Contribution Tensor Approach and the Boundary Element Method

12:20–12:40 ID209

E. Lewandowska, W. Ogierman, G. Kokot

Computational Homogenization of Porous Metals and Analysis of Local Stress Fields at the Microscale

Room A TS10-6

11:00–13:00

Room B

Session Block 6

TS13-1: Plasticity, damage and fracture mechanics

Chair: B. Skoczeń

11:00–11:40 ID033

Keynote Lecture

J.-B. Leblond

A New Method for Solving 3D Problems of Out-of-Plane or Out-of-Surface Crack Perturbations, with Some Applications to Mixed-Mode Propagation of Cracks

TS13-1

Wednesday, 9.09

11:40–12:00 ID214

H. Petryk, M. Ryś, M. Kursa

The Energy Approach to Deformation Banding in Cosserat Crystal Plasticity

12:00–12:20 ID191

M. Kursa, M. Ryś, H. Petryk

Unexpected Formation of Deformation Bands in the Rate-Dependent Modelling of Single Crystal Plasticity

12:20–12:40 ID322

R. Denzer, P. Hiremath

Optimized Phase-Field Fracture Models for Monocrystalline Silicon

12:40–13:00 ID331

K. Onozuka, K. Iizuka, S. Yuan, S. Yoneyama

Observation of Fracture Behavior of CFRP Laminates with Fiber Discontinuities

Room B TS13-1

11:00–13:00

Room C

Session Block 6

TS4-1: Computational and experimental mechanics in engineering applications

Chair: P. Baranowski

11:00–11:40 ID343 **Keynote Lecture**

M. Banaszek, **P. Płatek**, M. Madeja, M. Kuciewicz, W. Stopyra, M. Stankiewicz, T. Kurzynowski, P. Baranowski

Studies of Energy Absorption of TPMS Structures Manufactured via EBM From Ti6Al4V

11:40–12:00 ID074

M. Krajewski

The Numerical Analysis and Experimental Tests of the Rotational Connection Stiffness Between the Purlin and the Truss Top Chord

Room C TS4-1

12:00–12:20 ID121

M. Nowak, Z. Lewandowska, F. Wołoch, K. Szajek, P. Sielicki

Numerical Framework for Evaluating Debris Loads on Underground Structures

12:20–12:40 ID263

A. Wirowski, **J. Wiśniewska**

A Novel Three-Element Column–Slab Connection System with Variable Centre of Rotation for Reinforced Concrete Structures

12:40–13:00 ID217

P. Kumar, V.P. Dubey, Z.L. Kowalewski, T. Durejko, M. Kopeć

Numerical Prediction of Yield Surface Evolution in LENS-Manufactured Inconel 625 under Sequential Multiaxial Probing: A UMAT-Based Approach

11:00–13:00

Room D

Session Block 6

TS7-4: Experimental mechanics

Chair: Z.L. Kowalewski

11:00–11:40 ID123 **Keynote Lecture**

J.A. Rodríguez-Martínez

Real-Time In-Situ X-Ray Imaging of Dynamic Shear Fracture and Spallation in Porous Metals

11:40–12:00 ID253

K. Liubytka, J. Persson and S. Lindström

Dynamic Compression Characterization of Multilayered Composite Materials Using SHPB

12:00–12:20 ID027

N. Gupta, L. Chomat, C.L. Rountree, D. Bonamy

Rapid Crack Propagation in Disordered Brittle Solids

12:20–12:40 ID109

K. Mawani, S. Pathan, V. Menezes, A. Gogulapati

Dynamic Stress Measurement Behind Shock-Loaded Collapsible Materials

12:40–13:00 ID293

T. Libura, J. Sienkiewicz, Z. Nowak, Z.L. Kowalewski,
A. Rusinek, G.Z. Voyiadjis, U. Gunpath, P. Wood

The Influence of Build Parameters on the Collapse Behaviour of a Highly Porous, Random, Open-Cell Lattice 3D Printed from IN718 Alloy

TS7-4

11:00–13:00

Room E

Session Block 6

TS15-1: Shells, plates, and lattices as macroscopic or microscopic structures

Chair: M. Kuczma

11:00–11:40 ID192 **Keynote Lecture**

A. Sabik

Equivalent Single Layer Models of Laminated Plates and Shells: Achievements, Limitations and Future Directions

11:40–12:00 ID103

M. Kamiński, M. Guminiak, **A. Lenartowicz**

Random Static Analysis of Plates Resting on Elastic Foundations Considering One-Sides Constraints by the Finite Element, Boundary Element and Finite Difference Methods

12:00–12:20 ID241

M. Łasecka-Plura, M. Kuczma

Sensitivity-Based Interval Uncertainty Analysis for Free Vibrations of Variable Stiffness Plates with Curvilinear Wires

12:20–12:40 ID257

M. Kołodziejczak, W. Gilewski,
A. Al Sabouni-Zawadzka

Influence of Graded Mechanical Properties on Natural Vibrations of Tensegrity-Inspired Cellular Lattices – Computational Approach

Room E TS15-1

14:00–16:00

Room A

Session Block 7

TS6-1: Contact and interface mechanics

Chair: S. Stupkiewicz

14:00–14:40 ID028 **Keynote Lecture**

L. La Rosa, **F. Maresca**

Atomistic Modelling of Structure and Mobility of Twin Boundaries in NiTi Shape Memory Alloys

14:40–15:00 ID248

S. Amini, M. Rezaee-Hajidehi, S. Stupkiewicz

Modeling Hierarchical Branching Near Austenite–Martensite Interfaces: A Phase-Field Study

15:00–15:20 ID166

M. Neghabi, J. Dobrzański, **M. Rezaee-Hajidehi**

Instabilities Accelerate Cyclic Degradation: A Macroscopic Model of Functional Fatigue in Shape Memory Alloys Accounting for Structure–Material Interplay

15:20–15:40 ID292

A. Javili, F. Larsson, **K. Runesson**, P. Steinmann

Thermodynamically Consistent Modeling of an Electro-Chemo-Thermo-Mechanical System with Imperfect Interfaces

15:40–16:00 ID200

E. Jacobsson, H. Hallberg, J. Hektor, M. Ristinmaa

A Sharp-Interface Approach for Diffusion-Controlled Phase Transformations with Application to Cu₆Sn₅ Growth

Room A TS6-1

14:00–16:00

Room B

Session Block 7

TS13-2: Plasticity, damage and fracture mechanics

Chair: A. Menzel

14:00–14:20 ID187

H. Altenbach

Rheological Models – History, Basics, and Advanced Models

TS13-2

Wednesday, 9.09

14:20–14:40 ID100

M. Strondl, J. Scheidl

An Efficient Implementation of Plasticity for Rollforming Simulations

14:40–15:00 ID105

T. Saksala

Numerical Modelling of Masonry Wall Failure by Multiple Embedded Discontinuity Finite Elements

15:00–15:20 ID234

H. Askes, S. Dhakal, I. Gitman, J. Hartikainen, K. Kolari, **R. Kouhia**, T. Saksala

On the Regularization of a Tensorial Continuum Damage Model

15:20–15:40 ID325

A. Wosatko, M. German

Comparative Study of Selected Gradient Damage Model Variants

15:40–16:00 ID321

A. Ziółkowski

On Physical Interpretation of Normalized Third Principal Invariant of Cauchy Stress Deviator and its Derivatives Lode Parameter, Skewness Angle – Shear Stress Mode Angle

Room B TS13-2

14:00–16:00

Room C

Session Block 7

TS4-2: Computational and experimental mechanics in engineering applications

Chair: P. Baranowski

14:00–14:40 ID207 **Keynote Lecture**

R. Teimouri, M. Guagliano, S. Bagherifard

A Unified Physics-Based Framework for Incremental Modelling of Residual Stress in History-Dependent Manufacturing Processes

14:40–15:00 ID036

D. Lanc, R.I. Gašljević, G. Turkalj

FE Model for Creep Buckling Modelling of Al–SiC Composite Beam

Room C TS4-2

15:00–15:20 ID124

I. Jankowiak, M. Guminiak, M. Kamiński,

A. Knitter-Piątkowska

Stochastic Analysis of Deflection Response of RC Beam Strengthened with CFRP Materials

15:20–15:40 ID174

I. Kolbun, B. Piróg, K. Ostapska, **J. Pełczyński**

The Effect of Knot Location on the Load-Bearing Capacity of Reclaimed Timber Beams

15:40–16:00 ID197

P. Wachal, A. Brodecki, J. Tabin, Ł. Łacny, M. Prącik, B. Szybinski

On the Equivalent Stiffness in Cryogenic Tensile Testing: FEM–DIC Coupled Identification Approach

14:00–16:00

Room D

Session Block 7

TS8-1: Geomechanics and granular materials

Chairs: S. Pietruszczak and J. Tejchman

14:00–14:40 ID160 **Keynote Lecture**

S. Pietruszczak, M. Bakhtiari

Multiphysics Analysis of Salt-Induced Degradation in Porous Materials

14:40–15:00 ID244

W. Ogierman, **I. Pokorska**, T. Burczyński

Prediction of Elastic Properties of Cement Paste Using Computational Homogenization: A Comparison of Different Microstructural Models

15:00–15:20 ID297

M. Cudny, A. Truty, K. Lisewska

Incorporation of Cross-Anisotropic Small Strain Stiffness into the Hardening Soil Model

15:20–15:40 ID060

M. Krzaczek, **J. Tejchman**, M. Nitka

Modelling of Concrete Behaviour Using a Novel DEM-Based Thermal-Hydro-Mechanical Model

TS15-2: Shells, plates, and lattices as macroscopic or microscopic structures

Chairs: M. Kamiński and M. Guminiak

14:00–14:20 ID272

M. Kuczma, P. Junker, P. Wriggers

Plates and Shells Reinforced with Embedded Shape Memory Alloy Wires

14:20–14:40 ID275

A. Martowicz, G. Litak

Wave Dispersion Modeling for Mechanical Metastructures with Nonlocal Connections

14:40–15:00 ID304

M. Guminiak, M. Kamiński

Initial Stability of Plates Considering Internal Constraints by the Stochastic Boundary Element Method

15:00–15:20 ID313

D. Pawlus

Influence of the Functionally Graded Material of Three-Layered Annular Plate on Dynamic Response under Thermal Loading

15:20–15:40 ID308

V. Gujar, L. Kundanati

Dragonfly-Inspired Flapping Wing Fabrication Using PVDF/CNT Nanocomposite Membranes and 3D-Printed Vein Structures

16:30–17:50

Room A

Session Block 8

TS6-2: Contact and interface mechanics

Chair: F. Maresca

16:30–16:50 ID238

K. Tůma, J. Kozlík, A. Dvořák, O. Souček,
J. Šmilauerová, J. Dobrzański, V. Holý, S. Stupkiewicz
*Three-Dimensional Multiwell Phase-Field Model for
Athermal ω in Ti–Mo with a Realistic Chemical
Background*

16:50–17:10 ID220

D. Dhar, K. Tůma, J. Kozlík, S. Stupkiewicz
*Enforcing Inequality Constraints in Phase-Field
Method Using Uzawa Algorithm*

17:10–17:30 ID199

M. Serpilli, R. Rizzoni, F. Lebon
*Damage Evolution in Thin Adhesive Layer with
Tension–Compression Asymmetry: Predictive
Asymptotic Models*

17:30–17:50 ID041

A.Y. Zemlyanova
*Surface Energetic Elasticity Problems for Fractures and
Thin Inclusions*

16:30–17:50

Room B

Session Block 8

**TS13-3: Plasticity, damage and fracture
mechanics**

Chair: R. Kouhia

16:30–16:50 ID349

M. Mucha, R. Denzer, B. Wcisło, A. Menzel, J. Pamin
*Large Strain Thermo-Visco-Plastic Model for
Case-Hardening Steel*

16:50–17:10 ID256

L. Rose, **M. Schewe**, M. Mucha, B. Wcisło, A. Menzel
*Influence of Applied Stress on Dynamic Strain Ageing
– Experiments and Enhanced Model Formulation*

17:10–17:30 ID264

B. Wcisto, A. Menzel, J. Pamin

Numerical Verification of Stability for Large Strain Thermo-Elasto-Plasticity

17:30–17:50 ID346

A. Pandey, S.M. Keralavarma

Prediction of Forming Limits under Non-Proportional Strain Paths Using a Multi-Surface Plasticity Model

16:30–17:50

Room C

Session Block 8

TS4-3: Computational and experimental mechanics in engineering applications

Chair: P. Sielicki

16:30–16:50 ID341

D. Banić, G. Turkalj, G. Štimac Rončević, D. Lanc

A Finite Element Model for Buckling Analysis of Composite Beams

16:50–17:10 ID099

T. Khvan, W. Chromiński, M.A. Stróżyk, K. Mulewska, Ł. Kurpaska

Predicting Irradiation Hardening and Microstructural Evolution in Irradiated Eurofer97: A Nanoindentation Study Supported by CPFEM and TEM

17:10–17:30 ID188

Ł. Łacny, M. Prącik, J. Tabin, M. Wojtala

Modelling and Tension Regulation of a 12 Rod Hanger System in CHP Plants

17:30–17:50 ID210

Y.T. LomtePatil, T. Kant, **Y.M. Desai**

Three-Dimensional Elasticity Analysis of Sandwich Laminated Finite Shell with FG Core by Numerical Integration Approach

16:30–17:50

Room D

Session Block 8

TS8-2: Geomechanics and granular materials

Chairs: S. Pietruszczak and J. Teichman

16:30–16:50 ID228

A. Grabowski, M. Nitka

Investigation of Frictional Behavior on Corrugated Silo Walls During Confined Granular Flow

16:50–17:10 ID259

T. Krykowski

Application of FEM for the Assessment of the Load-Bearing Capacity of Reinforced Concrete and Prestressed Structures at Risk of Corrosion

17:10–17:30 ID094

R. Hajivand Dastgerdi, V. Sarfarazi, A. Malinowska

A New Loading Fixture for Direct Rock Fracture Toughness Determination Using pCT and Short Rod Specimens

TS14-1: Structural optimization and optimum material design

Chair: T. Lewiński

16:30–16:50 ID226

P. Tauzowski, **B. Błachowski**

A Computational Procedure for Frequency Maximization in Topology Optimization

16:50–17:10 ID299

A. Marzok

Optimization of Thin-Walled Panels with Stability Considerations

17:10–17:30 ID300

M. Trivedi, K. Bakshi

Optimal Stiffener Configuration for Maximizing Nonlinear Frequencies of Rhombic Laminated Composite Hyperbolic Paraboloids

17:30–17:50 ID302

N. Singh, K. Bakshi

Optimization of Stiffened Laminated Composite Rhombic Elliptical Paraboloidal Shells for Nonlinear Bending Performance

Outline of Thursday, 10.09

8:30–9:45

Morning Coffee

9:00–9:45

Room A

Plenary Lecture 6

Chair: J. Pamin

B. Skoczeń

From Fundamental Principles to Mechanics Near Absolute Zero [Moved to Wed. 09:45] (ID004)

9:45–10:30

Room A

Plenary Lecture 7

Chair: R. Lebensohn

R. Liupekevicus, V.G. Kouznetsova,
J.A.W. van Dommelen, **M.G.D. Geers**

Advances in the Micromorphic Homogenization of Dynamical Metamaterials (ID001)

10:30–11:00

Coffee Break

11:00–13:00

Session Block 9

Room A

Room B

Room C

Room D

Room E

TS6-3

TS13-4

TS4-4

TS3-1

TS14-2

13:00–14:00

Lunch

14:00–16:00

Session Block 10

Room A

Room B

Room C

Room D

Room E

TS6-4

TS13-5

TS4-5

TS3-2

TS14-3

16:00–16:30

Coffee Break

16:30–17:15

Room A

Plenary Lecture 8

Chair: S. Stupkiewicz

A. Menzel

(ID013)

Modelling Electrical Conductivity Across Scales

17:15–17:30

Closing Ceremony

18:30–19:30

Guided tour of Aviation Museum

19:30–23:00

Banquet Dinner

11:00–13:00

Room A

Session Block 9

TS6-3: Contact and interface mechanics

Chair: M. Rezaee-Hajidehi

11:00–11:40 ID249 **Keynote Lecture**

R.A. Sauer

A Chemo-Mechano-Thermodynamical Contact Formulation for (De)Bonding

11:40–12:00 ID284

J. Korelc

A Selection of Benchmarks in Third Medium Contact

12:00–12:20 ID151

G. Anciaux, **T. Ghesquière-Diéricks**, V. Acary, J.-F. Molinari

The Explicit Nonsmooth Newmark- β Scheme for Dynamic Fragmentation Simulations

12:20–12:40 ID291

Z. Mróz

On the Moving Interface Problem [Cancelled]

Room A TS6-3

11:00–13:00

Room B

Session Block 9

TS13-4: Plasticity, damage and fracture mechanics

Chair: H. Petryk

11:00–11:20 ID362

R.Z. Schmidt, B. Skoczeń

Intermittent Plastic Flow and Microstructure Evolution During Low Cycle Fatigue at Cryogenic Temperatures

11:20–11:40 ID363

E. Schmidt, B. Skoczeń

Microstructure Based Constitutive Modelling of Metastable 3D Printed Materials Strained at Extremely Low Temperatures

Room B TS13-4

11:40–12:00 ID269

A. Kaciuba, B. Skoczeń

Modeling of Microstructure Evolution During Creep in Metastable Materials at Extremely Low Temperatures

12:00–12:20 ID364

J. Grygierzec, B. Skoczeń

Modelling Irradiated Metastable Materials for Cryogenic Applications

12:20–12:40 ID356

J. Kozyra, B. Skoczeń

Damage Evolution in Classical and Additive Materials at Cryogenic Temperatures

12:40–13:00 ID377

A. Szyszko, J. Tabin, H. Nejman, J. Kawałko

Microstructure Evolution During Tensile Elongation of Stainless-Steel Welded Joint in Cryogenic Conditions

11:00–13:00

Room C

Session Block 9

TS4-4: Computational and experimental mechanics in engineering applications

Chair: P. Sielicki

11:00–11:40 ID185 **Keynote Lecture**

T. Bednarek, A. Zienert, J. Schuster

Multiscale Modelling of Physical Vapor Deposition for Semiconductor Thin Films: From Reactor Dynamics to Nanoscale Feature Evolution

11:40–12:00 ID061

F. Tsuchiya, T. Matsuo

Development of an AE Waveform Simulation Method Using Experimentally Determined Sensor Responses

12:00–12:20 ID054

T. Musha, M. Arai

Development of a Strain Sensor Using Mechanoluminescence for Multiaxial Stress Measurement

Thursday, 10.09

12:20–12:40 ID333

S.-F. Hwang, J.-C. Yin

Low-Velocity Impact Cracks in Glass and Laminated Glass Based on Peridynamics

12:40–13:00 ID340

N. Florek, I. Maciejewski, T. Krzyżyński

Analysis of the Vibration Isolation Performance of an Active Suspension System Designed for a Child Car Seat

Room C TS4-4

11:00–13:00

Room D

Session Block 9

TS3-1: Biomechanics and biomaterials

Chairs: E. Majchrzak and G. Milewski

11:00–11:40 ID171 **Keynote Lecture**

I. Ważydrąg, G. Milewski, S. Łagan

In Silico Simulations of Functionally Graded Tricuspid Artificial Aortic Valves

11:40–12:00 ID254

M. Sienkiewicz

Peridynamic Modeling of Adaptive Remodeling

12:00–12:20 ID093

A. Skorupa, A. Piasecka-Belkhaty

Modelling of Heat and Mass Transfer during Cryopreservation in Biological Sample Treated as Homogeneous and Porous Material with Uncertainty

12:20–12:40 ID208

J.M. Wołowicz, R. Wojnar

Epithelium and 2D Crystal

12:40–13:00 ID303

M. Mikelashvili

Quasi-Static Problems of the Coupled Linear Theory of Elastic Nanomaterials with Triple Porosity

Room D TS3-1

11:00–13:00

Room E

Session Block 9

TS14-2: Structural optimization and optimum material design

Chair: B. Błachowski

Room E TS14-2

11:00–11:40 ID067 **Keynote Lecture**

M. Tyburec, M Stingl, S. Ma

Realizability-Aware Free Orthotropic Material Optimization: From Convex Relaxations to Hashin–Shtrikman Bounds

11:40–12:00 ID058

M. Bruggi, B. Tóth, J. Lógó

Robust Design Optimization of Gridshells Using the Force Density Method

12:00–12:20 ID232

M. Nowak, D. Kurpisz

Strength-Consistent Structural Optimization Using a Biomimetic Approach

12:20–12:40 ID250

P. Sobczak

Shape Optimization of Nonlinear Elastic Structures

12:40–13:00 ID052

B. Łazarczyk, R.A. Sauer

Material and Prestrain Identification of Spatially Heterogeneous Isogeometric Thin Shells

14:00–16:00

Room A

Session Block 10

TS6-4: Contact and interface mechanics

Chair: S. Stupkiewicz

14:00–14:20 ID144

K. Bartosz

A Contact Problem for a Nonlinear Viscoelastic Rod with Subdifferential Boundary Condition

14:20–14:40 ID114

H. He, A.R. Akisanya, S. Sriramula, M.A. Siddiq

Numerical Studies on Abrasion of Decommissioned Pipeline Polymer Coatings

14:40–15:00 ID294

L. Šarlija, T. Lesičar

Numerical Modelling of Rolled Plug Installation Inside Steam Generator Tube

15:00–15:20 ID229

S. Szczygieł, M. Szczepanik

Numerical Modelling of Contact-Driven Bearing Fixation in Staking-Type Joints for Electric Motor Housings

15:20–15:40 ID384

M. Nösges, H.-G. Bui, B.-T. Cao, R.A. Sauer

3D Isogeometric Simulation of Mechanized Tunnelling: Application for Excavation Analysis in Partially Saturated Ground

Room A TS6-4

14:00–16:00

Room B

Session Block 10

TS13-5: Plasticity, damage and fracture mechanics

Chair: J. Pamin

14:00–14:40 ID080

Keynote Lecture

H. Darban

Stress Intensity Factors at the Nanoscale by Atomistic Simulations

TS13-5

14:40–15:00 ID339

G. Jurczak, S. Nosewicz, B. Romelczyk, Z. Pakieła, M. Maździarz, F. Nisar, A. Grabias, J. Rojek, M. Chmielewski

Multiscale Analysis of Damage Behaviour of Sintered NiAl-Based Materials with Ceramic Addition

15:00–15:20 ID252

R. Ortwein, B. Skoczeń

Shakedown of Structures Undergoing Plastic Strain Induced Phase Transformation

15:20–15:40 ID379

B. Wu, A.-M. He, P. Wang [Cancelled]

Fragmentation of Shock-Induced Metallic Jets

15:40–16:00 ID380

A.-M. He, D.-D. Jiang

Molecular Dynamics Simulations and Mechanical Modeling of Dynamic Tensile Fracture in Metals Containing Helium Bubbles [Cancelled]

14:00–16:00

Room C

Session Block 10

TS4-5: Computational and experimental mechanics in engineering applications

Chair: P. Baranowski

14:00–14:20 ID057

V. Šmilauer, J. Veselý

Thermo-Mechanical Analysis of the White-Topping Slab with Long-Term Monitoring Data

14:20–14:40 ID176

Ł. Bohdal, A. Kułakowska

Modeling the Kinematics of Material Flow in the Cutting Process as a Basis for Optimizing Tool Geometry to Limit the Formation of Burrs on the Cut Surface of Components

14:40–15:00 ID350

A. Davarpanah T.G., M. Koniorczyk

Prediction of Residual Compressive Strength of Normal Concrete Exposed to Elevated Temperatures

Thursday, 10.09

15:00–15:20 ID258

A. Kulakowska, L. Bohdal, K. Olewińska

Prediction of Surface Quality in Roller Burnishing Processes Using FEM-Based Applications

15:20–15:40 ID223

P.J. Romanowicz, **B. Szybiński**, M. Barski,
A. Stawiarski, M. Pałac

Investigation of Stress Relief Holes Geometry by Means of Machine Learning and Digital Image Correlation Methods

15:40–16:00 ID344

O. Toufik, N. Charif

Mechanical Response of a Novel Nomex and Aluminium Honeycomb Core Used in Helicopter Rotor Blades under Compressive Loading

Room C TS4-5

14:00–16:00

Room D

Session Block 10

TS3-2: Biomechanics and biomaterials

Chairs: E. Majchrzak and G. Milewski

14:00–14:20 ID172

K. Wilińska, P. Szymczyk-Ziółkowska, C. Pezowicz

Influence of UV Crosslinking Time on the Mechanical Properties and Degradation of GelMA Hydrogels

14:20–14:40 ID327

J.E. Ampah-Essel, I. Barszczewska-Rybarek,
G. Chladek

Quaternary-Ammonium Urethane Dimethacrylate Dental Composite for Long-Lasting Restorations

14:40–15:00 ID056

W. Wojnarowska

Influence of Material Heterogeneity on the Numerical Prediction of the Mechanical Response of an L5 Vertebra

15:00–15:20 ID125

K. Marcula, J. Filipiak

The Influence of Strain Rate on the Viscoelastic Properties of Duck Oesophageal Tissue

Room D TS3-2

15:20–15:40 ID255

K. Nowak, A. Cornaggia, A. Szymczak-Graczyk,
T. Garbowski

*Sensitivity of Mechanically Admissible Squat Motion to
Joint Moment Capacity Distribution*

15:40–16:00 ID245

M. John-Banach, **A. John**

*Problems with Designing of Medical Equipment for
Young Patients*

14:00–16:00

Room E

Session Block 10

**TS14-3: Structural optimization and optimum
material design**

Chair: M. Bruggi

14:00–14:20 ID211

D. Kowalski

PINN or SPINN for the Topology Optimization?

14:20–14:40 ID112

K. Tajs-Zielińska, B. Bochenek

*Implementation of Equivalent Load Scheme for Easy
Prediction of Minimal Compliance Topologies in the
Presence of Random Loads*

14:40–15:00 ID370

P. Szeptyński, D. Jasińska, L. Mikulski

*Application of the Pontryagin's Maximum Principle in
Shape Optimization of Glue Laminated Timber Beams
and Its Numerical and Experimental Validation*

15:00–15:20 ID184

T. Tokunaga, S. Hirozumi, K. Hagihara

*Development of Fe-Based Mille-Feuille Materials and
Evaluation of Their Mechanical Properties*

15:20–15:40 ID072

K. Bołbotowski, S. Czarnecki, M. Gajewski,

T. Lewiński

On Regularization of the Isotropic Material Design

Social Events

Welcome Reception*

Monday, September 7, 18:30

You are invited to attend a welcome reception at the Conference Venue.

Kraków Walking Tours*

Wednesday, September 9, 18:00

Take the chance to dive into the history of the city, admire the most popular landmarks and listen to the stories and legends brought to life by the local guides. The tour will take around two hours. The meeting point is the Conference Venue.

Guided tour of Aviation Museum*

Thursday, September 10, 18:30

Before the Banquet Dinner a guided tour of the Aviation Museum will take place.

Banquet Dinner*

Thursday, September 10, 19:30

The conference will conclude with the Banquet Dinner in the Polish Aviation Museum, which is located on the ground of the former Rakowice-Czyżyny airfield. Address: al. Jana Pawła II 39, Kraków, muzeumlotnictwa.pl

Wieliczka Salt Mine, Tuesday, September 8 for ACCOMPANYING PERSONS

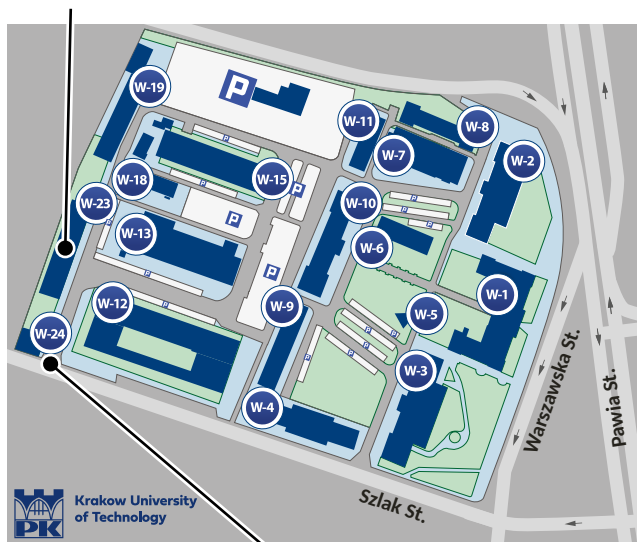
The mine gives the impression of a magical underground city, full of mysterious caves, amazing underground lakes and unique salt carvings. The route takes around four hours, is almost 3 km long and consists of winding corridors, 800 steps and a descend to the depth of 135 m underground. The tour is included in the accompanying person fee. The meeting point is the Conference Venue. www.wieliczka-saltmine.com

*included in the conference fee

Conference Venue

Campus map

Venue



Nearest entrance

W-1 Faculty of Civil Engineering

W-2 Faculty of Environmental and Energy Engineering

W-3 Faculty of Electrical and Computer Engineering

W-4 Main Library

W-5 Łupinka Cafe

W-6 Library Building

W-7 Teaching and Administration Building "Gil" Gallery

W-8 Former Military Detention Building "Areszt"

W-9 Teaching and Administration Building "CUP"

W-10 Faculty of Architecture

W-11 Conference and Exhibition Pavilion "Kotłownia"

W-12 Faculty of Chemical Engineering and Technology

W-13 Teaching and Laboratory Building of the Faculty of Civil Engineering

W-15 Teaching and Administration Building "Houston"

W-18 Laboratory Building of the Faculty of Civil Engineering

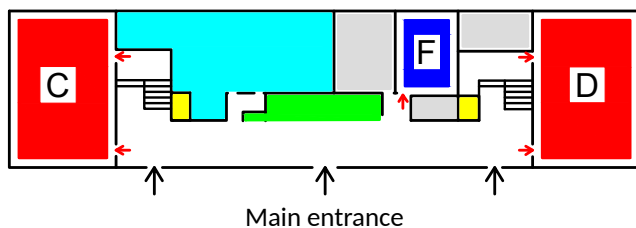
W-19 Central Warehouse

W-23 Interfaculty Education and Research Center "Działownia"

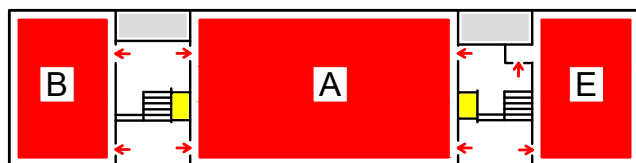
W-24 Małopolska Centre for Energy-saving Construction

Layout of Działownia building

Ground floor



First floor



- Lecture Room
- Toilets
- Reception/Cloakroom
- Lift
- Available workspace

Programme Overview

Time/Day	Monday, 7.09	Tuesday, 8.09	Wednesday, 9.09	Thursday, 10.09
8:30–9:00		Morning Coffee	Morning Coffee	Morning Coffee
9:00–10:30	Registration and Coffee	Plenary Lecture 2 & 3	Plenary Lecture 4 & 5	Plenary Lecture 6 & 7
10:30–11:00		Coffee Break	Coffee Break	Coffee Break
11:00–11:40		Session Block 3	Session Block 6	Session Block 9
11:40–13:00	Opening Ceremony and Plenary Lecture 1	Lunch	Lunch	Lunch
13:00–14:00	Lunch			
14:00–16:00	Session Block 1	Session Block 4	Session Block 7	Session Block 10
16:00–16:30	Coffee Break	Coffee Break	Coffee Break	Coffee Break
16:30–17:30	Session Block 2	Session Block 5	Session Block 8 (ends at 17:50)	Plenary Lecture 8 and Closing Ceremony
17:30–18:00				
18:00–18:30				
18:30–19:30	Welcome Reception		Walking Tours	Guided tour of Aviation Museum
19:30–20:00				Banquet Dinner
20:00–21:30				
21:30–23:00				



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