

	Monday September 9	Tuesday September 10
8:15	REGISTRATION	REGISTRATION
9:00	OPENING CEREMONY & O.C. Zienkiewicz Award Ceremony (9:00 - 10:00)	PLENARY LECTURE 9:00-9:45 (L. Demkowicz)
9:20		PLENARY LECTURE 9:45-10:30 (F. Dunne)
9:40		COFFEE BREAK (30')
10:00	PLENARY LECTURE 10:00-10:45 (T. Hughes)	Parallel sessions: MS01 MS03 MS04 MS07 MS09 MS13 MS14 MS23 TS1 TS2
10:20	PLENARY LECTURE 10:45-11:30 (H. Petryk)	
10:40	COFFEE BREAK (11:30 - 12:20)	MS01 MS03 MS04 MS08 MS09 MS10 MS13 MS16 MS19 MS23 TS1 TS3
11:00	Parallel sessions: MS01 MS03 MS04 MS08 MS09 MS10 MS13 MS16 MS19 MS23 TS1 TS3	
11:20		
11:40	LUNCH (13:00 - 14:00, LEVEL -1)	PLENARY LECTURE 14:00-14:45 (B. Noack)
12:00	MS01 MS03 MS04 MS08 MS09 MS10 MS13 MS16 MS19 MS23 TS1 TS3	COFFEE BREAK (35')
12:20	COFFEE BREAK (35')	Parallel sessions: MS03 MS04 MS07 MS13 MS14 MS23 TS1 TS2 TS4
12:40	COFFEE BREAK (35')	
13:00	COFFEE BREAK (35')	Parallel sessions: MS01 MS03 MS04 MS08 MS09 MS10 MS13 MS16 MS19 MS23 TS1 TS3
13:20	COFFEE BREAK (35')	
13:40	COFFEE BREAK (35')	BREAK (20')
14:00	COFFEE BREAK (35')	Parallel sessions: MS01 MS03 MS04 MS08 MS09 MS10 MS13 MS16 MS19 MS23 TS1 TS3
14:20	COFFEE BREAK (35')	
14:40	COFFEE BREAK (35')	BREAK (20')
15:00	COFFEE BREAK (35')	Parallel sessions: MS01 MS03 MS04 MS08 MS09 MS10 MS13 MS16 MS19 MS23 TS1 TS3
15:20	COFFEE BREAK (35')	
15:40	COFFEE BREAK (35')	Parallel sessions: MS01 MS03 MS04 MS08 MS09 MS10 MS13 MS16 MS19 MS23 TS1 TS3
16:00	COFFEE BREAK (35')	
16:20	COFFEE BREAK (35')	BREAK (20')
16:40	COFFEE BREAK (35')	Parallel sessions: MS01 MS03 MS04 MS08 MS09 MS10 MS13 MS16 MS19 MS23 TS1 TS3
17:00	COFFEE BREAK (35')	
17:20	COFFEE BREAK (35')	BREAK (20')
17:40	COFFEE BREAK (35')	Parallel sessions: MS01 MS03 MS04 MS08 MS09 MS10 MS13 MS16 MS19 MS23 TS1 TS3
18:00	COFFEE BREAK (35')	
18:20	COFFEE BREAK (35')	Parallel sessions: MS01 MS03 MS04 MS08 MS09 MS10 MS13 MS16 MS19 MS23 TS1 TS3
18:40	COFFEE BREAK (35')	
19:00	COFFEE BREAK (35')	Parallel sessions: MS01 MS03 MS04 MS08 MS09 MS10 MS13 MS16 MS19 MS23 TS1 TS3
19:20	COFFEE BREAK (35')	
19:40	COFFEE BREAK (35')	Parallel sessions: MS01 MS03 MS04 MS08 MS09 MS10 MS13 MS16 MS19 MS23 TS1 TS3
20:00	COFFEE BREAK (35')	
20:20	COFFEE BREAK (35')	Parallel sessions: MS01 MS03 MS04 MS08 MS09 MS10 MS13 MS16 MS19 MS23 TS1 TS3
20:40	COFFEE BREAK (35')	
21:00	COFFEE BREAK (35')	Parallel sessions: MS01 MS03 MS04 MS08 MS09 MS10 MS13 MS16 MS19 MS23 TS1 TS3
21:20	COFFEE BREAK (35')	
21:40	COFFEE BREAK (35')	Parallel sessions: MS01 MS03 MS04 MS08 MS09 MS10 MS13 MS16 MS19 MS23 TS1 TS3
21:40	COFFEE BREAK (35')	

Wednesday September 11		Thursday September 12		
REGISTRATION		REGISTRATION		8:15
PLENARY LECTURE 9:00-9:45 (A. Menzel)		PLENARY LECTURE 9:00-9:45 (F. Rammerstorfer)		9:00
PLENARY LECTURE 9:45-10:30 (M. Shillor)		PLENARY LECTURE 9:45-10:30 (T. Lewiński)		9:20
COFFEE BREAK (30')		COFFEE BREAK (30')		9:40
COFFEE BREAK (30')		COFFEE BREAK (30')		10:00
COFFEE BREAK (30')		COFFEE BREAK (30')		10:20
COFFEE BREAK (30')		COFFEE BREAK (30')		10:40
Parallel sessions: MS03 MS05 MS07 MS14 MS20 MS21 MS22 TS1 TS4		Parallel sessions: MS05 MS11 MS12 MS15 MS17 MS18 MS21 TS1 TS4		11:00
Parallel sessions: MS03 MS05 MS07 MS14 MS20 MS21 MS22 TS1 TS4		Parallel sessions: MS05 MS11 MS12 MS15 MS17 MS18 MS21 TS1 TS4		11:20
Parallel sessions: MS03 MS05 MS07 MS14 MS20 MS21 MS22 TS1 TS4		Parallel sessions: MS05 MS11 MS12 MS15 MS17 MS18 MS21 TS1 TS4		11:40
Parallel sessions: MS03 MS05 MS07 MS14 MS20 MS21 MS22 TS1 TS4		Parallel sessions: MS05 MS11 MS12 MS15 MS17 MS18 MS21 TS1 TS4		12:00
Parallel sessions: MS03 MS05 MS07 MS14 MS20 MS21 MS22 TS1 TS4		Parallel sessions: MS05 MS11 MS12 MS15 MS17 MS18 MS21 TS1 TS4		12:20
Parallel sessions: MS03 MS05 MS07 MS14 MS20 MS21 MS22 TS1 TS4		Parallel sessions: MS05 MS11 MS12 MS15 MS17 MS18 MS21 TS1 TS4		12:40
LUNCH (13:00 - 14:00, LEVEL -1)		LUNCH (13:00 - 14:00, LEVEL -1)		13:00
LUNCH (13:00 - 14:00, LEVEL -1)		LUNCH (13:00 - 14:00, LEVEL -1)		13:20
LUNCH (13:00 - 14:00, LEVEL -1)		LUNCH (13:00 - 14:00, LEVEL -1)		13:40
PLENARY LECTURE 14:00-14:45 (S. Meguid)		PLENARY LECTURE 14:00-14:45 (J. Pamin)		14:00
PLENARY LECTURE 14:00-14:45 (S. Meguid)		PLENARY LECTURE 14:00-14:45 (J. Pamin)		14:20
COFFEE BREAK (35')		COFFEE BREAK (35')		14:40
COFFEE BREAK (35')		COFFEE BREAK (35')		15:00
Parallel sessions: MS05 MS11 MS12 MS17 MS18 MS20 MS21 MS22 TS1 TS4		Parallel sessions: MS05 MS06 MS11 MS12 MS15 MS17 MS18 MS21 TS4		15:20
Parallel sessions: MS05 MS11 MS12 MS17 MS18 MS20 MS21 MS22 TS1 TS4		Parallel sessions: MS05 MS06 MS11 MS12 MS15 MS17 MS18 MS21 TS4		15:40
Parallel sessions: MS05 MS11 MS12 MS17 MS18 MS20 MS21 MS22 TS1 TS4		Parallel sessions: MS05 MS06 MS11 MS12 MS15 MS17 MS18 MS21 TS4		16:00
Parallel sessions: MS05 MS11 MS12 MS17 MS18 MS20 MS21 MS22 TS1 TS4		Parallel sessions: MS05 MS06 MS11 MS12 MS15 MS17 MS18 MS21 TS4		16:20
POSTER SESSION (16:40 - 17:40)		BREAK (20')		16:40
POSTER SESSION (16:40 - 17:40)		CLOSING CEREMONY		17:00
POSTER SESSION (16:40 - 17:40)		CLOSING CEREMONY		17:20
SKK Committee Meeting (17:40)				17:40
FREE TIME				18:00
FREE TIME				18:20
FREE TIME				18:40
FREE TIME				19:00
FREE TIME				19:20
FREE TIME				19:40
FREE TIME				20:00
FREE TIME				20:20
FREE TIME				20:40
FREE TIME				21:00
FREE TIME				21:20
FREE TIME				21:40
GALA DINNER (19:00)				

REGISTRATION

Sunday, September 8, 11:00-20:00

Monday-Thursday, September 9-12, 8:00-18:00

Auditorium Maximum, level 0

SPECIAL EVENTS

Welcome Party – Sunday, September 8,
18:00-20.00, Auditorium Maximum, level -1

Opening Ceremony and O.C. Zienkiewicz Award Ceremony – Monday, September 9, 9:00
Auditorium Maximum, LH

Classical Music Concert – Monday, September 9,
20:00, Church of St. Francis of Assisi

PACM General Assembly – Tuesday,
September 10, 17:40,
Auditorium Maximum, MH A

Cracovia Walking Tour – Tuesday, September 10,
19:00, Auditorium Maximum, level 0

Congress Committee Meeting (SKK) –
Wednesday, September 11, 17:40,
Auditorium Maximum, CR

Gala Dinner – Wednesday, September 11, 19:00,
Gardens of the Archeological Museum

Closing Ceremony – Thursday, September 12,
17:00, Auditorium Maximum, LH

SCIENTIFIC SESSIONS

ALL SCIENTIFIC SESSIONS TAKE PLACE IN
AUDITORIUM MAXIMUM, EXCEPT FOR MS09,
MS10, MS19 WHICH TAKE PLACE AT THE FACULTY
OF MECHANICAL ENGINEERING AND ROBOTICS
OF THE AGH UST

ADDRESS: 9 Reymonta St., building: D-1 (see page 12)

ALL PLENARY LECTURES TAKE PLACE IN THE LARGE HALL OF AUDITORIUM MAXIMUM

Leszek Demkowicz, USA – Tuesday, Sept. 10, 9:00
Progress Report on the DPG Method

Fionn Dunne, Great Britain – Tuesday, Sept. 10, 9:45
Microstructurally-Sensitive Fatigue Crack Nucleation and Growth: Dislocation Configurational Energy and Crystal Plasticity Approaches

Thomas J. R. Hughes, USA – Monday, Sept. 9, 10:00
The Isogeometric Approach to Analysis

Tomasz Lewiński, Poland – Thursday, Sept. 12, 9:45
Least Weight Structures and Least Compliant Bodies. Optimal Layout Problems and Recovery of Underlying Microstructure

Shaker Meguid, Canada – Wednesday, Sept. 11, 14:00
Multiscale Modeling of Multifunctional Nanocomposites: Opportunities and Challenges

Andreas Menzel, Germany – Wednesday, Sept. 11, 9:00, Electro-Viscoelasticity of Dielectric Elastomers – Experiment, Modelling and Simulation

Bernd R. Noack, Germany – Tuesday, Sept. 10, 14:00
Turbulence Control – Better, Faster and Easier with Machine Learning

Jerzy Pamin, Poland – Thursday, Sept. 12, 14:00
Numerical Simulation of Material Instabilities

Henryk Petryk, Poland – Monday, Sept. 9, 10:45
On Microstructural Length Scales in Single Crystals

Franz G. Rammerstorfer, Austria – Thursday, Sept. 12, 9:00, Some Oddities in Plate and Shell Buckling

Meir Shillor, USA – Wednesday, Sept. 11, 9:45
Recent Results on Dynamic Contact, Friction, Heat Exchange, and Debonding

Marek Stankiewicz, Poland Monday, Sept. 9, 14:00
Synchrotron SOLARIS – Large Research Infrastructure and Its Mechanical Challenges

MINI-SYMPOSIA – ROOM – DATE

THE ORGANIZERS OF THE MINI-SYMPOSIA ARE EXPECTED TO CHAIR THEIR MS SESSIONS

MS01 – ER A – Monday-Tuesday, September 9-10
Adaptive Methods, Higher Order Approximation,
and Error Control

MS03 – LH B – Monday-Wednesday, September 9-11
Composite Structures – Modelling, Testing and Man-
ufacturing

MS04 – MH B – Monday-Tuesday, September 9-10
Concrete and Concrete Structures – Modelling
and Testing

MS05 – ER B – Wednesday-Thursday,
September 11-12, Creativity and Innovation in
Structural Design

MS06 – LH A – Thursday, September 12
Design, Optimization and Virtual Prototyping of Light-
weight Structures in Land Vehicles and Aircrafts

MS07 – SH – Tuesday-Wednesday, September 10-11
Direct Methods: Methodological Progress and
Engineering Applications

MS08 – SH – Monday, September 9
Discrete Material Modelling at Various Scales

MS09 – AGH1 – Monday-Tuesday, September 9-10
Influence of Vibrations on the Environment

MS10 – AGH2 – Monday, September 9
Mechanisms, Machines and Robots — Theory
and Applications

MS11 – MH A – Wednesday-Thursday, September 11-12
Mesh Reduction Methods

MS12 – CR – Wednesday-Thursday, September 11-12
Modelling and Simulation of Multiphase Flows

MS13 – SR – Monday-Tuesday, September 9-10
Multiscale Modelling of Materials and Structures

MS14 – MH A – Tuesday-Wednesday, September 10-11
Non-Conventional Methods for Solid Mechanics
(NMSM)

MS15 – MH B – Thursday, September 12

Novel Euler-Lagrange Approaches for Coupling Fluid-Dynamics and Granular Media

MS16 – MH A – Monday, September 9

Numerical Heat and Mass Transfer

MS17 – SH – Wednesday-Thursday, September 11-12

Numerical Modelling of Rocks and Soils

MS18 – LH B – Wednesday-Thursday, September 11-12

Particle accelerators and thermonuclear fusion reactors

MS19 – AGH3 – Monday, September 9

Safety Aspects Under Dynamic Loadings: Numerical Design and Experiment

MS20 – MH B – Tuesday-Wednesday, September 10-11

Stability and Bifurcations in Machinery

MS21 – SR – Wednesday-Thursday, September 11-12

Stochastic Mechanics

MS22 – CR – Wednesday, September 11

Thin Liquid Films

MS23 – ER B – Monday-Tuesday, September 9-10

Thin-Walled Structures – Analysis and Application

THEMATIC SESSIONS – ROOM – DATE

THE CHAIRPERSONS OF THE THEMATIC SESSIONS
WILL BE ANNOUNCED PRIOR TO EACH TS SESSION

TS1 – LH A – Monday-Thursday, September 9-12

Solid Mechanics

TS2 – CR – Tuesday, September 10

Fluid Mechanics

TS3 – CR – Monday, September 9

Solid/Fluid Interaction

TS4 – ER A – Tuesday-Thursday, September 10-12

Computational Mechanics

MS01. ADAPTIVE METHODS, HIGHER ORDER APPROXIMATION, AND ERROR CONTROL

part 1 of 2

organized by: W. Cecot, W. Rachowicz
and G. Zboiński

Room ER A

12:20 Keynote lecture

ID 532 **M. Klimczak* and W. Cecot**

Toward numerical modeling of asphalt concrete by the multiscale finite element method

15:20 **J. Mora* and L. Demkowicz**

ID 143 PolyDPG: higher-order polytopal finite elements based on DPG

15:40 **S. Henneking*, L. Demkowicz**

ID 515 **and J. Grosek**

A DPG Maxwell approach for studying nonlinear thermal effects in active gain fiber amplifiers

16:00 **I. Jaworska**

ID 517 The higher order multipoint meshless FDM towards the nonlinear analysis

16:20 **M. Oleksy* and W. Cecot**

ID 534 New shape functions for the mixed FEM based on the discontinuous Petrov-Galerkin (DPG) methodology

16:40 **M. Dryzek* and W. Cecot**

ID 536 Higher order multiscale finite element analysis of orthotropic materials

17:20 **M. R. Paszyński*, M. M. Łoś, J. Munoz-**

ID 544 **Matute, I. Muga, Q. Deng and V. M. Calo**
Isogeometric residual minimization method (IGRM)

17:40 **H. A. Shynkarenko* and B. B. Vasylyshyn**

ID 549 Implicit and explicit a posteriori error estimators for piecewise linear finite element method approximations

18:00 **B. Tóth**

ID 554 Hybridized and dual-mixed HP finite element method for shells of revolution

MS03. COMPOSITE STRUCTURES – MODELLING,
TESTING AND MANUFACTURING

part 1 of 3

organized by: L. Kroll, M. Kuczma, W. Błażejowski,
A. Denisiewicz, T. Socha, K. Kula, G. Lesiuk,
M. Stosiak and M. Barcikowski

Room LH B

- 12:20** **Keynote lecture**
- ID 702** **M. Taczała*, R. Buczkowski
and M. Kleiber**
Elastoplastic buckling of rectangular
functionally graded materials thick plates
-
- 15:20** **D. Szubartowski* and A. Ganczarski**
- ID 480** Torsion of non-circular functionally graded
material shafts
-
- 15:40** **W. Szymkuć*, A. Glema, P. Tokłowicz
and M. Malendowski**
Improving fire performance of concrete-
filled steel tubular columns by using
lightweight cementitious composite with
cenospheres
-
- 16:00** **W. Błażejowski*, M. Barcikowski,
ID 734 A. Filipiak, A. Cichalewska and J. Warycha**
Assessment of the quality of manufacture
of composite reinforcing bars by the
mercury porosimetry method
-
- 16:20** **A. Denisiewicz*, M. Kuczma, T. Socha
ID 301 and K. Kula**
Numerical homogenization of UHPC
-
- 16:40** **M. Lefik*, D.P. Boso and M. Wojciechowski**
- ID 644** Determination of mechanical properties
of vacuum glazing by numerical solution
of dynamic inverse problem involving
artificial neural network
-
- 17:20** **A. Wiśniewska* and H. Egner**
- ID 296** A new constitutive model of composite
materials
-
- 17:40** **W. Grendysa* and M. Jonas**
- ID 474** HARNAŚ-3, new generation of aerobatic
airplane, comprehensive structure
strength analysis

18:00 A. Czekanski* and M. Somireddy
ID 502 Investigation of the material behavior of
 the 3D printed parts

18:20 W. Papacz, T. Klekiel*, J. Walkowiak
ID 347 and M. Żygadło
 Study on application of recycled HDPE to
 low-loaded mechanical structures

MS04. CONCRETE AND CONCRETE STRUCTURES – MODELLING AND TESTING

part 1 of 2

organized by: A. Winnicki, M. Kaliske, M. Kuczma,
 H. A. Mang, J. Pamin and M. A. Polak

Room MH B

12:20 Keynote lecture
ID 126 I. Marzec and J. Bobiński*
 Performance of isotropic constitutive laws
 in simulating failure mechanisms in scaled
 RC beams

15:20 B. Deliktas*, H.T. Turker, F. Shareef
ID 526 and F. C. Caner
 Determining the size effect on the biaxial
 strength of fiber reinforced concrete using
 triangle plate test method

15:40 M. Neuner*, M. Schreter
ID 497 and G. Hofstetter
 Application of a time-dependent nonlin-
 ear material model for shotcrete to finite
 element simulations of the construction
 of a stretch of the brenner base tunnel

16:00 P.M. Lewiński* and S. Dudziak
ID 59 Application of contact and reinforced
 concrete models in the analysis of
 elements with double studs

16:20 S. Dudziak
ID 520 Solution strategy for fast, non-linear finite
 element analysis of RC structures

16:40 A. Fuchs* and M. Kaliske
ID 531 Numerical mesoscale analysis of textile
 reinforced concrete

- 17:20 A. Qinami* and M. Kaliske**
ID 577 Modelling of concrete failure in terms of variational eigenfracture by considering rate effects
-
- 17:40 A. Szwed* and I. Kamińska**
ID 488 Yield condition for concrete under moderate hydrostatic pressure
-
- 18:00 M. Szczecina*, A. Winnicki**
ID 651 and A. Wosatko
 Verification of different inelastic concrete models at the point level in Willam's test
-

MS08. DISCRETE MATERIAL MODELLING AT VARIOUS SCALES

organized by: R. Kačianauskas, B. Peters,
 J. Tejchman and J. Rojek

Room SH

- 12:20 Keynote lecture**
ID 271 M. Krzaczek, M. Nitka, J. Kozicki
and J. Tejchman*
 Modelling of hydro-fracking in rocks using coupled DEM/CFD model
-
- 15:20 W. Zwolińska*, K. Nalepka, R. Chulist,**
ID 570 J. Tabin and B. Skoczeń
 Crack development in stainless steel at room and cryogenic temperatures: experimental and theoretical study
-
- 15:40 M. Nitka* and J. Tejchman**
ID 332 Modelling of cracking in concrete with improved DEM model
-
- 16:00 B. Doroszuk* and R. Król**
ID 601 Influence of copper ore impacts during transportation on its fragmentation – investigation with DEM breakage model
-
- 16:20 M. Krzaczek*, M. Nitka and J. Tejchman**
ID 519 Capillary pressure driven water flow in concrete using coupled DEM/CFD approach
-

- 16:40 J. Wiącek* and J. Horabik**
ID 71 DEM modelling of diametral compression test of starch agglomerates
-
- 17:20 A. Kačeniauskas*, R. Kačianauskas**
ID 175 and **R. Pacevič**
 DEM study of damping influence to behaviour of the dense multi-particle system
-
- 17:40 J. Rojek*, N. Madan and S. Nosewicz**
ID 289 The discrete element method with deformable particles
-
- 18:00 N. Madan*, J. Rojek and S. Nosewicz**
ID 118 Enhanced wave propagation modelling capabilities of discrete element method using deformable elements
-
- 18:20 S. Nosewicz*, J. Rojek, K. Wawrzyk,**
ID 486 **P. Kowalczyk, G. Maciejewski**
 and **M. Maździarz**
 Three-scale modelling of hot pressing process
-

MS09. INFLUENCE OF VIBRATIONS ON THE ENVIRONMENT

part 1 of 2

organized by: M.S. Koziń and J. Nizioł

Room AGH1 (building D-1, see p. 12)

- 12:20 Keynote lecture**
ID 613 **Ł. Łacny*, D. Ziemiański and M. S.Koziń**
 Selected overview of the impact of ground motion on the vibrations of particle accelerators
-
- 15:20 R. Trojanowski* and J. Wiciak**
ID 132 Impact of the size of the sensor part on sensor-actuator efficiency
-
- 15:40 D. Oshmarin* and M. Iurlov**
ID 150 Possibility of multimodal vibration damping with the aid of a single piezoelectric element shunted with a series RL-circuit
-
- 16:00 I. Maciejewski* and T. Krzyzyski**
ID 404 Global sensitivity analysis in optimisation of the vibration reduction systems
-

- 16:20 Z. Pawlak* and R. Lewandowski**
ID 102 Influence of inerters on the dynamic properties of structures with viscoelastic dampers
-
- 16:40 U. Ferdek* and J. Łuczko**
ID 377 A comparative analysis of a mono-tube shock absorbers with different valve systems
-
- 17:20 K. Michalczyk**
ID 62 Transverse vibration of helical springs coated with a layer of elasto-damping material
-
- 17:40 W. Łatas**
ID 401 Vibrations suppression of the axially moving string by the active distributed force
-
- 18:00 P. Koziol*, D. Kudla and R. Pilecki**
ID 614 Modelling of infinitely long nonlinear double-beam system dynamic response to randomly generated moving load
-

MS10. MECHANISMS, MACHINES AND ROBOTS — THEORY AND APPLICATIONS

organized by: J. Bałchanowski, A. Harlecki and M. Wojtyra

Room AGH2 (building D-1, see p. 12)

- 12:20 G. S. Nikolova*, V. K. Kotev,**
ID 166 D. M. Dantchev and Y. A. Yordanov
 Anthropometric data and 3D biomechanical model for evaluation of geometric, mass and inertial parameters of the human upper and lower extremities
-
- 12:40 A. Przemyk*, A. Harlecki and S. Tengler**
ID 248 Method of dynamic analysis of truck trailers based on homogenous transformations
-
- 15:20 M. Wojtyra*, J. Frączek and M. Pękal**
ID 263 Consequences of the use of the Moore-Penrose inverse in modeling of overconstrained multibody systems
-

- 15:40 G. Kopecki**
ID 673 Control of the aircraft lateral motion with the use of model reference adaptive control
-
- 16:00 P. W. Maciąg*, P.A. Malczyk and J. Frączek**
ID 82 On some aspects of Hamiltonian based adjoint design sensitivity analysis for multibody systems
-
- 16:20 P. Sperzyński*, J. Bałchanowski**
ID 184 and A. Gronowicz
 Simulation of a mobile robot on uneven terrain
-
- 16:40 G. S. Nikolova, V. K. Kotev*,**
ID 495 D. M. Dantchev and M.S. Tsveov
 Study of mass-inertial characteristics of female human body by walking
-
- 17:20 W. Lisowski**
ID 225 Study on selection of a 6R manipulator's configuration in off-line programming
-
- 17:40 E. Jarzębowska*, K. Augustynek**
ID 281 and A. Urbaś
 Tracking task based motions for robotic systems using the method of computationally generated constrained dynamics
-

MS13. MULTISCALE MODELLING OF MATERIALS AND STRUCTURES

part 1 of 2

organized by: T. Burczyński, M. Pietrzyk,
 W. Kuś, Ł. Madej and Ł. Rauch

Room SR

- 12:20 Keynote lecture**
ID 50 M. Romanowicz
 A numerical approach for predicting the failure locus of angle-ply laminates subjected to biaxial loading
-
- 15:20 A. Mrozek*, W. Kuś and T. Burczyński**
ID 307 Bioinspired optimization of mechanical properties of two-phase single-layered MoS₂ structures
-

- 15:40** **W. Kuś*, M.J. Akhter, A. Mrozek**
ID 384 **and T. Burczyński**
Bioinspired optimization of MoS₂ 2D material with presence of defects
-
- 16:00** **A. Kruszewski, P. Piekarczyk,**
ID 283 **K. Kwiatkowski and S. Piszczatowski***
Biomechanical evaluation of the distal humerus fractures stabilization
-
- 16:20** **W. Ogierman**
ID 541 Computationally efficient homogenization for modelling of nonlinear composites with inhomogeneous reinforcement distribution
-
- 16:40** **J. Tabin*, B. Skoczeń and J. Bielski**
ID 392 Discontinuous plastic flow under combined loadings
-
- 17:20** **K. Kowalczyk-Gajewska*, M. Majewski,**
ID 509 **S. Mercier and A. Molinari**
Extension of the micromechanical cluster model to heterogeneous elastic-viscoplastic materials
-
- 17:40** **E. Pruchnicki**
ID 656 Homogenization of highly heterogeneous plates
-
- 18:00** **A. Długosz* and T. Schlieter**
ID 559 Identification of microstructure parameters in thermoelastic porous material
-

MS16. NUMERICAL HEAT AND MASS TRANSFER
organized by: **E. Majchrzak, B. Mochnacki**
and **B. Sarler**

Room MH A

- 12:20** **A. Piasecka-Belkhaty* and P. Kowalski**
ID 311 Application of fuzzy finite difference method in numerical modelling of skin tissue heating
-
- 12:40** **M. Jasiński**
ID 564 Modeling of injury process of biological tissue containing blood vessel caused by laser impulse
-

- 15:20 A. Piasecka-Belkhayat and A. Korczak***
ID 312 Numerical modeling of thermal processes in heated metal films with imprecise parameters and periodic boundary conditions
-
- 15:40 E. Majchrzak**
ID 566 Solution of dual-phase lag equation using the general boundary element method
-
- 16:00 M. Ciesielski and B. Mochnacki***
ID 268 Integro-differential form of the dual phase lag heat transfer equation and its numerical solution using the control volume method
-
- 16:20 A.K. Kareem and S. Gao***
ID 587 Computational modelling of turbulent mixed heat convection in a closed lid-driven cavity
-
- 16:40 P. Duda and M. Konieczny***
ID 136 Identification of transient temperature and stress distribution in a thick-walled component
-

MS19. SAFETY ASPECTS UNDER DYNAMIC LOADINGS: NUMERICAL DESIGN AND EXPERIMENT
 organized by: P.W. Sielicki, P. Baranowski and G. Sławiński

Room AGH3 (building D-1, see p. 12)

- 12:20 P. Baranowski*, M. Kucewicz,**
ID 578 J. Małachowski, P. Płatek, A. Szafrńska and G. Sławiński
 A new idea of energy absorbing structures for safety improvement of military vehicles
-
- 12:40 T. Gajewski*, P. W. Sielicki**
ID 749 Experimental study of blast loading behind a building corner
-
- 15:20 P. W. Sielicki**
ID 282 Experimental study of flying debris accelerated by explosive
-
- 15:40 T. Klekiel* and R. Będziński**
ID 367 Modelling a protection conditions for human ankle under impact axial load
-

- 16:00** **H. Al-Rifaie*** and **W. Sumelka**
ID 230 Numerical analysis of a reinforced concrete supporting structure for blast resistant gates
-
- 16:20** **G. Sławiński***, **P. Malesa**
ID 199 and **M. Świerczewski**
 Numerical analysis of selected variants of the impact of improvised explosives devices on an armored vehicle and its crew
-
- 16:40** **M. Świerczewski***, **G. Sławiński**
ID 278 and **P. Malesa**
 Numerical modeling and analysis of blast at mine surrogate detonation in steel pot according to NATO AEP 55 vol 2
-
- 17:20** **E. Krzystała***, **A. Mężyk**, **S. Kciuk**
ID 663 and **B. Szeleżyński**
 Soldiers safety aspect in a designing process of military vehicles
-
- 17:40** **H. Al-Rifaie*** and **W. Sumelka**
ID 200 Numerical analysis of a reinforced concrete supporting structure for blast resistant gates
-

MS23. THIN-WALLED STRUCTURES

– ANALYSIS AND APPLICATION

part 1 of 2

organized by: R.J. Mania, W. Witkowski
 and R. Degenhardt

Room ER B

- 12:20** **L. Czechowski*** and **Z. Kołakowski**
ID 66 Buckling and post-buckling state of thin-walled C-profiles in elevated temperatures
-
- 12:40** **D. Pawlus**
ID 30 Effect of temperature field dynamics on response of three-layered annular plate with viscoelastic core
-
- 15:20** **D. Banat*** and **R. J. Mania**
ID 46 Failure analysis of top-hat cross-section FML columns subjected to axial compression
-

- 15:40 P. Czapski* and T. Kubiak**
ID 93 Failure assessment of thin-walled, composite tubes with closed cross-section including curing prestress
-
- 16:00 K. Ciesielczyk* and R. Studziński**
ID 424 Influence of support stiffness on the capacity of thin-walled beams interacting with sandwich panels
-
- 16:20 S. Bergmann*, M. Zschoyge**
ID 745 and **H. Altenbach**
 Investigation on material behaviour of a viscoelastic honeycomb structure
-
- 16:40 R. Walentyński**
ID 197 Large deformations description of the continuum, shells and thin-wall structures and their visualisation with mathematica
-
- 17:20 Z. Kolakowski* and L. Czechowski**
ID 64 Non-linear stability of the in-plane FG plate under subjected to eccentric compression
-
- 17:40 T. Kopecki* and P. Maurek**
ID 167 Numerical and experimental analysis of thin-walled aircraft structure in terms of post-critical deformations
-
- 18:00 H. Kopecki*, Ł. Święch and J. Zacharzewski**
ID 159 Numerical and experimental studies of the stiffness discontinuity on the fatigue of thin-walled structures
-

TS1. SOLID MECHANICS

part 1 of 4

Room LH A

- 12:20 J. Nordmann*, K. Naumenko**
ID 718 and **H. Altenbach**
 Failure Analysis Of Coatings By Using Cohesive Zone Models
-
- 12:40 K. Topczewska*, J. Schlattmann**
ID 500 and **O. I. Abdullah**
 Evolution of the temperature due to frictional heating on the contact surface of clutch
-

- 15:20 A. Kulig* and S. Migórski**
ID 551 On nonsmooth quasistatic frictional contact model with locking materials
-
- 15:40 A. Grabowski*, M. Nitka and J. Tejchman**
ID 359 Effect of wall roughness on friction behaviour of granular materials in DEM calculations
-
- 16:00 H. Bąkowski* and A. John**
ID 676 The influence selected operational parameters on friction processes in micro-contact for wheel-rail system by means of FEM
-
- 16:20 R. Czubacki, G. Dzierżanowski*,**
ID 57 T. Lewiński, T. Sokół
 On the optimal archgrids
-
- 16:40 H. Çetin*, E. Aydın and B. Öztürk**
ID 697 Optimum tuned mass damper (TMD) design for the cantilever beam response reduction
-
- 17:20 N. Kaliyeva* and Z. Rakisheva**
ID 723 Non-linear attitude control for a small spacecraft actuated by magnetorquers
-
- 17:40 J. Zhang*, H. Guo, H. Yu and T. Zhang**
ID 63 Numerical investigation to vibro-acoustic responses of HEV transmission with compound planetary gear train
-
- 18:00 Z. B. Rakisheva*, Sh. Nakasuka,**
ID 624 N. S. Doszhan and G. E. Ybrayev
 Perspectives of a small spacecraft formation in a geostationary orbit for earth remote sensing
-
- 18:20 M. Łasecka-Plura* and R. Lewandowski**
ID 179 Application of the subspace iteration method to solve the nonlinear eigenproblem for systems with viscoelastic dampers
-

TS3. SOLID/FLUID INTERACTION

Room CR

TS3-CR

- 12:20** **P. J. Ziótkowski*, V. Eremeev**
ID 338 **and T. Ochrymiuk**
Arbitrary Lagrangian-Eulerian approach to fluid-solid interaction
-
- 12:40** **M. Dudzik* and A. M. Stręk**
ID 690 An ANN model of stress-strain relationship for aluminium sponge in uniaxial compression
-
- 15:20** **A. O. Kamenskikh and S. V. Lekomtsev***
ID 489 Control of hydro-elastic vibrations of two parallel plates by electromagnetic coil
-
- 15:40** **G. Milewski*, S. Rumian and M. Kopacz**
ID 484 Experimental analysis of the cardiovascular system hydrodynamic parameters for the healthy and insufficient heart
-
- 16:00** **F. Sarbinowski* and R. Starosta**
ID 523 Performance evaluation of different variants of aeroelastic energy harvester
-
- 16:20** **D. A. Oshmarin, S. V. Lekomtsev**
ID 485 **and N. V. Sevodina***
The influence of liquid sloshing on damping of hydroelastic vibrations of plates by shunted piezoelectric element
-

MS01. ADAPTIVE METHODS, HIGHER ORDER
APPROXIMATION, AND ERROR CONTROL

part 2 of 2

organized by: W. Cecot, W. Rachowicz
and G. Zboiński

Room ER A

- 11:00 R. Dyja*, B. Khara**
ID 552 and B. Ganapathysubramanian
Adaptive space-time finite element frame-
work for non-linear parabolic equations
-
- 11:20 G. Zboiński***
ID 521 Tuning of the equilibrated residual method
of a posteriori error estimation for applica-
tions in elasticity, dielectricity and piezoe-
lectricity
-
- 11:40 M. Zielińska* and G. Zboiński**
ID 540 Adaptive, transition, piezoelectric finite
elements for modeling and analysis of elec-
tro-mechanical problems
-
- 12:00 S. Milewski* and R. Putanowicz**
ID 573 Higher order schemes applied to coupled
FE and meshless FDM in thermo-mechani-
cal problems
-
- 12:20 H. Elzaabalawy*, G. Deng, L. Ea**
ID 691 and M. Visonneau
An HDG method for the laminar and tur-
bulent incompressible Navier-Stokes equa-
tions with pointwise divergence-free ve-
locity field for tetrahedral and hexahedral
elements
-
- 12:40 W. Rachowicz*, A. Zdunek and W. Cecot**
ID 508 A discontinuous Petrov-Galerkin method
for compressible viscous flows in three
dimensions
-

MS03. COMPOSITE STRUCTURES – MODELLING,
TESTING AND MANUFACTURING
part 2 of 3

organized by: L. Kroll, M. Kuczma, W. Błażejowski,
A. Denisiewicz, T. Socha, K. Kula, G. Lesiuk, M. Stosiak
and M. Barcikowski

Room LH B

- 11:00 Z. Kazemi, T. Goudarzi and M. Salehi***
ID 572 Evaluation of the influence of embedding spherical capsules containing healing agents on the effective mechanical properties of capsule-based self-healing polymers
-
- 11:20 M. Borowiec* and M. Bocheński**
ID 473 Dynamic of a parametrically excited energy harvester with displacement limitation
-
- 11:40 P. Mayer*, M. Lubecki and M. Stosiak**
ID 415 An influence of the surface treatment of the composite substrate on the pull-off strength of the aged polyurea and polyurethane coatings
-
- 12:00 H. Kopecki, R. Kołodziejczyk***
ID 177 and **Ł. Święch**
Analysis of strain distribution in thin-walled composite structure with embedded strain gauges under static and dynamic loading
-
- 12:20 T. Socha*, A. Denisiewicz, K. Kula,**
ID 463 **W. Błażejowski and G. Lesiuk**
Rheology of wooden beams and wood-based materials reinforced with composites
-
- 15:20 S. Samborski**
ID 285 A method for tracking delamination front advancement in finite element simulations
-
- 15:40 J. Rzekowski* and S. Samborski**
ID 280 Comparison of various methods for calculation of the strain energy release rate in FRP laminates
-
- 16:00 B. Kawecki* and J. Podgórski**
ID 324 Numerical modelling and laboratory verification of glue laminated timber elements made of softwood
-

16:20 B. Markiewicz*, B. Miller and L. Ziemiański
ID 452 Optimisation of a thin-walled box-shaped laminated shell for dynamics constraints

16:40 A. Denisiewicz, T. Socha, K. Kula*,
ID 380 W. Błażejowski and G. Lesiuk
Numerical modelling and laboratory tests of wooden trusses girders reinforced by composites

17:00 P. Błażejowski
ID 327 Buckling resistance of a steel spherical shell with geometrical imperfections with and without reinforcement with CFRP tapes

**MS04. CONCRETE AND CONCRETE STRUCTURES –
MODELLING AND TESTING**
part 2 of 2

organized by: A. Winnicki, M. Kaliske, M. Kuczma,
H.A. Mang, J. Pamin and M.A. Polak

Room MH B

11:00 A. Truty*, K. Podleś and T. Zimmermann
ID 627 Damage plasticity model for concrete subject to elevated temperatures

11:20 A. Wosatko* and J. Pamin
ID 365 Control of localization zone in gradient damage

11:40 M. Pająk* and J. Janiszewski
ID 481 Steel fibre reinforced self-compacting concrete subjected to quasi-static and dynamic conditions

12:00 M. Demby* and M. Kuczma
ID 640 Analysis of polypropylene fibre reinforced high performance concrete beams

12:20 R. Gailitis*, K. Korniejenko, A. Sprince
ID 626 and L. Pakrastinsh
Comparison of the long-term properties of foamed concrete and geopolymer concrete in compression

12:40 D. Anielska*, A. J. Urbański and S. Ligęza
ID 335 Modelling of a COBIAX® plates using numerical homogenization technique and artificial neural network

15:20 T. Krykowski
ID 537 The application of interval numbers to determine the time of concrete cover damage in reinforced concrete structures

15:40 M. German* and J. Pamin
ID 447 Cracking in reinforced concrete cross-section under non-uniformly distributed corrosion

**MS07. DIRECT METHODS: METHODOLOGICAL
PROGRESS AND ENGINEERING APPLICATIONS**

part 1 of 2

organized by: A. Pisano, K. Spiliopoulos
and D. Weichert

Room SH

11:00 Keynote lecture
ID 645 A. Pisano* and P. Fuschi
Limit analysis on nonlocal elastic perfectly plastic nano-structures

11:40 K.V. Spiliopoulos* and Ch.G. Karvelas
ID 694 A numerical procedure for the shakedown analysis of structural frames

12:00 D. Magisano, F. Liguori, L. Leonetti*
ID 86 and G. Garcea
Direct evaluation of the fire resistance of reinforced concrete 3D frames based on time-dependent axial force-biaxial bending yield surfaces

12:20 N. A. Nodargi*, C. Intrigila and P. Bisegna
ID 660 Limit analysis of dry-masonry block assemblages with non-associative frictional joints

12:40 M. Peigney
ID 657 On shakedown and cyclic steady states in diffusion-induced plasticity: applications to lithium-ion batteries

15:20 U. Devi, M. Morrison and T. Hassan*
ID 256 Shakedown evaluation of printed circuit heat exchanger core using simplified elastic-perfectly plastic analysis methodology

15:40 ID 589 **D. Barbera*, A. Charbal, I. Soner Cinoglu and N. Vermaak**

Investigations of shakedown in the presence of ambient creep using direct methods for high strength steel under multiaxial loadings

16:00 ID 668 **I. A. Kapogiannis* and K. V. Spiliopoulos**
Recent updates and issues of the residual stress decomposition method

16:20 ID 631 **C. El Boustani*, J. Bleyer, M. Arquier, M.-K. Ferradi and K. Sab**
Dual finite-element analysis of structures using second-order cone programming an application to steel structures.

16:40 ID 628 **H. Chen**
Linear matching method and its software tool for the creep fatigue damage assessment

17:00 ID 653 **C. Xiaodan, A. Oueslati, G. de Saxcé***
Numerical method for quasi-static and dynamic elastoplastic problems by symplectic Brezis-Ekeland-Nayroles non-incremental principle

MS09. INFLUENCE OF VIBRATIONS ON THE ENVIRONMENT

part 2 of 2

organized by: M.S. Kozień and J. Nizioł

Room AGH1 (building D-1, see p. 12)

11:00 ID 714 **P. Czubak*, A. Lis and W. Surówka**
Strategy of controlling the new solution of the dosing vibratory conveyor

11:20 ID 161 **G. Cieplok and K. Wójcik***
Conditions for self-synchronisation of inertial vibrators of vibratory conveyors in general motion

11:40 ID 433 **J. Blaut*, J. Cieślik and R. Rumin**
Application of hurst exponent to the analysis of the rotor balancing device

- 12:00** **D. Vainorius***, **A. Maknickas**,
ID 530 **K. Kilikevičienė** and **R. Kačianauskas**
 Simulation of acoustic agglomeration of diesel microparticles in aerosol
-
- 12:20** **M. Noga*** and **M. Mareczek**
ID 646 Vibrations problems in the range extender developed for an electric light commercial vehicle
-
- 12:40** **G. Chwalik***, **M. Hajzman** and **M. S. Kozień**
ID 243 Multibody method simulation of a person with paraplegia operating a wheelchair
-

MS13. MULTISCALE MODELLING OF MATERIALS AND STRUCTURES

organized by: **T. Burczyński**, **M. Pietrzyk**, **W. Kuś**,
Ł. Madej and **Ł. Rauch**

part 2 of 2

Room SR

- 11:00** **M. Sitko*** and **L. Madej**
ID 342 Influence of the time step length and cell size on the static recrystallization cellular automata model predictions
-
- 11:20** **K. Frydrych**
ID 153 Modelling the microstructure evolution in plastically deformed stainless steels
-
- 11:40** **A. J. Urbański***, **S. Ligęza** and **M. Drabczyk**
ID 558 Multi-scale modelling of a brick masonry using numerical homogenization technique and artificial neural network
-
- 12:00** **M. Mojzeszko***, **K. Perzynski**, **K. Muszka**
ID 528 and **Lukasz Madej**
 Numerical modeling of strain localization in the two-phase titanium alloy with lamellar/globular morphologies of alpha phase
-
- 12:20** **S. Stupkiewicz***, **K. Tůma**,
ID 535 **M. Rezaee-Hajidehi** and **H. Petryk**
 Phase-field modelling of martensitic microstructures in shape-memory alloys
-
- 12:40** **M. Doroszko*** and **A. Seweryn**
ID 178 Pore-scale numerical modeling of the fracture process in sintered porous metals using microtomography
-

- 15:20 P. Hołobut**
ID 416 Statistical properties of the representative volume element of random materials
-
- 15:40 D. Szeliga*, K. Czechowicz, K. Bzowski,**
ID 180 Y. Chang, W. Bleck and M. Pietrzyk
Towards prediction of gradients of material properties in multiphase steels
-
- 16:00 Ł. Rauch*, M. Wilkus, M. Pernach**
ID 260 and B. Nowak
Through process multiscale model for hot forging and heat treatment of automotive parts
-

**MS14. NON-CONVENTIONAL METHODS FOR
SOLID MECHANICS (NMSM)
part 1 of 2**

organized by: W. Sumelka, T. Blaszczyk, H. Sun,
J. Leszczyński and G. Failla

Room MH A

- 11:00 W. Mucha**
ID 512 A new nondeterministic method for optimal selection of master degrees of freedom for dynamic condensation based on evolutionary optimization
-
- 11:20 T. Blaszczyk*, K. Bekus, K. Szajek**
ID 477 and W. Sumelka
A numerical approach to short-memory principle for caputo derivatives
-
- 11:40 G. Failla* and A. Burlon**
ID 108 An exact analytical framework for beams with periodically-attached resonators
-
- 12:00 J. K. Freundlich**
ID 240 Dynamics calculation of continuous and with multi- degrees of freedom systems with damping described by the fractional derivatives
-
- 12:20 P. Świątkiewicz* and Z. Więckowski**
ID 192 Equilibrium FE model for Kirchhoff's plate
-

12:40 Z. Nowak
ID 368 Numerical simulation of crushing processes
 in metallic open-cell foam

15:20 M. Bryk*, W. Dudda, M. Banaszekiewicz
ID 448 and **J. Badur**
 On a comparison of Huber-Mises-Hencky
 with Zawadzki equivalent stress for the
 steam turbine blade during nonstationary
 thermal load

15:40 K. Szajek*, T. Blaszczyk and W. Sumelka
ID 478 On selected issues of space-fractional
 mechanics numerical approximations

16:00 R. Barretta, F. Marotti de Sciarra
ID 288 and **F. P. Pinnola***
 On the non-local bending problem with
 fractional viscoelastic elements

16:20 A. Colombi
ID 439 Past and future of elastic wave control
 using metasurfaces

16:40 J. Magiera
ID 593 Physically based iterative analysis of
 experimental data error for neutron
 diffraction rail residual measurements

17:00 M. Szymczyk*, M. Nowak, W. Sumelka
ID 303 and **T. Łodygowski**
 Strain localization analysis in terms of
 fractional viscoplasticity

MS20. STABILITY AND BIFURCATIONS IN MACHINERY

part 1 of 2

organized by: W. Kurnik, U. von Wagner
 and J. Warmański

Room MH B

16:20 Keynote lecture
ID 436 **W. Kurnik and P. M. Przybyłowicz***
 Active flutter suppression in rotating shafts

17:00 A. Mitura* and J. Warminski
ID 237 Analysis and control of beam dynamics with
 embedded MFC actuator

MS23. THIN-WALLED STRUCTURES
– ANALYSIS AND APPLICATION
part 2 of 2

organized by: R.J. Mania, W. Witkowski
and R. Degenhardt

Room ER B

- 11:00 J. Gawryluk*, A. Mitura and A. Teter**
ID 188 Numerical studies on dynamic behaviour of laminated, thin-walled structure excited by concentrated force
-
- 11:20 H. Altenbach* and M. Aßmus**
ID 339 On the formulation of viscoelasticity of shear-deformable plates by the aid of a projection method
-
- 11:40 C. Szymczak* and M. Kujawa**
ID 23 Sensitivity analysis of free torsional vibration frequencies of thin-walled laminated beams under axial load
-
- 12:00 A. Gliszczyński*, R. Bogenfeld,**
ID 171 R. Degenhardt, T. Wille, T. Kubiak
and M. Urbaniak
Stability and load carrying capacity of impacted thin walled channel section profiles subjected to compression
-
- 12:20 S. Zenzai, S. Shimizu*, Y. Chikahiro**
ID 154 and T. Ohkami
Stiffener effect on CFST under cyclic load
-
- 12:40 M. Kamocka* and R. J. Mania**
ID 444 The analysis of delamination phenomena in thin-walled FML structure subjected to axial compression
-
- 15:20 Ł. Święch**
ID 101 The effect of the FEM discretization on the postbuckling state of deformations of thin-walled grid stiffened plate
-
- 15:40 T. Kubiak*, A. Gliszczynski and M. Krygier**
ID 65 The influence of lateral impact damages on buckling, postbuckling and failure of thin-walled composite columns
-

16:00 A. Kubit*, Ł. Święch and T. Trzepieciński
ID 115 The postbuckling behaviour and the ultimate load of compressed stiffened panel with refill friction stir spot welded stringers

16:20 V. A. Krysko-Jr.*, J. Awrejcewicz,
ID 94 I. V. Papkova and V. A. Krysko
The truth of chaotic oscillations of flexible rectangular nanoplates under transverse alternating load

16:40 K. Rzeszut*, A. Voronoi
ID 287 and M. Malendowski
Thermo-mechanical analyses of steel façade cassette in fire

17:00 M. Kotełko*, M. Macdonald
ID 244 and M. Kulatunga
Upper-bound estimation of channel section perforated columns load-capacity under compression

TS1. SOLID MECHANICS

part 2 of 4

Room LH A

11:00 M. Rezaee-Hajidehi* and S. Stupkiewicz
ID 310 Transformation patterns in pseudoelastic NiTi tubes under combined tension-torsion

11:20 M. Ö. Yaylı*, B. Uzun and B. Deliktaş
ID 47 Buckling analysis of restrained nanobeams using strain gradient elasticity

11:40 M. Sikoń
ID 598 Polar rotation of Cosserat elasticity based on the atomic structure of matter

12:00 M. Dakshinamurthy*, G. Vadillio Martin
ID 76 and K. Kowalczyk-Gajewska
The effect of orientation on void growth in aluminium bicrystals

12:20 P. Nosal* and A. Ganczarski
ID 53 Influence of the reinforcement particle size on the effective elastic properties of the composite

- 12:40 ID 710** **K. Nalepka, K. Berent, M. Strąg, A. J. Harris*, M. Bieda, P. Nalepka, A. G. Checa and K. Sztwiertnia**
Twin-based toughening mechanisms in protective armours of molluscs
-
- 15:20 ID 98** **P. Bajerski*, R. Pęcherski and D. Chudy**
Prediction of the volumetric shrinkage in the thermoplastic semi – crystalline polymers in AM processes
-
- 15:40 ID 423** **W. Dudda, M. Banaszekiewicz* and J. Badur**
The effect of temperature on strength differential and material effort of steam turbine rotors
-
- 16:00 ID 293** **P. Bajerski* and T. Nowak**
The laboratory measurements and numerical modeling of long-term creep behavior of high- performance polymer subjected to thermal and mechanical loads
-
- 16:20 ID 191** **K. Golasiński*, E. A. Pieczyńska, M. Maj, M. Staszczak and N. Takesue**
Thermomechanical behavior of gum metal under cyclic compression
-
- 16:40 ID 58** **E.A. Pieczyńska*, K. Golasiński, M. Maj, M. Staszczak, T. Furuta and S. Kuramoto**
Gum metal subjected to tension at various strain rates – experimental results analysed by DIC
-
- 17:00 ID 751** **A. Gallina* and T. Uhl**
Uncertainty and variability in modeling and experimental testing of mechanical structures
-

TS2. FLUID MECHANICS

Room CR

- 11:00 ID 632** **B. Baranoglu* and B. Cetin**
A particle flow specific boundary element formulation for tracking multiple particles in microchannels
-

- 11:20 T. Fukui*, M. Kawaguchi and K. Morinishi**
ID 561 A two-way coupling numerical simulation on the effects of inertia on the microstructure of a dilute suspension
-
- 11:40 M. Morzyński*, W. Szeliga and B. R. Noack**
ID 712 Assessment of actuator performance in flow control with periodically forced Navier–Stokes equations in frequency domain
-
- 12:00 A. Kucaba-Piętal* and A. Kordos**
ID 581 Control of water nanovortex structures formation in long, open nanocavities
-
- 12:20 H. Esche* and W. Kowalczyk**
ID 223 Coupled CFD-DEM model for the direct numerical simulation of colloidal membrane fouling in cross-flow filtration
-
- 12:40 W. Elsner*, P. Niegodajew and A. Drózdź**
ID 494 Friction velocity estimation in turbulent boundary layer under a strong adverse pressure gradient
-
- 15:20 A. Bogusławski*, K. Wawrzak**
ID 398 and **A. Tyliszczak**
 Helical vortices in swirling and non-swirling annular jets
-
- 15:40 M. Tomaszewski* and J. Małachowski**
ID 422 Hemodynamic flow analyses of arteries with stent
-
- 16:00 A. Maknickas*, G. Skarbalius**
ID 325 and **A. Džiugys**
 Nano-scale water poiseuille flow: MD computational experiment
-
- 16:20 S. Westermaier*, R. Zhang, N. Klein,**
ID 219 **J. Kuschnerow and W. Kowalczyk**
 Non-newtonian transport models for compressible multiphase flows in openfoam
-
- 16:40 M. Kawaguchi*, T. Fukui, M. Tanaka,**
ID 563 **S. Murata and K. Morinishi**
 Numerical study on the rheological properties of a dilute suspension related to arrangements of elliptical suspended particles
-

TS4. COMPUTATIONAL MECHANICS

part 1 of 3

Room ER A

- 15:20 M.-H. Lee*, J.-H. Lee, J.-G. Lee
ID 231 and C.-M. Yao**
An effective modeling for PCB warpage simulation
-
- 15:40 W. Gilewski, J. Pełczyński
ID 137 and K. Udowicka***
Some considerations of geometric stiffness matrices for pin-joined tensegrity structures
-
- 16:00 D. Ziaja and P. Nazarko*
ID 432**
Anomaly detection in the GFR concrete arc girder subjected to static and fatigue test
-
- 16:20 M. Altekin
ID 394**
Axisymmetric nonlinear bending of shear deformable orthotropic circular plates on elastic foundation
-
- 16:40 N. A. Marzuki*, M. M. Yussof, C. K. Keong
ID 750 and Y. H. Min**
Performance of the cable-net structure under cable damages
-
- 17:00 W. Larbi* and J.-F. Deü
ID 704**
Vibroacoustic behavior of a laminated plate with frequency dependent viscoelastic core: finite element reduced order model
-

MS03 COMPOSITE STRUCTURES – MODELLING,
TESTING AND MANUFACTURING

organized by: L. Kroll, M. Kuczma, W. Błażejowski,
A. Denisiewicz, T. Socha, K. Kula, G. Lesiuk,
M. Stosiak and M. Barcikowski

part 3 of 3

Room LH B

11:00 P. Pluciński* and J. Jaśkowiec

ID 105 Three-dimensional bending analysis of multi-layered orthotropic plates using two-dimensional numerical model

11:20 I. Wstawska*, P. Kędzia and K. Magnucki

ID 458 Analytical investigation of three-layered beam on elastic foundation

11:40 M. Chuda-Kowalska

ID 313 Effect of core anisotropy and non-homogeneity on the behaviour of a sandwich panel

12:00 R. Studziński

ID 483 Blind connections in sandwich panels

12:20 Ł. Smakosz

ID 319 Nonlinear hardening definition of EPS sandwich panel core

12:40 W. Błażejowski*, M. Barcikowski, P. Stabla and J. Warycha

ID 735 Investigations on effect of impact damage on the pressure strength of filament-wound composite pipes

MS05. CREATIVITY AND INNOVATION IN STRUCTURAL
DESIGN

part 1 of 2

organized by: B. Bochenek, Ł. Jankowski,
T. Lewiński, M. Mrzygłód and M. Nowak

Room ER B

11:00 G. Dzierżanowski* and I. Wójcik-Grząba

ID 34 Optimal design of cable systems: a numerical approach

- 11:20 J. Pełczyński**
ID 135 Convex sets solution of pin-joined tensegrity structures with uncertain parameters
-
- 11:40 A. Al Sabouni-Zawadzka* and W. Gilewski**
ID 195 Extreme mechanical properties of 2D tensegrity-inspired lattices
-
- 12:00 T. Sokół**
ID 388 Optimal archgrids approximated by ground structure methods with transmissible loads
-
- 12:20 S. Czarnecki**
ID 121 An explicit construction of the 3rd and 6th rank Francfort-Murat microstructures of the least compliant elastic bodies
-
- 12:40 K. Tajs-Zielińska*, B. Bochenek and Y. Yashchuk**
ID 206 On implementation of adaptive cellular automata based on irregular grids to generation of structural topologies
-
- 15:20 K. Tajs-Zielińska, S. Hernik* and B. Bochenek**
ID 250 Cellular automata approach to multi-material topology optimization including FGM interfaces
-
- 15:40 M. Nowak*, J. Polak, J. Sokołowski and A. Żochowski**
ID 279 Efficient biomimetic topology optimization for industrial purposes
-
- 16:00 M. Piątek and Z. Więckowski***
ID 400 Dual finite element methods in topology optimization problems
-
- 16:20 G. Blachowski, P. Tuzowski, A. Swiercz and Ł. Jankowski***
ID 203 Sensor placement for structural damage identification by means of topology optimization
-

MS07. DIRECT METHODS: METHODOLOGICAL PROGRESS AND ENGINEERING APPLICATIONS

organized by: A. Pisano, K. Spiliopoulos
and D. Weichert

part 2 of 2

Room SH

- 11:00** **A. Charbal, I. Soner Cinoglu**
ID 604 **and N. Vermaak***
Experimental bree load interaction
diagrams for cylindrical Inconel 625 rods
under cyclic tension-tension, tension-
compression and multiaxial loadings
-
- 11:20** **Z. Kammoun and H. Smaoui***
ID 661 Developments in direct limit analysis based
topology optimization
-
- 11:40** **H. Peng*, Y. Liu and H. Chen**
ID 104 Stress compensation method for shakedown
analysis and its engineering applications
-
- 12:00** **J. Wang*, H.-S. Yu, S. Liu**
ID 655 Application of shakedown analysis in slab
track substructures
-
- 12:20** **J. Zhang*, A. Oueslati, W. Shen**
ID 652 **and G. de Saxcé**
Shakedown of ductile porous media
-
- 12:40** **D. Kukla* and Z. Kowalewski**
ID 617 Assessment of failure development in 7075
aluminum alloy on the basis of damage
parameters change during the high-cycling
fatigue

MS11. MESH REDUCTION METHODS

part 1 of 2

organized by: P. Fedeliński, A. Linkov
and B. Wilczyński

Room MH A

- 15:20** **Keynote lecture**
ID 133 **E. Rejwer**
Comparative study of two major
realizations of the kernel independent fast
multipole method

- 16:00 J. Ptaszny**
ID 189 Modelling of 3-D non-homogeneous materials by the fast multipole BEM
-
- 16:20 L. Rybarska-Rusinek**
ID 249 Acceleration of FM-BEM by proper assigning cut-off radius
-

**MS12. MODELLING AND SIMULATION
OF MULTIPHASE FLOWS**
part 1 of 2

organized by: J. Pozorski, C. Marchioli and M. Marek

Room CR

- 16:00 D. Dotto* and C. Marchioli**
ID 37 Dynamics of small flexible fibers in turbulent channel flow
-
- 16:20 R. Staroszczyk**
ID 165 Modelling of sea-ice pack dynamics by the corrected smoothed particle hydrodynamics method
-

**MS14. NON-CONVENTIONAL METHODS FOR
SOLID MECHANICS (NMSM)**

organized by: W. Sumelka, T. Blaszczyk, H. Sun,
J. Leszczyński and G. Failla

part 2 of 2

Room MH A

- 11:00 M. Mucha*, B. Wcisło and J. Pamin**
ID 421 Symulation of a propagative instability using large strain thermo-elasto-viscoplasticity
-
- 11:20 P. B. Béda**
ID 141 The types of derivatives and bifurcation in fractional mechanics
-
- 11:40 T. Streck**
ID 139 Thermal stresses in auxetics
-
- 12:00 B. Łuczak*, T. Gajewski, W. Sumelka**
ID 56 and G. Z. Voyiadjis
Time-fractional damage model for human cardiovascular tissues
-

12:20 **G. Alotta*, M. di Paola and F. P. Pinnola**
ID 228 Unified formulation for non-local elastic models gradient strain and gradient stress peridynamics

12:40 **M. Malendowski*, A. Glema**
ID 131 and **W. Szymkuć**
Fire-structure coupling in practical analyses of steel structures in fire

MS17. NUMERICAL MODELLING OF ROCKS AND SOILS

part 1 of 2

organized by: Z. Mróz, S. Pietruszczak,
J. Podgórski and A. Winnicki

Room SH

15:20 **Z. Mróz**
ID 127 Failure load and mode sensitivity for semi-brittle materials

15:40 **S. Pietruszczak* and A. A. Jameei**
ID 445 On coupled hydro-mechanical behaviour of fractured rock mass

16:00 **M. Kucewicz**
ID 698 Correlation of Johnson-Holmquist concrete constitutive model for dolomite

16:20 **P. Baranowski*, M. Kucewicz**
ID 699 and **J. Małachowski**
Johnson-Holmquist II (JH-2) constitutive model for dolomite: a procedure for parameters determination

MS18. PARTICLE ACCELERATORS AND THERMONUCLEAR FUSION REACTORS

part 1 of 2

organized by: M. Stankiewicz, T. Kurtyka,
B. Skoczeń and D. Bocian

Room LH B

15:20 **Keynote lecture**
ID 748 **T. Kurtyka**
Future particle accelerators projects – challenges in mechanics and materials research

16:00 F. Carra
ID 744 Thermomechanical modelling and testing of solid matter interaction with high-energy particle beams

16:20 P. D. Pastuszak*, F. Carra, L. Dassa,
ID 174 A. Bertarelli, O. Capatina, F. Pillon,
M. Karppinen, A. Xydou , L. Mettler
and C. Abajo Clemente
Finite element modelling of superconducting radiofrequency cavities for the Large Hadron Collider

MS20. STABILITY AND BIFURCATIONS IN MACHINERY
organized by: **W. Kurnik, U. von Wagner**
and **J. Warmiński**
part 2 of 2

Room MH B

11:00 I. Ario* and M. Nakazawa
ID 738 Analysis of multiple bifurcation behavior for periodic structures

11:20 J. Awrejcewicz*, R. Starosta
ID 261 and G. Sypniewska-Kamińska
Asymptotic approach to the nonlinear dynamical problems

11:40 L. Lentz* and U. von Wagner
ID 413 Avoidance of artefacts in harmonic balance solutions for nonlinear dynamical systems

12:00 J. Przybylski
ID 114 Displacement amplification mechanism in flextensional actuators with different frame geometry

12:20 A. Weremczuk*, J. Warminski and R. Rusinek
ID 222 Dynamics of a non-linear system with time delay

12:40 I. Ario, T. Yamashita*, Y. Chikahiro
ID 529 and M. Nakazawa
Finite analysis for the periodic scissors structure

15:20 J. Latalski* and J. Warmiński
ID 597 Nonlinear free vibrations of a thin-walled composite beam in torsion

16:00 L. Spannan* and E. Woschke
ID 700 On the influence of fluid properties in automatic balancers regarding non-synchronous vibrations

16:20 S. Uzny* and M. Osadnik
ID 109 Rigidity of upper support of a partially tensioned column in aspect of free vibration frequency

MS21. STOCHASTIC MECHANICS

part 1 of 2

organized by: A. Tylikowski, R. Iwankiewicz,
Z. J. Zembaty and A. Ozga

Room SR

11:00 Keynote lecture
ID 241 A. Pirrotta
Probability density function representation through complex fractional moments for nonlinear systems driven by normal white noise

11:40 Keynote lecture
ID 221 M. di Paola
Complex fractional moments based probabilistic response of nonlinear systems forced by Poisson and Lévy white noise

12:20 R. Iwankiewicz* and M. di Paola
ID 216 Probability density of response of dynamic systems to renewal impulse processes: path integral solution

12:40 A. Tylikowski
ID 257 Stochastic stability of nanotubes subjected to poissonian impulse sequence

15:20 L. Socha
ID 675 Quasi-optimal control in a switching polynomial tracking problem

15:40 M. M. Kamiński
ID 87 On direct differentiation method in higher order stochastic finite element method in elastostatics

16:00 C. Fischer*, S. Hračov and J. Náprstek
ID 123 Numerical analysis of stochastic and mechanical interactions of natural modes

- 16:20 Z. Zembaty* and P. Bońkowski**
ID 220 Peak response and peak factor in non-stationary random vibrations
-

MS22. THIN LIQUID FILMS

organized by: A. Oron and M. Bestehorn

Room CR

- 11:00 V. Frumkin and A. Oron***
ID 73 Harnessing Rayleigh-Taylor instability for enhancement of thermocapillary ratchet flow
-
- 11:20 S. Eickelmann, J. Danglad Flores**
ID 90 and **H. Riegler***
Surface undulations of ultrathin liquid films induced by Marangoni flows
-
- 11:40 A. A. Nepomnyashchy* and A. B. Mikishev**
ID 130 Influence of nonlinear thermocapillary effect on Marangoni patterns in a thin film
-
- 12:00 M. Bestehorn*, A. Oron and A. Pototsky**
ID 482 Instabilities and nonlinear pattern formation in laterally forced two-layer thin-film systems
-
- 12:20 R. Borcia*, I. D. Borcia, M. Bestehorn,**
ID 304 **O. Varlamova and J. Reif**
Drop behavior on noisy surfaces
-
- 12:40 I. D. Borcia*, R. Borcia, W. Xu,**
ID 49 **M. Bestehorn, S. Richter and U. Harlander**
Parametric excitation in a ring channel
-
- 15:20 S. Richter*, M. Bestehorn and I. D. Borcia**
ID 605 Interacting bores and formation of droplets in a rectangular channel
-

TS1. SOLID MECHANICS

part 3 of 4

Room LH A

- 11:00 M. Zmuda Trzebiatowski* and A. Skorek**
ID 647 Nonlinear dynamics of indirect orbital blow-out fracture mechanism
-
- 11:20 S. Hirobe* and K. Oguni**
ID 533 Numerical analysis for crack path transition in quenched glass plate
-

- 11:40 A. Ustrzycka*, Z. Mróz, S. Kucharski**
ID 492 and Z. L. Kowalewski
Analysis of fatigue crack initiation caused by cyclic microplasticity
-
- 12:00 A. Karolczuk* and K. Kluger**
ID 55 Development of multiaxial fatigue damage models by application of life dependent material parameters
-
- 12:20 P. Sulich*, W. Egner, S. Mroziński**
ID 345 and H. Egner
Temperature dependent low-cycle fatigue properties of P91 steel
-
- 12:40 A. Niesłony*, R. Owsiniński and M. Böhm**
ID 602 Use of kurtosis and skewness in the description of random loading in material fatigue
-
- 15:20 E. Magnucka-Blandzi* and K. Magnucki**
ID 364 Bending and buckling of a circular plate with symmetrically varying mechanical properties
-
- 15:40 M. Böhm* and M. Kowalski**
ID 74 Fatigue life estimation of explosive clad transition joints with the use of the spectral method for the case of random loading
-
- 16:00 M. Ekiert*, P. Pekala, K. A. Tomaszewski**
ID 669 and A. Mlyniec
Does internal tripartite structure of Achilles tendon influences mechanical properties of its subtendons?
-
- 16:20 A. Mlyniec*, M. Ekiert, L. Ambrozinski,**
ID 706 P. Kohut, K. Holak, K.A. Tomaszewski,
R. Obuchowicz
The role of the interfascicular matrix in biomechanics of tendons
-

TS4. COMPUTATIONAL MECHANICS

part 2 of 3

Room ER A

- 11:00 P. Phalippou, P. Breitkopf* and P. Villon**
ID 51 Hyper-reduced explicit nonlinear dynamics numerical tools and vehicle crash applications
-
- 11:20 P. Litewka* and R. Lewandowski**
ID 465 Temperature influence on non-linear harmonic vibrations of plates made of viscoelastic materials
-
- 11:40 M. Jukowski*, E. Błazik-Borowa and J. Bęc**
ID 128 Simulation of vibrations generated by the variation in force and mass locations
-
- 12:00 J. Cieřlik**
ID 619 Method of vibrational energy flow visualization based on frequency response function
-
- 12:20 A. Knitter-Piątkowska* and M. Guminiak**
ID 399 Defect detection in truss and plate structures using 1-D and 2-D wavelet transform considering static and dynamic response signals
-
- 15:20 B. Potrzyszcz-Sut**
ID 378 Reliability analysis of shell truss structure by hybrid Monte Carlo method
-
- 15:40 A. Dudzik**
ID 542 Effect of correlation of random variables on structural reliability index of steel structures
-
- 16:00 B. M. Pokusiński* and M. M. Kamiński**
ID 75 On influence of input discrete values approximation on probabilistic moments via analytical integration
-
- 16:20 P. Zabojszcza* and U. Radoń**
ID 124 The stability analysis of the lattice dome in probabilistic description by Monte Carlo method
-

MS05. CREATIVITY AND INNOVATION IN STRUCTURAL DESIGN

part 2 of 2

organized by: B. Bochenek, Ł. Jankowski, T. Lewiński,
M. Mrzygłód and M. Nowak

Room ER B

- 11:00 J. Orkisz* and J. Zaborska**
ID 346 On approach to analysis of too little poor quality experimental data
-
- 11:20 A. M. Myśliński**
ID 420 Structural optimization of elastic–plastic contact problems using level set method
-
- 11:40 B. Miller* and L. Ziemiański**
ID 461 GA+ANN optimisation of a composite cylindrical shell
-
- 12:00 S. Kongwat* and H. Hasegawa**
ID 464 A proportional algorithm of topology design by considering nonlinear material geometry
-
- 12:20 M. Pieńko* and E. Błazik-Borowa**
ID 70 Behaviour of ringlock scaffolding joint under repeating load
-
- 12:40 D. Ziaja*, B. Turoń and B. Miller**
ID 466 Sensitivity analysis of displacements with respect to changes of nodal rotational stiffnesses of steel frames
-
- 15:20 M. W. Mrzygłód* and G. Fiuk**
ID 471 Effective solutions in topology optimization for additive manufacturing
-
- 15:40 M. W. Mrzygłód* and P. Wilczek**
ID 507 Topology optimization of scaffolds for tissue-engineered heart valves
-
- 16:00 Y.-H. Kuo*, C.-C. Cheng and C.-S. Liu**
ID 567 Hollow structure designs using topology optimization
-
- 16:20 M. Kowalski*, M. Böhm, A. Karolczuk and F. Žok**
ID 596 Influence of the welding parameters on fatigue properties of s1100ql steel butt weldments
-

MS06. DESIGN, OPTIMIZATION AND VIRTUAL
PROTOTYPING OF LIGHTWEIGHT STRUCTURES IN
LAND VEHICLES AND AIRCRAFTS

organized by: L. Kroll, J. Mamala,
M. W. Mrzygłód and J. Wydrych

Room LH A

- 15:20 G. Borsuk * and M. Mrzygłód**
ID 407 An influence of flow conditions during
lightweight evolutionary design method to
optimization of aircraft structure
-
- 15:40 J. Wydrych* and G. Borsuk**
ID 406 Influence of different flow conditions on
erosive wear distribution of wing profile
-
- 16:00 L. Ulke-Winter* and L. Kroll**
ID 110 Natural-analogue optimization of wound
high-pressure vessels
-
- 16:20 T. Schlieter* and A. Długosz**
ID 562 Structural multiobjective optimization of
aerofoils by means of differential evolution
and elements of game theory
-

MS11. MESH REDUCTION METHODS
part 2 of 2

organized by: P. Fedeliński, A. Linkov
and B. Wilczyński

Room MH A

- 11:00 P. Fedeliński**
ID 196 Boundary element analysis of composites
with randomly distributed rigid fibers
-
- 11:20 A. Poteralski* and P. Fedeliński**
ID 580 Optimal design of composites with rigid
fibers using an artificial immune system
-
- 11:40 A. M. Linkov* and N. S. Markov**
ID 96 Fast Fourier Transform BEM for layered
structures with inhomogeneities
-
- 12:00 G. Dziatkiewicz**
ID 584 Computational issues in the construction
of fundamental solutions for 3D dynamic
magneto-electroelasticity
-

12:20 M. Guminiak* and R. Sygulski
ID 77 Vibration of plates partially and totally immersed in fluid by the boundary element method

12:40 D. Gardo* and M. Guminiak
ID 41 Vibrations of plates with curved edges considering internal supports by the boundary element method

15:20 M. Holek* and P. Fedeliński
ID 213 Finite and boundary element analysis of plates with randomly distributed cracks

15:40 O. Popczyk* and G. Dziatkiewicz
ID 569 Kansa's method for analysis of one-dimensional heat flow in thermal metamaterials

MS12. MODELLING AND SIMULATION OF MULTIPHASE FLOWS

part 2 of 2

organized by: J. Pozorski, C. Marchioli and M. Marek

Room CR

11:00 M. Marek
ID 329 Modeling of wall adhesion with the immersed boundary method

11:20 W. Bielski* and R. Wojnar
ID 396 Brinkman's regularization of Darcian seepage

11:40 H. Bhatia*, A. Soldati and C. Marchioli
ID 39 Surfacing and clustering of gyrotactic swimmers in free-surface turbulence

12:00 M. Olejnik* and J. Pozorski
ID 158 A valiant attempt to improve smoothed particle hydrodynamics with the interfacial viscosity

12:20 B. Peters*, A. Rousset*, X. Besseron*, W. Mainassara*, Ch. Galletti and A. Lupi
ID 298 Process analysis in thermal process engineering with high-performance computing using the example of grate firing

12:40 B. Rosa* and J. Pozorski
ID 247 Impact of two-way momentum coupling and gravity on droplets collision statistics

- 15:20 A. Kajzer* and J. Pozorski**
ID 162 Efficient brute-force approach for accurate simulation of interfacial flows
-
- 15:40 Y. Alhendal* and A. Turan**
ID 709 Numerical study of the impacts of forced vibration on thermocapillary bubble migration in zerogravity environment
-
- 16:00 M. Olejnik, P. Tiutiurski and J. Pozorski***
ID 269 Sediment dynamics in a free surface flow: smoothed particle hydrodynamics and experiment
-

MS15. NOVEL EULER-LAGRANGE APPROACHES FOR COUPLING FLUID-DYNAMICS AND GRANULAR MEDIA

organized by: D. Kardaś, B. Peters,
 I. Wardach-Święcicka and W. Sobieski

Room MH B

- 11:00 P. Ziółkowski* and J. Badur**
ID 418 A multidimensional thermodynamic modeling of steam storage in steam cycle
-
- 11:20 J. Badur*, D. Kardaś, S. Polesek-Karczewska and P. Ziółkowski**
ID 217 A unified thermodynamic modeling of multiphase phenomena in porous media – an arbitrary Eulerian-Lagrangian description
-
- 11:40 A. Grucelski* and J. Pozorski**
ID 366 LBM calculation of stresses in granular media subject to thermal dilatation
-
- 12:00 I. Wardach-Święcicka* and D. Kardaś**
ID 321 Modelling of biomass thermal conversion via Euler-Lagrange approach
-
- 12:20 J. Krzyżanowski*, M. Wójcik, J. Tejchman**
ID 323 Modelling of confined granular flow in silos using material point method
-
- 12:40 P. Kazimierski, P. Hercel* and D. Kardaś**
ID 193 Radiographic methods for the particle tracing in the biomass packed bed reactor
-
- 15:20 D. Kardaś* and S. Polesek-Karczewska**
ID 253 Two-fluid description of coupled momentum, mass and energy transfer in application to high temperature solid fuel reactor
-

MS17. NUMERICAL MODELLING OF ROCKS AND SOILS

part 2 of 2

organized by: Z. Mróz, S. Pietruszczak,
J. Podgórski and A. Winnicki

Room SH

- 11:00** **K. Damaziak***, **L. Mazurkiewicz**
ID 506 **and J. Malachowski**
Numerical investigation of rock parameters
using peridynamics
-
- 11:20** **A. V. Zaitsev***, **Y. V. Sokolkin**, **V. I. Karev**,
ID 716 **Y. F. Kovalenko**, **I. A. Pantelev**
and N. I. Shevtsov
Damaged evolution, strain-softening,
dilatation and localized failure in brittle
rocks under triaxial quasistatic loading
-
- 11:40** **J. Gontarz*** **and J. Podgórski**
ID 169 Comparison of different criteria for
determining the direction of crack
propagation
-
- 12:00** **M. Schreter***, **M. Neuner** **and G. Hofstetter**
ID 389 A rock damage-plasticity model applied
to 3D finite element simulations of deep
tunneling
-
- 12:20** **P. Przecherski***, **A. J. Urbański** **and S. Ligęza**
ID 374 Modelling of a sedimentary rocks using
numerical homogenization technique
and artificial neural network
-
- 12:40** **N. A. Pietrzak*** **and B. Wrana**
ID 67 The coupled soil-pore fluid formulation for
modelling soil dynamics
-
- 15:20** **M. Cudny*** **and A. Truty**
ID 623 Refinement of the hardening soil model
within the small strain range
-
- 15:40** **K. Żyliński***, **A. Korzec**, **K. Winkelmann**
ID 724 **and J. Górski**
Random field model of structural
foundations on the example of continuous
footing
-

MS18. PARTICLE ACCELERATORS
AND THERMONUCLEAR FUSION REACTORS

part 2 of 2

organized by: M. Stankiewicz, T. Kurtyka,
B. Skoczeń and D. Bocian

Room LH B

- 11:00** A. Amorim Carvalho*, S. Barrière,
ID 156 J. Brachet, B. Bulat, R. Calaga,
E. Cano-Pleite, O. Capatina, T. Capelli,
A. Dallochio, M. Garlaschè, L. Giordanino,
R. Leuxe, M. Narduzzi and L. Prever-Loiri
Advanced design of tooling for sheet metal
forming through numerical simulations in
the scope of SRF Crab Cavities at CERN
-
- 11:20** D. Ziemianski*
ID 721 Experimental and numerical study of the
dynamic properties of beam pipe and
support cylinder of the most-inner part of
the ATLAS Pixel Detector
-
- 11:40** **Keynote lecture**
ID 741 D. Bocian*
Challenges in design, construction
and operation of particle accelerators
and thermonuclear fusion reactors
-
- 12:20** R. Kantor*, P. Młynarczyk, J. Kotuła,
ID 732 D. Bocian, F. Crescenzi, B. Esposito,
D. Marocco, G. Mazzone, G. Brolatti,
F. Moro, C. Centioli, D. Dongiovanni
and D. Marzullo
Thermo-hydraulic modeling of the ITER
Radial Neutron Camera
-
- 12:40** D. Bocian, J. Świerblewski*, M. Curylo,
ID 742 B. Esposito, R. Kantor, J. Kotula,
W. Maciocha, D. Marocco, G. Mazzone,
P. Młynarczyk, F. Pompili, S. Podda,
M. Riva, T. Ryncarz
The design, construction and operation of
test stand for accelerated thermal fatigue
tests of diamond detectors
-

15:20 J. Hromadka*, J. Havlicek, N. Patel,
ID 729 M. Imrisek, D. Sestak, V. Yanovskiy, R. Panek
Electromagnetic FEM model of plasma
disruption events in the COMPASS-U tokamak

15:40 R. Ortwein*, J. Blocki, J. Hromadka, D. Sestak,
ID 730 J. Havlicek, N. Patel, K. Kovarik, R. Panek
Dynamic analysis of the forces on the
COMPASS-U tokamak foundations during
plasma disruption

16:00 P. Wąchal*, J. Błocki, J. Hromadka,
ID 731 P. Hacek, D. Sestak, J. Havlíček, P. Junek,
M. Imříšek, L. Kripner, M. Peterka,
P. Bartoň, A. Havránek, M. Jeřáb, J. Krbec,
V. Balner, R. Panek
Development and mechanical investigation
on central solenoid structure for
COMPASS-U tokamak

MS21. STOCHASTIC MECHANICS

part 2 of 2

organized by: A. Tylikowski, R. Iwankiewicz,
Z. J. Zembaty and A. Ozga

Room SR

11:00 H. Weber*, S. Kaczmarczyk, R. Iwankiewicz
ID 574 Non-linear stochastic dynamics of a cable-
mass system with finite bending stiffness
via equivalent linearisation technique

11:20 G. Litak
ID 606 Uncertainty analysis of bistable vibration
energy harvesters

11:40 P. Śniady, F. Zakeś* and K. Misiurek
ID 31 Vibrations of the multi-span beam under
moving stochastic forces based on various
versions of the nonlocal elasticity theory

12:00 D. Sokołowski* and M. Kamiński
ID 80 Random stiffness tensor of hyperelastic par-
ticulate composites with interface defects

12:20 F. Bozzoni*, C.G. Lai, A. Balia, A. Fama
ID 33 and D. Khairy
Stochastic ground response analyses at an
international airport in northern Italy

12:40 M. Strąkowski* and M. Kamiński
ID 103 Probabilistic analysis of the necking bar with random volume fraction of the voids existing in structural steels

15:20 J. Szafran*, K. Juszczak and M. Kamiński
ID 305 Numerical tool for assessing reliability of steel lattice tower subjected to atmospheric corrosion

15:40 A. Ozga
ID 457 Application of data representation in visualization technique in analysis of random variables presented in the form of spacio-temporal matrices

TS1. SOLID MECHANICS

part 4 of 4

Room LH A

11:00 D. Pijocha and S. Wojtyła
ID 740 High precision measurements of the mechanical properties and fast chemical analysis of impurities in special alloys

11:20 D. Schob*, R. Roszak, I. Sagradov, H. Sparr
ID 194 and M. Ziegenhorn
Experimental determination and numerical simulation of material and damage behaviour of 3D printed polyamide 12 under shear loading

11:40 R. Roszak*, D. Schob, I. Sagradov, H. Sparr
ID 214 and M. Ziegenhorn
Temperature dependent material and damage parameters of 3D printed polyamide 12 under quasi-static loading

12:00 H. Sparr*, R. Roszak, I. Sagradov, D. Schob
ID 215 and M. Ziegenhorn
Multi-relaxation characteristics of displacement and temperature field for viscoplastic material behaviour

12:20 W. Dudda, M. Banaszekiewicz,
ID 713 P. J. Ziótkowski and J. Badur
Burzyński stress effort during thermo-mechanical compression test

TS4. COMPUTATIONAL MECHANICS

part 3 of 3

Room ER A

- 11:00 ID 707** **R. Makvandi***, **A. Braschkat**, **A. Ding** and **D. Juhre**
An analysis suitable NURBS representation of braided stents
-
- 11:20 ID 27** **P. Kłosowski***, **A. Skorek** and **M. Koberda**
Extended numerical analysis of an eyeball in jury under direct impact
-
- 11:40 ID 408** **Ł. Mazurkiewicz***, **J. Bukala**, **K. Sybilski** and **J. Malachowski**
Jaw bone constitutive model calibration using FE voxel model and optimization procedure
-
- 12:00 ID 650** **J. Bukala***, **A. Dejneka**, **J. Małachowski**, **K. Pietroń** and **K. Sybilski**
Muscle modeling – jaw motion simulations
-
- 12:20 ID 370** **M. Hojny*** and **M. Głowacki**
The application of FE/SPH/MC methods for a simulation of phenomena accompanying high temperature steel processing
-
- 12:40 ID 164** **K. Holak***, **Z. Dworakowski**, **P. Zdziebko** and **K. Dziejach**
Motion magnification for vision-based structures' state assessment supported by numerical simulation
-
- 15:20 ID 555** **A. Długosz** and **W. Beluch***
Multiobjective global optimization of mechanical systems with cracks
-
- 15:40 ID 381** **J. Orkisz** and **M. Glowacki***
Dedicated evolutionary algorithms for chosen optimization problems of mechanics
-
- 16:00 ID 431** **M. Słoński**
Neural networks in computational mechanics: new results and prospects
-
- 16:20 ID 334** **M. Zajac***, **K. Kuźniar** and **Ł. Chudyba**
Comparison of deep and shallow neural networks accuracy in the case of prediction of mining-related ground vibration transfer to building foundation
-

POSTER SESSION

Date: Wednesday, September 11, 16:40–17:40

Venue: Auditorium Maximum, level -1.

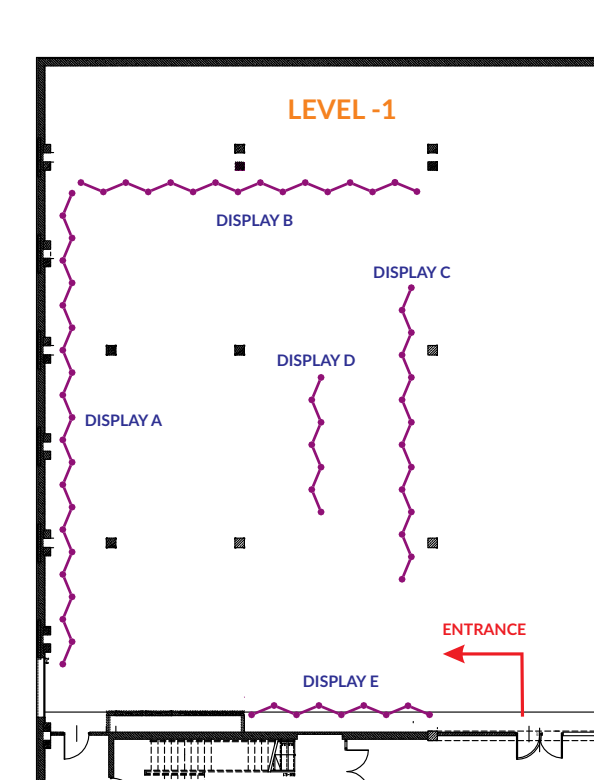
DISPLAY A: ENGINEERING, APPLICATIONS
AND TECHNOLOGICAL ASPECTS

DISPLAY B: MECHANICS IN MEDICINE
AND BIOLOGY

DISPLAY C: MATERIALS AND STRUCTURES

DISPLAY D: THERMOMECHANICS AND THERMAL
EFFECTS

DISPLAY E: EXPERIMENTAL MECHANICS



DISPLAY A:

ENGINEERING, APPLICATIONS AND TECHNOLOGICAL ASPECTS

- ID 120 **M. Warzecha* and J. Michalczyk**
Calculation of maximal collision force in kinematic chains based on collision force impulse
-
- ID 545 **R. Grzejda**
Finite element modelling of a pair of flexible elements contact preloaded and externally loaded with an arbitrary force
-
- ID 583 **M. V. Golub, O. V. Doroshenko*, S. I. Fomenko, Y. Wang and Ch. Zhang**
Boundary integral equation method for modelling wave propagation in layered piezoelectric phononic crystals with multiple cracks and electrodes
-
- ID 504 **J. Paśnik*, S. Samborski and H. Dębski**
Effect of solver settings on delamination modeling efficiency in a FE software
-
- ID 600 **I. Markiewicz**
Torsion loaded thin-walled beams designed with the SADSF method
-
- ID 618 **T. Sadowski, M. Nowicki* and P. Golewski**
Mechanical response of hybrid joints using fasteners with different stiffness
-
- ID 493 **W. Mochocki*, P. Obara and U. Radoń**
The impact of connections types and load description on the reliability index of three different truss towers
-
- ID 736 **M. Grzywiński*, J. Selejdak and T. Dede**
Truss optimization with frequency constraints based on TLBO algorithm
-
- ID 591 **M. Pitas* and T. Krykowski**
The influence of uncertainty of parameters of a building model subjected to forced paraseismic vibrations in mining areas on its dynamic response
-

- ID 227 **D. Burkacki and R. Jankowski***
Response of cylindrical steel tank under stochastically generated non-uniform earthquake excitation
-
- ID 125 **M. Żmudzińska* and L. J. Jankowski**
Quasi-static characterisation of ballistic gelatine
-
- ID 443 **T. Szmidt*, R. Konowrocki and D. Pisarski**
Stabilization of a cantilever pipe conveying fluid using electromagnetic actuators of the transformer type
-
- ID 642 **S. Pochwala*, P. Lewandowski and P. Nazar**
Unmanned aerial vehicle application for gases air pollution monitoring
-
- ID 607 **B. Mazurek* and J. Mamala**
Analysis of the construction of a light-weight transport device
-
- ID 505 **K. Zagórski*, R. Kudelski and J. Cieślik**
Research on the possibilities of improving the surface quality by using vibrations of a turning tool
-
- ID 470 **R. Kudelski*, K. Zagórski and J. Cieślik**
Dependency of the technological quality of elements made from multi layered materials on their shape in the water jet machining method
-
- ID 411 **P. Mayer*, A. Dmitruk, M. Lubecki and M. Stosiak**
Adhesion of epoxy coatings with micrometer size fillers to steel substrate
-
- ID 468 **A. Falkowska* and A. Seweryn**
Identification of damage accumulation of PLA specimens manufactured by fused deposition modeling
-

DISPLAY B:

MECHANICS IN MEDICINE AND BIOLOGY

- ID 254 **P. Kohut***, **K. Holak**, **M. Ekiert**,
A. Młyniec, **K.A. Tomaszewski**
and T. Uhl
The application of digital image correlation to investigate the heterogeneity of Achilles tendon deformation and determine its material parameters
-
- ID 503 **A. Chojnacka-Brożek***, **S. Łagan**
and A. Liber-Kneć
Application of hyperelastic models to predict the mechanical behaviour of Achilles tendon
-
- ID 428 **M. Wojtków*** **and C. Pezowicz**
Biomechanics of the intervertebral disc-endplate connection failure
-
- ID 54 **J. Miodowska*** **and J. Bielski**
Loading scheme influence on the mandible fracture healing process based on callus remodeling model
-
- ID 727 **A. Nikodem***, **J. Filipiak**, **M. Kulej**,
S. Ł. Dragan, **A. Krawczyk**
and S. F. Dragan
Studies of structural properties of the subchondral layer of bone tissue in the plateau of the tibia of patients with a high degree of varus
-
- ID 449 **J. K. Grabski**
Identification of the tumor location using a meshless method and evolutionary algorithms
-
- ID 511 **M. Paruch**
Sensitivity analysis and the inverse problem in the mathematical modeling of tumor ablation using the interstitial hyperthermia
-

- ID 638 **M. Sobkowiak*, W. Wolański, M. Gzik, M. Zimny and W. Kaspera**
Sensitivity analysis of morphometric features affecting on hemodynamic parameters of blood flow in middle cerebral artery (MCA)
-
- ID 565 **M. John and A. John***
Application of incremental technology in the production of elements of rehabilitation exoskeletons for children
-
- ID 372 **M. Żak* and C. Pezowicz**
Impact of geometrical parameters of 3D printed interbody fusion devices on mechanical properties
-
- ID 427 **G. Gembalczyk* and S. Duda**
Design and optimization of treadmill speed control system for mechatronic device for gait reeducation
-
- ID 437 **J. Filipiak*, A. Nikodem, J. Pustelnik, A. Matuszewska and B. Nowak**
Impact of the fastening method for small animals bones during bending test
-

DISPLAY C:

MATERIALS AND STRUCTURES

- ID 510 **A. Szafrńska*, J. Małachowski and P. Baranowski**
Multiscale modeling of energy absorbing honeycomb structures obtained with the LENS technology
-
- ID 611 **K. Wiśniewska-Mleczo*, E. Magnucka-Blandzi and M. J. Smyczyński**
Bending and buckling of sandwich circular plate with variable mechanical properties in thickness direction
-
- ID 469 **A. Wirowski*, B. Michalak and M. Rabenda**
Stress distribution in thin rectangular plates with two-directional microstructure
-

- ID 183 **J. Marczak**
Dynamics of microperiodic sandwich plates
-
- ID 316 **J. Jędrzyński**
Modelling of periodic microstructured beams: standard and general tolerance models
-
- ID 472 **B. Tomczyk and A. Litawska***
General tolerance model of dynamic and stability problems for thin uniperiodic cylindrical shells
-
- ID 728 **Z. Szczepański and M. Cieszko**
Influence of microscopic pore geometry on the pore tortuosity parameter
-
- ID 198 **M. Kempniński*, M. Cieszko, P. Kotlarz and Z. Szczepański**
Determination of pore size distribution in sintered glass bead samples based on mercury porosimetry and microtomographic image analysis
-
- ID 201 **M. Cieszko**
Fundamentals of geometrical and physical concept of pore space tortuosity
-
- ID 547 **T. Dębiński*, M. Hojny and M. Głowacki**
Methodology of quantitative analysis of macrostructures in steel samples deformed in semi-solid state
-
- ID 636 **M. Barcikowski*, G. Lesiuk and J. A. Ławrecka**
Determination of mode I interlaminar fracture toughness, GIC, for reactive liquid rubber toughened glass/epoxy laminates
-
- ID 546 **R. Drelich*, M. Pakuła and M. Kaczmarek**
Application of non-contact ultrasound in air to studies of composite sheets
-

DISPLAY D:

THERMOMECHANICS AND THERMAL EFFECTS

- ID 79 **B. Niezgoda-Żelasko**
Entropy generation rate minimization during non-adiabatic ice slurry flow in pipes
-
- ID 720 **A. Długosz, I. Pokorska*, M. A. Glinicki, R. Jaskulski**
Evolutionary algorithms in solving inverse problem of heat transfer for hardening concrete
-
- ID 543 **E. Pazera* and P. Ostrowski**
Heat transfer in functionally graded laminate – third type boundary conditions
-
- ID 518 **P. Ostrowski**
On fluctuation shape functions for heat transfer problem in infinite two-phase hollow cylinder: tolerance averaging technique
-
- ID 608 **K. Protchenko*, E. Szmigiera, A. Garbacz and M. Urbański**
Post-fire behaviour of FRP reinforced beams
-
- ID 643 **A. Tomczyk* and A. Seweryn**
Influence of creep at elevated temperature on fatigue behaviour of 2024AA
-
- ID 717 **R. Schmidt*, J. Tabin and B. Skoczeń**
Effect of discontinuous plastic flow on discontinuous fracture propagation in stainless steel at cryogenic temperatures
-
- ID 654 **M. Ciepielowska* and B. Skoczeń**
Numerical analysis of crack propagation in stainless steel sample at cryogenic temperatures
-
- ID 703 **E. Dec*, J. Tabin, R. Chulist, K. Nalepka and B. Skoczeń**
Effect of phase transformation on crack growth in stainless steel at cryogenic temperatures
-

DISPLAY E:

EXPERIMENTAL MECHANICS

- ID 451 **E. Bura***, **Ł. Derpeński** and **A. Seweryn**
Fracture in PMMA specimens with notches under compressive loading
-
- ID 147 **J. Janiszewski***, **J. Sienkiewicz**,
K. Cieplak, **P. Strożek**, **J. Kulasa**
and **W. Burian**
Ductility of different copper grades under electromagnetic ring test conditions
-
- ID 490 **R. Owsięński*** and **A. Niestony**
Experimental evaluation of the effect of the parameters of load distribution in the fatigue tests under random loading of the AA6082
-
- ID 594 **G. Kokot**
Application of the optical methods as the validation tool for FEM numerical models
-
- ID 362 **M. Graba**
About determining the coefficient η for J-integral for SEN(B) specimens
-
- ID 379 **A. Kurek**, **J. Koziarska** and **T. Łagoda***
The influence of strain and stress gradient in determining strain fatigue characteristics for oscillatory bending
-