

41st SOLID MECHANICS CONFERENCE

**S^{41st} Sol Mech
2018**

**AUGUST 27-31, 2018
WARSAW, POLAND**

Conference programme

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**Institute of Fundamental Technological Research
and
Committee on Mechanics
POLISH ACADEMY OF SCIENCES**

41st SOLID MECHANICS CONFERENCE



**AUGUST 27-31, 2018
WARSAW, POLAND**

CONFERENCE PROGRAMME

Monday, 27.08	Hour	Room A	Room B	Room C	Room D	Room E
	09:00	Registration opens at 9:00, coffee is served from 11:30.				
	12:30	Opening Ceremony (Room A)				
	13:00	Plenary 1 (Room A)		Samuel Forest		
	14:00	Lunch				
	15:00	S01 P280 keynote	S06 P044 keynote	S05 P066 keynote	S14 P188 keynote	S09 P254 keynote
	15:20	S01 P105	S06 P263	S05 P115	S14 P189	S09 P200
	15:40	S01 P097	S06 P227	S05 P041	S14 P172	S09 P291
	16:00	Coffee break				
	16:20	S01 P135	S06 P031	S05 P294	S14 P024	S09 P221
	16:40	S01 P250	S06 P119	S05 P203	S14 P166	S09 P181
	17:00	S01 P094	S06 P199	S05 P259	S14 P073	S09 P217
	17:20	S01 P218	S06 P202	S05 P271	S14 P096	S09 P132
	17:40	Welcome Reception				
	18:00					
	20:00					

Tuesday, 28.08	Hour	Room A	Room B	Room C	Room D	Room E
	09:00	Plenary 2 (Room A)		Olivier Allix		
	10:00	S01 P141	S06 P147	S05 P165 keynote	S14 P248	S09 P162
	10:20	S01 P014	S06 P171		S14 P029	S09 P167
	10:40	S01 P086	S06 P142	S05 P273	S14 P077	S09 P128
	11:00	S01 P126	S06 P295	S05 P246	S14 P075	S09 P117
	11:20	Coffee break				
	11:40	S01 P149	S06 P114	S05 P037	S14 P063 keynote	S09 P196
	12:00	S01 P047	S06 P219	S05 P195		S09 P099
	12:20	S01 P017	S06 P040	S05 P290	S14 P176	S09 P265
	12:40	S01 P069		S05 P140	S14 P021	S09 P078
	13:00	Lunch				
	14:00	Plenary 3 (Room A)		Stavros Kourkoulis		
	15:00	S04 P123 keynote	S03 P216 keynote	S05 P209	S14 P210	S13 P139
	15:20			S05 P251	S14 P068	S13 P089
	15:40	S04 P116	S03 P051	S05 P121	S14 P070	S13 P064
	16:00	S04 P237	S03 P175	S05 P090	S14 P087	S13 P179
	16:20	S04 P088				S13 P192
	16:20	Coffee break				
	16:40	Poster session: hall on the second floor				
P076		P091	P095	P109	P113	
P122		P129	P130	P153	P154	
P180		P201	P212	P230	P231	
P253		P261	P262	P266	P292	
18:00	P281					

Wednesday, 29.08	Hour	Room A	Room B	Room C	Room D	Room E
	09:00	Plenary 4 (Room A)		Hisaaki Tobushi		
	10:00	S04 P120	S03 P025	S05 P256 keynote	S14 P015	S13 P274
	10:20	S04 P190	S03 P244		S14 P107	S13 P274
	10:40	S04 P110	S03 P034	S05 P148	S14 P134	S13 P052
	11:00	S04 P060	S03 P182	S05 P247	S14 P194	S13 P054
	11:20	Coffee break				
	11:40	S04 P238	S03 P277	S05 P067	S12 P061 keynote	S13 P062
	12:00	S04 P043	S03 P249	S05 P108		S13 P049
	12:20	S04 P220	S03 P178		S12 P055	S13 P146
	12:40	S04 P157			S12 P215	S13 P282
	13:00	Lunch				
	14:00	S04 P081	S07 P131 keynote	S15 P206 keynote	S12 P234	S16 P297
	14:20	S04 P233			S12 P214	S16 P039 keynote
	14:40	S04 P042	S07 P071	S15 P028	S12 P080	S16 P289
	15:00	S04 P082	S07 P085	S15 P225	S12 P160	S16 P289
	15:20	S04 P207	S07 P183		S12 P032	S16 P267
15:40	Coffee break					
16:00	Excursions					
19:00						

Thursday, 30.08	Hour	Room A	Room B	Room C	Room D	Room E
	09:00	Plenary 5 (Room A)		Kam Yim Sze		
	10:00	S02 P242 keynote	S07 P152 keynote	S15 P059	S12 P169	S16 P211
	10:20			S15 P284	S12 P177	S16 P145
	10:40	S02 P065	S07 P276	S15 P197	S12 P232	S16 P079
	11:00	S02 P104	S07 P275	S15 P224	S12 P222	S16 P241
	11:20	Coffee break				
	11:40	S02 P193	S07 P229	S15 P035	S18 P156 keynote	S16 P205
	12:00	S02 P155	S07 P125	S15 P226		S16 P127
	12:20	S02 P058	S07 P011	S15 P235	S18 P102	S16 P022
	12:40	S02 P023	S07 P100	S15 P136	S18 P185	S16 P243
	13:00	Lunch				
	14:00	Plenary 6 (Room A)		Jean-François Molinari		
	15:00	S02 P057	S07 P236 keynote	S10 P279 keynote	S18 P245	S16 P293
	15:20	S02 P228			S18 P159	S16 P074
	15:40	S02 P138	S07 P283	S10 P030 keynote	S18 P168	S16 P285
	16:00	S02 P106	S07 P093		S18 P198	S16 P163
19:00	Conference Dinner					
23:00						


















Friday, 31.08	Hour	Room A	Room B	Room C	Room D	Room E
	09:00	Plenary 7 (Room A)		Dariusz Gawin		
	10:00	S02 P013	S07 P084	S10 P101	S18 P020	S17 P296
	10:20	S02 P048	S07 P026	S10 P045	S18 P161	S17 P124
	10:40	S02 P264	S07 P027	S10 P272	S18 P191	S17 P098
	11:00		S07 P103	S10 P053		S17 P174
	11:20			S10 P111		
	11:40			S10 P083		
	11:30	Lunch				
End of conference. See you at SOLMECH 2020!						

Plenary lecture - 45 min presentation + 10 min discussion

Keynote lecture - 30 min presentation + 10 min discussion

Oral presentation - 15 min presentation + 5 min discussion

Poster presentation - 3 min presentation + discussion in front of poster

-  S01: Elasticity, plasticity and phase transition
-  S02: Micromechanics, interfaces and multiscale modelling
-  S03: Damage and fracture modelling of advanced materials
-  S04: Plasticity, damage and fracture: microstructural aspects
-  S05: Computational aspects of solid mechanics
-  S06: Discrete and multiscale modelling in solid mechanics
-  S07: Coupled fields in nanostructures and continua
-  S09: Experimental mechanics
-  S10: Geomechanics and multiscale modelling of materials
-  S12: Biomechanics
-  S13: Smart materials and structures
-  S14: Structural mechanics and optimization
-  S15: Nonlinear and adaptive dynamical systems
-  S16: Shells and plates
-  S17: Stochastic mechanics
-  S18: Composite Materials and Structures
-  Poster session

About SolMech

The Solid Mechanics Conferences are a series of biennial international conferences, which have been organized by the Institute of Fundamental Technological Research of the Polish Academy of Sciences (IPPT PAN) since 1953.

The aim of the Conference is to bring together researchers from different countries and to provide an opportunity to present scientific results on a wide range of topics related to solid mechanics.

The conferences have maintained high scientific standards and served as a forum for exchange of ideas and research information. Traditionally, besides the oral and poster presentations by participants, a set of invited general and keynote lectures is delivered by invited outstanding researchers of international recognition.

Conference webpage

<http://www.solmech2018.ippt.pan.pl>

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Conference Venue

Conference will take place in the Old Library of Warsaw University,
Krakowskie Przedmieście Street 26/28.

The registration desk will be open in the lobby of the conference building in the following hours:

Monday, August 27	9 am - 8 pm
Tuesday, August 28	8 am - 6 pm
Wednesday, August 29	8 am - 4 pm
Thursday, August 30	8 am - 4 pm
Friday, August 31	8 am - 1 pm

Social Events

Opening Ceremony	Monday, August 27	0:30- 1:00 PM
Welcome Reception	Monday, August 27	6:00- 8:00 PM
Excursions	Wednesday, August 29	4:00- 7:00 PM
Conference Dinner	Thursday, August 30	7:00-11:00 PM

Organizing Institute



Institute of Fundamental Technological Research
Polish Academy of Sciences
ul. Pawińskiego 5B
02-106 Warszawa, Poland

Conference Partner



Global Congress Sp. z o.o

Invited Plenary Lectures

- **Olivier Allix** (*LMT, ENS Cachan, France*)

On objective dynamic failure predictions using local constitutive models

- **Samuel Forest** (*CNRS, Centre des Materiaux MINES Paristech, France*)

Strain gradient and Cosserat crystal plasticity with application to grain boundary migration

- **Dariusz Gawin** (*Lodz University of Technology, Poland*)

Application of multiphase porous media mechanics for assessment of building materials durability

- **Stavros Kourkoulis** (*National Technical University of Athens, Greece*)

Restoring stone monuments of cultural heritage: Critical aspects from the engineering point of view

- **Jean-François Molinari** (*EPFL Lausanne, Switzerland*)

Numerical modeling of adhesive wear across scales

- **Kam Yim Sze** (*University of Hong Kong, China*)

A simple and efficient geometric nonlinear rotation-free triangle and its application in drape simulation

- **Hisaaki Tobushi** (*Aichi Institute of Technology, Japan*)

Mechanical properties of shape memory alloys, polymers and their composites

Thematic Sessions and Their Organizers

- S01: Elasticity, plasticity and phase transition**
S. Forest (*Paris*), H. Petryk (*Warsaw*)
- S02: Micromechanics, interfaces and multiscale modelling**
V. Kouznetsova (*Eindhoven*), A. Menzel (*Dortmund*),
S. Stupkiewicz (*Warsaw*)
- S03: Damage and fracture modelling of advanced materials**
M. Basista (*Warsaw*), G. Bolzon (*Milano*), Ch. Sommitsch (*Graz*)
- S04: Plasticity, damage and fracture: microstructural aspects**
K. Kowalczyk-Gajewska (*Warsaw*), S. Mercier (*Metz*),
J. Rodriguez-Martinez (*Madrid*), G. Vadillo (*Madrid*)
- S05: Computational aspects of solid mechanics**
O. Allix (*Cachan*), T. Burczyński (*Warsaw*),
P. Kowalczyk (*Warsaw*)
- S06: Discrete and multiscale modelling in solid mechanics**
J. Rojek (*Warsaw*), M. Pietrzyk (*Cracow*),
R. Kačianauskas (*Lithuania*), B. Peters (*Luxembourg*)
- S07: Coupled fields in nanostructures and continua**
T. Łodygowski (*Poznan*), R. Pęcherski (*Warsaw*),
H.M. Shodja (*Iran*)
- S09: Experimental mechanics**
S. Kourkoulis (*Athens*), Z.L. Kowalewski (*Warsaw*)
- S10: Geomechanics and multiscale modelling of materials**
Z. Mróz (*Warsaw*), S. Pietruszczak (*Ontario*),
R. Michalowski (*Michigan*), J. Tejchman (*Gdansk*)
- S12: Biomechanics**
R. Będziński (*Wroclaw*), J-F. Ganghoffer (*Nancy*),
E. Majchrzak (*Gliwice*), M. Nowak (*Poznan*)

S13: Smart materials and structures

E. A. Pieczyska (*Warsaw*), H. Tobushi (*Toyota-city*),
Q. P. Sun (*Hong Kong*)

S14: Structural mechanics and optimization

M. Gilbert (*Sheffield*), T. Lewiński (*Warsaw*),
A. V. Pichugin (*London*)

S15: Nonlinear and adaptive dynamical systems

P. Perlikowski (*Łódź*), S. Evangelou (*London*),
Ł. Jankowski (*Warsaw*)

S16: Shells and plates

Dedicated to the anniversary of Prof. W. Pietraszkiewicz with the tribute speech by Prof. J. Badur (IMP PAN, Gdansk)

J. Chróścielewski (*Gdansk*), F. Gruttmann (*Darmstadt*),
V. Eremeyev (*Rostov on Don, Gdansk*), K. Wiśniewski (*Warsaw*)

S17: Stochastic mechanics

Dedicated to the memory of the late Professor Kazimierz Sobczyk (1939-2017)

R. Iwankiewicz (*Hamburg*), Z. Kotulski (*Warsaw*)

S18: Composite materials and structures

B. Brank (*Ljubljana*), J. Hohe (*Freiburg*), I. Kreja (*Gdansk*)

13:00 P009

Chairman: H. Petryk

S. Forest, A. Ask and B. Appolaire

Strain Gradient and Cosserat Crystal Plasticity with Application to Grain Boundary Migration

----- Lunch -----

Session S01 - Part I

Chairman: S. Forest

15:00 P280 keynote

M. Lewandowski and S. Stupkiewicz

Modelling of Wedge Indentation Using a Gradient-Enhanced Crystal-Plasticity Model

15:40 P105

M. Lazar and G. Po

From Gradient Elasticity to Angström-Mechanics of Dislocations

16:00 P097

E. Agiasofitou and M. Lazar

Novel Aspects in Dislocation Continuum Theory: J-, M-, and L-Integrals

----- Coffee break -----

Session S01 - Part II

Chairman: H. Petryk

16:40 P135

H. Altenbach, P. Rosendahl, W. Becker and V. Kolupaev

Isogonal and Isotoxal Hexagons as Extremal Yield Figures

17:00 P250

J. Pamin, B. Wcisło, K. Kowalczyk-Gajewska and A. Menzel

Ellipticity of Large Strain Thermo-Plasticity: Theory and Numerical Analysis

17:20 P094

M.A. Martinez Page and S. Hartmann

Experiments and Modeling of Natural Aging in Zamak Alloys

17:40 P218

T. Szymczak and Z. Kowalewski

Visco-Plastic Effects Due to Deformation Along Circular Loading Path

Session S06 - Part I

Chairmen: J. Rojek & B. Peters

15:00 P044 keynote

B. Kabore, B. Peters, C. Willibald, T. Thiele and M. Schneebeli

Multi-Scale Modelling of Snow Mechanics

15:40 P263

S. Nosewicz, J. Rojek, G. Maciejewski, M. Maździarz and M. Chmielewski

Two-Scale Modelling of Powder Sintering

16:00 P227

P. Chodkiewicz, R. Zalewski and J. Lengiewicz

DEM Modeling of Vacuum Packed Particles Dampers

----- Coffee break -----

Session S06 - Part II

Chairman: B. Peters

16:40 P031

J. Wiącek

Effect of Trimodality on Structural and Mechanical Properties of Granular Packings with Different Particle Size Ratios and Particle Size Fractions

17:00 P119

K. Szarf

Contact Transformations in Granular Assemblies of 2D Non-convex Grains

17:20 P199

J. Rojek, A. Zubelewicz, N. Madan, S. Nosewicz and D. Lumelskyj

A Novel Treatment for the Deformability of Discrete Elements

17:40 P202

N. Madan, J. Rojek, A. Zubelewicz and S. Nosewicz

Convergence Limit of a Deformable Discrete Element Model

Session S05 - Part I

Chairman: T. Burczyński

15:00 P066 keynote

G. Zboński

A Unified Approach to Adaptive Modelling and Simulation in Coupled and Solid Mechanics Problems

15:40 P115

S. Klinkel and R. Reichel

A Finite Element Formulation in Boundary Representation for the Analysis of Heterogeneous Structures

16:00 P041

S. Milewski

Application of the Meshless Monte Carlo Method with Random Walk Procedure to Selected Elliptic Problems of Mechanics

----- Coffee break -----

Session S05 - Part II

Chairman: P. Kowalczyk

16:40 P294

P. Dłużewski

Computational Aspects of Chemo-Elastic Problems and Vegard's Law

17:00 P203

R.R. Gilbert and S. Hartmann

Numerical Treatment of Material Parameter Identification Using Finite Elements

17:20 P259

N. Fallah

Mesh-Free and Mesh Based Finite Volume Methods for the Solid Mechanics Analysis

17:40 P271

M. Wichrowski

A Multilevel Solver for Stokes Equation with Discontinuous Viscosity

Session S14 - Part I

Chairman: T. Lewiński

15:00 P188 keynote

J. Gondzio and A. Weldeyesus

Using Primal-Dual Interior Point Method to Determine Least-Weight Truss Layouts

15:40 P189

M. Gilbert, L. He, H. Fairclough and A. Tyas

Layout Optimization of Trusses with Manufacturing Constraints

16:00 P172

T. Sokół and T. Lewiński

Michell Cantilever on Circular Support for Unequal Permissible Stresses in Tension and Compression

----- Coffee break -----

Session S14 - Part II

Chairman: M. Gilbert

16:40 P024

W. Górný, P. Rybka and A. Sabra

The Least Gradient Problem in the Free Material Design

17:00 P166

K. Bołbotowski

Are Michell Structures and Optimum Grillages Equivalent to Frameworks Composed of Infinite Number of Straight Members?

17:20 P073

Y. Chikahiro, I. Ario, P. Pawłowski, C. Graczykowski and S. Shimizu

Numerical Optimization of Deployable Scissors Structure with Reinforcing Chord Members

17:40 P096

Y. Yokotani and I. Ario

Structural Optimization Problem Using Microtruss Method

Session S09 - Part I

Chairman: Z. Kowalewski

15:00 P254 keynote

D. Triantis, I. Stavrakas and S. Kourkoulis

Qualitative Correlation Between Acoustic and Electric Activities in Brittle Materials

15:40 P200

A. Ustrzycka, Z. Mróz, S. Kucharski and Z. Kowalewski

Analysis of Fatigue Crack Initiation Caused by Cyclic Microplasticity

16:00 P291

Z. Nowak, M. Nowak, J. Widłaszewski and P. Kurp

Experimental and Numerical Investigation on Laser-Assisted Bending of Pre-Loaded Inconel 718 Beams

----- Coffee break -----

Session S09 - Part II

Chairman: S. Kourkoulis

16:40 P221

A. Pestka and P. Kłosowski

Laboratory Tests and Numerical Simulations of Carpentry Corner Log Joints

17:00 P181

M. Banaszekiewicz, R. Rehmus-Forc, W. Radulski and K. Dominiczak

Application of Miniature Specimen Testing to Lifetime Assessment of Steam Turbine Rotors

17:20 P217

T. Szymczak, Z. Kowalewski and A. Brodecki

Mini-Compact Tension Specimens for Fracture Toughness Evaluation

17:40 P132

T. Kojima, K. Uwakawa and M. Notomi

The Fracture Mode of a Glass Plate Stuck with Thin Film Under a Low-Velocity Impact

09:00 P010

Chairman: T. Burczyński

O. Allix

On Objective Dynamic Failure Predictions Using Local Constitutive Models

Session S01 - Part III

Chairman: H. Altenbach

10:00 P141

I. Guschke, T. Bartel and A. Menzel

A Thermomechanical Finite Element Framework for the Simulation of Selective Laser Melting Processes Via Phase Transformation Models

10:20 P014

K. Tůma, S. Stupkiewicz and H. Petryk

Rate-Independent Dissipation in Phase-Field Modeling of Evolving Microstructure

10:40 P086

T. Fülöp and M. Szucs

Analytical Solution Method for Rheological Problems of Solids

11:00 P126

M. Kružík, P. Pelech and A. Schloemerkerper

Use of Gradient Polyconvexity in the Modeling of Rate-Independent Evolution of Diffused Phase Transition in Shape Memory Alloys

----- Coffee break -----

Session S01 - Part IV

Chairman: M. Lazar

11:40 P149

M. Svanadze

Steady Vibrations Problems in the Theory of Thermoelasticity for Materials with Triple Voids

12:00 P047

M. Szymczyk, W. Sumelka and M. Nowak

Initial Boundary Value Problem in the Framework of Fractional Viscoplasticity

12:20 P017

A. Chirila and M. Marin

Model Equations of Diffusive Microstretch Thermoelasticity with Microtemperatures and Microconcentrations

12:40 P069

B. Park, K. Lee, M. Ki, D. Kim and H. Kim

A Study on the Properties Estimation of Hyperelastic Material Under Low Temperature Conditions

----- Lunch -----

14:00 P008

Chairman: Z. Kowalewski

S. Kourkoulis

Restoring Stone Monuments of Cultural Heritage: Critical Aspects from the Engineering Point of View

15:00 P123 keynote

B. Skoczeń

Multiscale Model of Hardening in Metastable Materials with Radiation Induced Porosity

15:40 P116

A. Ustrzycka

Irradiation Creep Damage in Nuclear Reactor Components

16:00 P237

G. Vadillo, J. Reboul, A. Srivastava and S. Osovski

On the Interplay Between Macroscopic Localization and Void Coalescence for Strain Rate Sensitive Materials

16:20 P088

B.R. Bodapati, P.S. Phani, P.P. Bhattacharjee and G. Sundararajan

Uniaxial Compression Behaviour of Porous Copper : Experiments and Modelling

----- Coffee break -----

Session S06 - Part III

Chairman: R. Kačianauskas

10:00 P147

W. Beluch and M. Hatlas

Response Surfaces in the Numerical Homogenization of Non-Linear Porous Materials

10:20 P171

I. Wardach-Święcicka, D. Kardaś and B. Peters

Modelling of the Thermochemical Processes in Porous Media with Phase Transition Using XDEM and FVM Methods

10:40 P142

M. Dryzek and W. Cecot

Development of the Multiscale Finite Element Method for the Analysis of Advanced Materials

11:00 P295

D. Szeliga, Ł. Rauch and M. Pietrzyk

Identification of the Multiscale Material Model Based on an Internal Variable

----- Coffee break -----

Session S06 - Part IV

Chairman: J. Rojek

11:40 P114

J. Suchorzewski and J. Tejchman

Analyses of Size Effect in Concrete at Meso-Scale During Splitting Tension Test Using DEM

12:00 P219

R. Pacevič, R. Kačianauskas, A. Kačeniauskas and R. Barauskas

Discrete Element Simulation of Damage and Fracture of Concrete at Interface on GPU

12:20 P040

M. Klimczak and W. Cecot

Asphalt Concrete Modeling by the Multiscale Finite Element Method

----- Lunch -----

15:00 P216 keynote

M.R. Ahmadi, M.C. Poletti, B. Sonderegger and C. Sommitsch

Development of a Creep Cavity Model In Mod. 9 Cr-Mo Steel (Model & Experiment)

15:40 P051

D. Schob, R. Roszak, H. Sparr and M. Ziegenhorn

Experimental and Numerical Simulation of Material and Damage Behaviour of 3d Printed Polymers in Comparison to Metals

16:00 P175

W. Weglewski, M. Basista, M. Krajewski and K. Bochenek

Thermal Residual Stresses in Alumina Reinforced with Chromium - the Grain Size Effect

----- Coffee break -----

Session S05 - Part III

Chairman: O. Allix

10:00 P165 keynote

A. Długosz, I. Pokorska, M.A. Glinicki and R. Jaskulski

Application of Evolutionary Algorithms in Identification of Thermal Properties of Hardening Concrete

10:40 P273

S. Hartmann and C. Leistner

Numerical Treatment of the Epoxy Curing Using Finite Elements

11:00 P246

E. Majchrzak and J. Dziatkiewicz

Second-Order Two-Temperature Model for Thin Metal Film Subjected to the Ultrashort Laser Pulse

----- Coffee break -----

Session S05 - Part IV

Chairman: S. Hartmann

11:40 P037

F. Zakęś and P. Śniady

Vibrations of a Double-Beam System with Elastic Restraints Due to a Moving Force

12:00 P195

W. Szyszkowski and E. Sharbati

On FE Modeling of a Vibrating Body Controlled by Sliding Some of Its Components

12:20 P290

M. Golmohammadi, S. Derakhshan and M. Salehi

Effects of Mechanical Properties on Wave Propagation of Extended Viscoelastic Euler-Bernoulli Beam by Using Wavelet Spectral Finite Element Method

12:40 P140

S. Ndanou, G. Dilts and T. Masser

Reference Mapping: Application in Eulerian Hydrocodes

----- Lunch -----

15:00 P209

P. Nosal and A. Ganczarski

Numerical Modeling of the FSW Joint Using an Elasto-Plastic Material Model

15:20 P251

A. Uściłowska

An Elastic-Plastic Torsion of Open Profiles Made with Functionally Graded Material - Numerical Experiment Based on Meshless Methods

15:40 P121

M. Cebren, S. Sarkar, A. Kosmrlj and M. Brojan

Analyzing Deformations of 2D Solid Structures Using Elastic Multipoles

16:00 P090

D. Lolić, M. Brojan and D. Zupan

Three Dimensional Reissner Beam with Non-Linear Contact Between Layers

----- Coffee break -----

Session S14 - Part III

Chairman: M. Nowak

10:00 P248

R. Czubacki, G. Dzierżanowski and T. Lewiński

On Funiculars and Archgrids of Minimal Weight

10:20 P029

A. Danilin and S. Zavoronok

The Deformation of the Helical Type Wire Structures

10:40 P077

K. Tajs-Zielińska and B. Bochenek

On Implementation of Subdomain Oriented Topology Optimization Into Structure Retrofitting

11:00 P075

Z. Więckowski and M. Piątek

Application of Equilibrium-Based Finite Element Method in Topology Optimization Problems

----- Coffee break -----

Session S14 - Part IV

Chairman: G. Dzierżanowski

11:40 P063 keynote

M. Nowak

Benchmark Problem for Structural Optimization with Multiple Load Conditions in 3-D

12:20 P176

N.A. Batalha, L.C.M. Vieira Jr and S. Szyniszewski

Determination of Stochastic Field of Young Modulus from Strain Measurements

12:40 P021

S. Czarnecki, R. Czubacki and T. Lewiński

On the Free Material Design for the Multiple Loading Conditions

----- Lunch -----

15:00 P210

***P. Płatek, J. Janiszewski, P. Baranowski, J. Małachowski,
T. Czujko, A. Antolak-Dudka and T. Durejko***

Key Issues of Design and Numerical Investigations of Regular Cellular Structures Manufactured Additively of Ti6Al4V

15:20 P068

R. Siqueira, R. Lachmayer and I. Mozgova

A Multi-Material Optimization Method with Manufacturing Constraints for Tailored Forming

15:40 P070

D. Kim, K. Lee, B. Wan, B. Park and H. Kim

Offshore Jacket Design and Structural Strength Evaluation Considering Seabed Condition

16:00 P087

H. Kim, K. Lee, B. Park and D. Kim

Topology Optimization of Offshore Jacket Structure Panel and Experimental Validation

----- Coffee break -----

Session S09 - Part III

Chairman: S. Kourkoulis

10:00 P162

E. Simlissi, M. Martiny, S. Mercier, S. Bahi, F. Lechleiter and L. Bodin

Determination of the Strength of Interface in Printed Circuit Boards (PCBs): Peeling Test and Role of Plasticity

10:20 P167

Z. Zembaty, P. Bońkowski, P. Bobra, S. Kokot and J. Kuś

Application of Rotation Rate Sensors in Stiffness "Reconstructions" of Structural Systems

10:40 P128

A. John and H. Bąkowski

The Analysis of Actual Surface Areas in Rolling-Sliding Contact for Real Operational Conditions by Means of FEM and Profilografometric Tests

11:00 P117

S. Puakowski, R. Ossowski and K. Szarf

Data Mining in Field Testing of Soil: Neural Networks Applied to RCPTU Interpretation

----- Coffee break -----

Session S09 - Part IV

Chairman: Z. Kowalewski

11:40 P196

K. Makowska, Z. Kowalewski, W. Dudda, P. Ziółkowski and J. Badur

Damage Assessment of Exploited Turbine Blades Using Barkhausen Noise Parameters

12:00 P099

S. Manzaki, T. Kojima and M. Notomi

Corrosion Behaviors of Magnesium Film Coated with Biocompatible Materials Under Pseudo-Biological Environment

12:20 P265

A. Werhani, A. El Hafidi, B. Lay and B. Martin

Thermomechanical Behavior of Beams Covered with Viscoelastic Patches

12:40 P078

P. Wawrzyniak and W. Karaszewski

Experimental Research of the Influence of Selected SBM Process Parameters on the PET Containers Properties and Analysis of the PET Multi-Phase Microstructure

----- Lunch -----

15:00 P139

M. Cristea, D. Ionita, S. Oprea and E. Pieczyska

How Loading Type Affects Viscoelastic Properties of Polyurethane Structures

15:20 P089

T. Tanaka, T. Tatenno and T. Kojima

Effect of Fiber Orientation on Mechanical Property of CFRP fabricated by AM

15:40 P064

M. Staszczak, E. Pieczyska, R. Matsui and K. Takeda

Estimation of Energy Storage and Dissipation in Shape Memory Polymer During Its Deformation

16:00 P179

A. Czekanski and M. Abdelhamid

On the Effective Properties of the Octet-Truss Lattice

16:20 P192

A. Čeponis, D. Mažeika and P. Vasiljev

An Inertial Piezoelectric Rotary Motor Based on Thin Square Type Frame

----- Coffee break -----

09:00 P004

Chairman: E. Pieczyska

H. Tobushi

Mechanical Properties of Shape Memory Alloys, Polymers and Their Composites

Session S04 - Part II

Chairman: G. Vadillo

10:00 P120

M. Subramani, C. Czarnota, S. Mercier and A. Molinari

Dynamic Response of Ductile Materials Containing Cylindrical Voids: Analytical Modeling and Finite Element Validation

10:20 P190

K.E. N'souglo and J. Rodriguez-Martinez

Non-Uniform Distributions of Initial Porosity in Metallic Materials Affect the Growth Rate of Necking Instabilities in Flat Tensile Samples Subjected to Dynamic Loading

10:40 P110

P. Fedeliński

Dynamic Interaction of Branched Cracks

11:00 P060

E. Postek and T. Sadowski

Temperature Effects During Impact of WC/Co Composites

----- Coffee break -----

11:40 P238

B. Berisha, S. Hirsiger, H. Hippke and P. Hora

Modeling of Anisotropic Hardening and Grain Size Effects Based on Advanced Crystal Plasticity Models

12:00 P043

K. Frydrych, K. Kowalczyk-Gajewska and A. Prakash

Simulations of the Equal Channel Angular Pressing Process Using Crystal Plasticity Finite Element Method with Solution Mapping

12:20 P220

K. Kowalczyk-Gajewska

Impact of Microstructure-Induced Anisotropy on the Overall Response of Elastic-Viscoplastic Polycrystalline Metals

12:40 P157

J. Tabin and B. Skoczeń

Discontinuous Plastic Flow in the Low-Temperature Superconductors

----- Lunch -----

14:00 P081

L. Sprave and A. Menzel

Towards Verification of a Gradient-Enhanced Ductile Damage Model

14:20 P233

M. Mucha, B. Wcisło and J. Pamin

Regularized Large Strain Elasto-Plasticity: Simulation of a Propagative Instability

14:40 P042

P.B. Beda

Dynamic Stability Analysis in Non-Local Fractional Thermodynamics

15:00 P082

B. Łuczak, W. Sumelka and G. Voyiadjis

Fraction Hyperelastic Damage Model for Roof Membranes Materials

15:20 P207

M. Taraszewski and K. Kowalczyk-Gajewska

Micromechanical and Numerical Modeling of Polymer-Metal Composites in Large Strain Regime

----- Coffee break -----

Session S03 - Part II

Chairman: C. Hwu

10:00 P025

C. Hwu, W. Chen and T. Lo

Interaction Between Inclusions and Cracks in Smart Composites

10:20 P244

V. Eremeyev and E. Aifantis

On the Screw Dislocation Considering Surface Energy: Strain-Gradient Elasticity vs. Surface Elasticity

10:40 P034

B. Deliktas, I.C. Turturk and M.O. Yayli

Investigating the Effects of Geometrical Parameters on Fracture Response of the Notched Small Punch Test

11:00 P182

S. Samborski

A Critical View at Direct Applicability of the Strain Energy Release Rate Determination Standards to Coupled Composite Laminates

----- Coffee break -----

Session S03 - Part III

Chairman: B. Deliktas

11:40 P277

V.H.T. Le, S. Brisard and A. Pouya

Elastostatic Problem of Two Asymmetrical Cracks Along the Inclusion-Matrix Interface Under a Remote Uniform Load

12:00 P249

D. Bishara and M. Jabareen

A Computational Framework for Modeling Electric Breakdown in Electroactive Polymers

12:20 P178

I. Bauer and M. Paczkowska

The Evaluation of Microstructure of Carbon Steel Surface Layer After Diffusion Chromizing and Laser Heat Treatment

----- Lunch -----

14:00 P131 keynote

H. Shodja, S. Marashi and E. Rashidinejad

Coupled-Field Theory for Grade 2 Piezoelectric Media: Application to Quantum Dots

14:40 P071

H. Sparr, R. Roszak, D. Schob and M. Ziegenhorn

Material Modelling for Cyclic Loading - a Thermo-Mechanical Approach

15:00 P085

E. Postek, Z. Nowak and R. Pęcherski

Impact Resistance of Crushable Foam Skeleton

15:20 P183

P. Kielczyński, M. Szalewski, A. Balcerzak and K. Wieja

Love Waves Propagation in Elastic Waveguides Loaded by Viscoelastic Media

----- Coffee break -----

Session S05 - Part VI

Chairman: I. Pokorska

10:00 P256 keynote

A. Zdunek and W. Rachowicz

A Mixed Finite Element Formulation for Finite Elasticity with Stiff Two Fibre Reinforcement

10:40 P148

A. Długosz, P. Jarosz and T. Schlieter

Optimization of Thermal Microactuators Related to Multiple Criteria

11:00 P247

A. Uściłowska and M. Chudzicka-Adamczak

Validation of Thermal Imaging and Computer Simulations Using Method of Fundamental Solutions for Corner Window

----- Coffee break -----

Session S05 - Part VII

Chairman: T. Burczyński

11:40 P067

R. Siqueira, M. Bibani, R. Lachmayer and I. Mozgova

A Case-Based Reasoning Approach for Design of Tailored Forming Hybrid Material Component

12:00 P108

A. Stręk, M. Dudzik, A. Kwiecień, K. Wańczyk and B. Lipowska

Preliminary Efficiency Analysis of ANN Modelling of Compressive Behaviour of Metal Sponges

----- Lunch -----

Session S15 - Part I

Chairmen: P. Perlikowski & Ł. Jankowski

14:00 P206 keynote

B. Dyniewicz and C. Bajer

Dynamical Behaviour of Nonlinear Structures Under Varying Load

14:40 P028

A. Danilin and S. Zavoronok

Nonlinear Vibrations and Galloping of Transmission Lines' Conductors

15:00 P225

T. Kowalski, R. Faraj, C. Graczykowski, K. Hinc, G. Mikułowski, P. Pawłowski and Z. Wolejsza

Development of Adaptive Airbags for Emergency Landing of Small UAV

Session S14 - Part VI

Chairman: R. Siqueira

10:00 P015

I. Paczelt, Z. Mróz and A. Baksa

Analysis of Two Contact Shape Optimization Problems

10:20 P107

S. Zenzaj, S. Shimizu, Y. Chikahiro and T. Ohkami

Seismic Behaviour of a Concrete-Filled Steel Tube with Diaphragm

10:40 P134

T. Schlieter and A. Długosz

Structural Optimal Design of an Airfoil for Many Criteria

11:00 P194

M. Posypkin, A. Usov, L. Rybak and D. Malyshev

Approximation of the Parallel Robot Working Area Using the Method of Nonuniform Covering

----- Coffee break -----

Session S12 - Part I

Chairman: R. Będziński

11:40 P061 keynote

I. Goda, Z. Louna and J. Ganghoffer

Homogenized Strain Gradient Remodeling Model for Trabecular Bone Microstructures

12:20 P055

A. John and M. John

Numerical and Experimental Tests of Inverse Honeycomb Structure Used in the Exoskeleton for a Child

12:40 P215

J. Miodowska, J. Bielski and M. Kromka-Szydek

The Role of the Bone Strength on the Cyst Growth in the Mandible

----- Lunch -----

14:00 P234

M. Rodriguez, S. Uzuner and L. Li

Experimental Validation of Finite Element Modeling of Creep Behavior of Human Knee Joint

14:20 P214

G. Gaidulis, R. Kačianauskas and A. Aidietis

Finite Element Modeling of Transapical Mitral Valve Repair

14:40 P080

D. Gawęł, M. Nowak, K. Łyduch, P. Główka and T. Kotwicki

Cascade of Boosted Classifiers and Active Appearance Model for Spine Elements Localization and Segmentation

15:00 P160

A. Maknickas, V. Alekna, O. Ardatov, D. Zabulionis, M. Tamulaitiene and R. Kačianauskas

FEM Based Fracture Risk Assessment in Patient Specific Osteoporotic Lumbar Vertebra L1

15:20 P032

M. Jasiński

Modelling of Thermal Damage in Laser Irradiated Tissue with Embedded Nanoparticles

----- Coffee break -----

Session S13 - Part II

Chairmen: *R. Matsui & K. Takeda*

10:00 P274

E. Pieczyska, V. Dunić, R. Slavković and Z. Kowalewski

Stress Relaxation Effects in TiNi SMA

10:20 P274

E. Pieczyska, V. Dunić, R. Slavković and Z. Kowalewski

Stress Relaxation Effects in TiNi SMA

10:40 P052

R. Matsui, K. Yamada and M. Okumura

Corrosion Fatigue Strength of Thermal Nitrided TiNi Shape Memory Alloy Wire

11:00 P054

Y. Furukawa, R. Matsui and H. Tobushi

Development of Two-Way Rotary Driving Element Using Torsional Deformation of TiNi Shape Memory Alloy Thin Tape

----- Coffee break -----

Session S13 - Part III

Chairmen: *R. Matsui & K. Takeda*

11:40 P062

K. Takeda, D. Uemura and K. Hattori

Enhancement of Fatigue Property of TiNi Shape Memory Alloy Wire by Ultrasonic Shot Peening

12:00 P049

B. Cao and T. Iwamoto

An Estimation on Axial Strength of Joint Made of Fe-28Mn-6Si-5Cr Shape Memory Alloy at Various Deformation Rate

12:20 P146

S. Zhavoronok and D. Nushtaev

Buckling of Thin-Walled Structures with Shape Memory Effect Under Thermoelastic Phase Transitions

12:40 P282

E. Pieczyska, K. Golasinski, M. Maj, S. Mackiewicz, M. Staszczak, M. Zubko and N. Takesue

Mechanical Anisotropy of Gum Metal Analyzed by Ultrasonic Measurements and Digital Image Correlation

----- Lunch -----

14:00 P297

J. Badur

Tribute Speech on the Occasion of the Anniversary of Prof.
W.Pietraszkiewicz

14:20 P039 keynote

F. Gruttmann and G. Knust

Theory and Finite Element Formulations for Layered Composite Shells

15:00 P289

J. Chróścielewski, A. Sabik, B. Sobczyk and W. Witkowski

Analysis of Laminates with the Use of 2-D Cosserat Constitutive Model

15:20 P267

M. Lavrenčič and B. Brank

Comparison of Some Low-Order Geometrically Exact Shell Finite
Elements

----- Coffee break -----

09:00 P007

Chairman: W. Wagner

K.Y. Sze and Y.X. Zhou

A Simple and Efficient Geometric Nonlinear Rotation-Free Triangle and Its Application in Drap Simulation

Session S02 - Part I

Chairman: A. Menzel

10:00 P242 keynote

J. Lengiewicz, M.F. Leyva-Mendivil, G. Limbert and S. Stupkiewicz

Macroscopic Friction of Microscopically Rough Soft Contacts

10:40 P065

P. Sadowski and S. Stupkiewicz

Hysteretic Losses in Lubricated Sliding Soft Contacts

11:00 P104

D. Sokołowski and M. Kamiński

Hysteretic Behavior of Random Particulate Composites by the Stochastic Finite Element Method

----- Coffee break -----

Session S02 - Part II

Chairman: S. Stupkiewicz

11:40 P193

M. Kurza, K. Kowalczyk-Gajewska, M. Lewandowski and H. Petryk

Validation of Mean-Field Approaches for the Description of Elastic-Plastic Two-Phase Composites

12:00 P155

M. Wojciechowski

Weakened Hill-Mandel Condition for Computational Homogenisation of Random Media

12:20 P058

M. Majewski and K. Kowalczyk-Gajewska

Inclusion Shape in Mean-Field Micromechanical Models

12:40 P023

S. Koley, P.M. Mohite and C.S. Upadhyay

Boundary Layer Effect at the Free Edge of Composite Material Using Homogenization Theory

----- Lunch -----

14:00 P005

Chairman: S. Stupkiewicz

J. Molinari, R. Aghababei, L. Frérot, E. Milanese and T. Brink

Numerical Modeling of Adhesive Wear Across Scales

Session S02 - Part III

Chairman: A. Menzel

15:00 P057

M. Rezaee Hajidehi and S. Stupkiewicz

Micromorphic Model for Simulation of Lüders-Like Bands in SMAs

15:20 P228

J. Zhu, M. Ben Bettaieb and F. Abed-Meraim

Prediction of Localized Necking in Polycrystalline Aggregates Based on Periodic Homogenization

15:40 P138

C. Enzevae and H. Shodja

Propagation of Surface Waves in FCC Half-Spaces Within Surface Elasticity

16:00 P106

D. Jasińska

A Hypoelastic Constitutive Model for Graphene and Carbon Annotubes Based on Interatomic Interactions

Session S07 - Part II

Chairman: *H. Shodja*

10:00 P152 keynote

M. Banaszekwicz, W. Dudda and J. Badur

The Effect of Strength Differential on Material Effort of Steam Turbine Rotors Under Thermo-Mechanical Load

10:40 P276

P. Kwaśniak, J. Mizera and R. Pęcherski

Solid Solution Strengthening of Hexagonal Ti Alloys: Structures, Energies and Peierls Barriers of $\langle a \rangle$ Type Screw Dislocations Calculated from First Principles

11:00 P275

P. Kwaśniak, J. Mizera and R. Pęcherski

Stacking Faults in Hexagonal Ti Alloys - Local Instability of Crystal Lattice and Its Effect on Solution Strengthening

----- Coffee break -----

Session S07 - Part III

Chairman: *H. Shodja*

11:40 P229

K. Nalepka, K. Berent, M. Bieda, M. Strąg, P. Nalepka and K. Sztwiertnia

Strategy for Creating Bio-Composites with Unique Mechanical Properties

12:00 P125

W. Bielski, P. Kowalczyk and R. Wojnar

Thermal Stresses and Two Temperature Heat Transfer

12:20 P011

G. Avalishvili and M. Avalishvili

Analysis of Static and Dynamical Three-Dimensional Models of Thermoelastic Piezoelectric Solids

12:40 P100

P. Ziółkowski, J. Badur, M. Stajnke, P. Jóźwik and Z. Bojar

Surface Effects in Shear Stress Enhancement Due to Micro or Nanoflows as Analogy for Increased Rate of Reaction Due to Catalytic Properties in Ni_3Al

----- Lunch -----

15:00 P236 keynote

W. Larecki

Role of Nonlinearity of the Phonon Dispersion Relation in the Wave-Type Phonon Heat Transport

15:40 P283

R. Wojnar

Movement of Coincidence Grain Boundaries with Sigma from Isotropy to Anisotropy

16:00 P093

A. Szekeres and M.T. Raza

Temperature Sensitive Brittle Coating (TSBC) - as a Perfect Example on the Symbiosis Between Theory and Practice

Session S15 - Part II

Chairman: C. Graczykowski

10:00 P059

P. Brzeski and P. Perlikowski

Effects of Nonlinearities in Inerter on the Performance of Tuned Mass Damper

10:20 P284

M. Lazarek, P. Brzeski and P. Perlikowski

Inerter with Continuously Variable Transmission for Tuned Mass Damper Application

10:40 P197

B. Poplawski, G. Mikułowski, R. Wiszowaty and Ł. Jankowski

Semi-Active Mitigation of Externally Induced Vibrations

11:00 P224

R. Faraj, C. Graczykowski and J. Holnicki-Szulc

Investigations on Shock-Absorbers for Small Airdrop Systems

----- Coffee break -----

Session S15 - Part III

Chairman: P. Perlikowski

11:40 P035

I. Maciejewski and T. Krzyżyński

Computational Method for Shaping the Vibro-Isolation Properties of Semi-Active and Active Systems

12:00 P226

M. Gawlicki and Ł. Jankowski

Identification of a Load Moving on a Plate Using the l_1 Norm Minimization

12:20 P235

K. Mnich, P. Brzeski, M. Lazarek and P. Perlikowski

Determination of Properties of a Tuned Mass Absorbers Using a Basin Stability Method

12:40 P136

M. Ostrowski, B. Blachowski, L. Jankowski and D. Pisarski

Semi-Active Control of Mechanical Energy Transport Between Vibrational Modes

----- Lunch -----

Session S10 - Part I

Chairman: Z. Mróz

15:00 P279 keynote

G. Viggiani, M. Wiebicke, E. Ando and I. Herle

How Well Can We Measure the Evolution of Sand Micro-Structure?

15:40 P030 keynote

M. Krzaczek, J. Kozicki and J. Teichman

Coupled Approach DEM/CFD for Modelling Hydraulic Fracking Process in Rocks

Session S12 - Part III

Chairman: A. John

10:00 P169

M. Malinowski, A. Kaczmarek-Pawelska, A. Mackiewicz, R. Rudyk, A. Noszczyk-Nowak, J. Madej, J. Skonieczna and R. Będziński
Numerical Models of the Urethral Lower Duct

10:20 P177

T. Klekiel, K. Arkusz and R. Bedzinski
Numerical Analysis of Fracture Mechanism of Pelvic Ring During Side Impact Load

10:40 P232

S.E. Martinez Choy, K. Schweizerhof, J. Lenz and H.J. Schindler
Behavior of the Periodontium Under Loading Using a Kinetic Model of the Masticatory System

11:00 P222

A. Piasecka-Belkhat and B. Mochnacki
Numerical Modelling of Heat Transfer in Biological Tissue Domain Using Interval Analysis

----- Coffee break -----

Session S18 - Part I

Chairman: I. Kreja

11:40 P156 keynote

J. Hohe, M. Gall and Z.M. Abdul Hamid
A Fatigue Damage Degradation Model for CFRP Materials

12:20 P102

V. Mochalova, A. Utkin, M. Endres and D. Hoffmann
Investigation of Shock Wave Compressibility of Textolite for Experiments at PRIOR

12:40 P185

M. Lavrenčič, B. Brank and M. Brojan
Wrinkling Pattern Transition of Axially Compressed Bilayered Cylindrical Composites

----- Lunch -----

15:00 P245

M. Brojan, T. Veldin and B. Brank

Finite Element Based on a Reduced Kirchhoff-Love Shell Model for Simulation of Soft Bilayers

15:20 P159

G. Mejak

Effective Properties of Materials with Periodic Thin Walled Cubic Microstructure

15:40 P168

S. Karczmarzyk

An Efficient Nonlocal Model for Preliminary Design of Sandwich Rectangular Plate with Laminated Facings

16:00 P198

Ł. Smakosz and I. Kreja

Differences in Compressive and Tensile Properties of Core and Facings in Sandwich Panels

Session S16 - Part II

Chairman: *B. Brank*

10:00 P211

V. Eremeyev and W. Pietraszkiewicz

On Non-Linear Resultant Theory of Shells Accounting for
Thermodiffusion

10:20 P145

S. Zhavoronok

On the Use of Various Formulations of the Extended Higher-Order Shell
Theory in Dynamic Problems for Functionally Graded Structures

10:40 P079

N. Chinchaladze

Existence and Uniqueness Theorems for Cusped Porous Elastic
Prismatic Shells in the Zero Approximation of the Hierarchical Models

11:00 P241

R. Winkler

The Interrelation of Statically Exact and Conventional Shell Theories

----- Coffee break -----

Session S16 - Part III

Chairman: *F. Gruttmann*

11:40 P205

V. Eremeyev and V. Konopińska-Zmysłowska

On Bending of a Two-Phase Plate

12:00 P127

N. Lokteva and D. Tarlakovskii

Determination of Vibrations in an Elastic Medium After the Passage of a
Spherical Wave Through a Vibration-Absorbing Plate

12:20 P022

S. Fialko and V. Karpilowskyi

Nonlinear Analysis of Reinforced Concrete Construction's Fragments in
Scad Software

12:40 P243

J. Chróścielewski, V. Eremeyev and R. Schmidt

Nonlinear FEA of Vibration Control of Piezoelectric Rod-type Structural
Members

----- Lunch -----

15:00 P293

S. Burzyński, J. Chróścielewski, K. Daszkiewicz and W. Witkowski

Modified TTO Law for Material Mixtures with Application to 6-Parameter Nonlinear Shell Analysis

15:20 P074

P. Świątkiewicz and Z. Więckowski

Kirchhoff's Plate Bending Analysis by Equilibrium Finite Element Method

15:40 P285

P. Obara and W. Gilewski

Discrete and Equivalent 6-Parameter Shell Approach to Simulate Mechanical Behavior of Tensegrity Lattices

16:00 P163

S. Burzyński, J. Chróścielewski, K. Daszkiewicz and W. Witkowski

A Robust Semi-Mixed 4-Node Shell Elements with Assumed Asymmetric Strains and Stress Resultants

09:00 P006

Chairman: Z. Mróz

D. Gawin, M. Koniorczyk and F. Pesavento

Application of Multiphase Porous Media Mechanics for Assessment of Building Materials Durability

Session S02 - Part IV

Chairman: S. Stupkiewicz

10:00 P013

A. Piasecka-Belkhat and A. Korczak

Application of the Fuzzy Lattice Boltzmann Method for a Numerical Modelling of 2d Thin Metal Films Irradiated by Ultrashort Laser Pulses

10:20 P048

G.L. Klimchitskaya, V.M. Mostepanenko and V.M. Petrov

The Casimir Force as a Driver in Micromechanics

10:40 P264

E.R.F. de Souza Campos, R. Desmorat and L. Malcher

Modelling Kinematic Hardening for Progressive Mean Stress Relaxation in Plasticity

----- Lunch -----

10:00 P084

B. Misztal-Faraj, L. Jarecki and R.B. Pęcherski

Kinetic Model of Polymer Crystallization Under High Tensile Stress or Molecular Orientation

10:20 P026

P. Bajerski, R.B. Pęcherski, D. Chudy and L. Jarecki

Crystallization Kinetics of Polyamide 2200 in the Modeling of Additive Manufacturing Process by FE Analyses

10:40 P027

P. Bajerski, R. Pęcherski and D. Chudy

Virtual Additive Manufacturing Based on Semicrystalline Polymer Polyetheretherketone (PEEK)

11:00 P103

J. Badur, P. Ziółkowski and D. Sławiński

Natanson's Nonlinear Extended Thermodynamics

----- Lunch -----

10:00 P101

L. Morland and R. Staroszczyk

The Viscous Relation for the Initial Isotropic Response of Ice in Ice-Sheet Flow

10:20 P045

R. Staroszczyk

Modelling of Sea-Ice Pack Thermodynamics by the Smoothed Particle Hydrodynamics Method

10:40 P272

K. Wawrzyk, P. Kowalczyk, J. Rojek and S. Nosewicz

A Numerical Model of Sintering Processes at Macroscopic Level

11:00 P053

J. Gontarz, J. Podgórski, J. Jonak, M. Kalita and M. Siegmund

Comparison Between Numerical Analysis and Actual Results for a Pull-Out Test

11:20 P111

X. Zheng, M. Rodriguez, K. Zhang and L. Li

Effect of Soil Consolidation on the Stress and Deformation of Pipeline in Muskeg

11:40 P083

M. Cieszko

Fundamentals of Geometrical and Physical Concept of Pore Space Tortuosity

----- Lunch -----

10:00 P020

C. Hsu and C. Hwu

Boundary Element Analysis for Unsymmetric Composite Laminates with Elastic Inclusions

10:20 P161

D. Yarimpabuc, M. Eker, K. Celebi and A. Yildirim

Transient Thermal Stresses in a Functionally Graded Cylinder by Pseudospectral Chebyshev Method

10:40 P191

D. Szubartowski, S. Hernik and A. Ganczarski

FEM Modeling of FGM Thermo-Mechanical Cylinder

----- Lunch -----

10:00 P296

R. Iwankiewicz and Z. Kotulski

Research Activity of the Late Professor Kazimierz Sobczyk (1939-2017)

10:20 P124

H. Weber, R. Iwankiewicz and S. Kaczmarczyk

Equivalent Linearization Technique in Nonlinear Stochastic Dynamics of a Cable-Mass System with Time-Varying Length

10:40 P098

G. Er and V.P. Lu

Probabilistic Solutions of the Stretched Beam Systems Formulated by Finite Difference Scheme and Excited by Filtered Gaussian White Noise

11:00 P174

G. Falsone and R. Laudani

An APDM+PTM Approach for Evaluating the Response PDF of Uncertain Structural Systems

----- Lunch -----

16:40 P076

P. Tazowski, B. Blachowski and J. Lógó

Functor-Oriented Finite Element Programming with Application to Structural Topology Optimization

16:40 P091

Y. Dohi, Y. Otsuka, M. Inose, N. Suda and S. Arikawa

A Novel Approach for Measurement of Elastic Modulus of Trabecular Bone in Mandible

16:40 P095

R. Grzejda

Study of the Distribution of Normal Contact Pressure Between Elements Joined in a Multi-Bolted System Under Operational Loads

16:40 P109

J. Kisilowski and R. Kowalik

Equations of Motion and Vibration of a Switch Point - a Curved Beam with a Variable Cross-Section

16:40 P113

E. Bura and A. Seweryn

Experimental and Numerical Investigation of Mode I Fracture in Plate PMMA Samples with Notches

16:40 P122

M. Paruch

Sensitivity Analysis of Biological Tissue Damage with Respect to the Parameters of the Hyperthermia Process

16:40 P129

T. Tateno, K. Takeuchi and Y. Yaguchi

Wire Reinforced Composite Material for Additive Manufacturing

16:40 P130

B. Blostotsky and E. Efrain

Method for Measuring Critical Buckling Load of Cantilever Columns

16:40 P153

E. Idczak and T. Stręk

Topology Optimization of Auxetic Materials

16:40 P154

**A. Mackiewicz, A. Kaczmarek-Pawelska, M. Malinowski,
A. Noszczyk-Nowak, J. Skonieczna, J. Madej and R. Będziński**

Biomechanical Investigation of Intact and Inflammation of the New Zealand White Rabbits Urethra

16:40 P180

P. Sulich, H. Egner and W. Egner

Cyclic Softening of P91 Steel During Thermomechanical Low-Cycle Fatigue Tests

16:40 P201

T. Matsuo and D. Hatanaka

Development of Non-Contact Fatigue Crack Propagation Monitoring Method Using Air-Coupled Acoustic Emission System

16:40 P212

D. Miedzińska, M. Stankiewicz, R. Gieleta and K. Marszałek

Research on Influence of TiSi(N) Reflective Coating Thermal Resistance on Energy Absorption of Fireproof Textile Coupled with Auxetic Fabric

16:40 P230

M. Major, I. Major and K. Kuliński

Numerical Comparative Analysis of Stress Distribution for Different Shapes of Spread Footing Foundations

16:40 P231

I. Major, M. Major and K. Kuliński

The Influence of High Tensile Bolts Stiffening on Coupled Connection Behavior

16:40 P253

G. Sławiński, M. Świerczewski and P. Malesa

Modelling of the Phenomenon of an Explosion Under the Inner Wheel Arch of the Light Armoured Vehicle

16:40 P261

F. Benmessaoud, M. Cheikh, V. Velay, V. Vidal, C. Boher and F. Rezai-Aria

The Effect of Hall-Petch Relationship on Multi-Scale Numerical Simulation of Mechanical Behaviour of Ti-6Al-4v Polycrystalline

16:40 P262

M. Graba

Characterization of the Stress Fields Near Crack Tip for Compact Specimen for Elastic-Plastic Materials in Plane Strain State Domination

16:40 P266

J. Kozuba and R. Wieszała

Selected Tribological Characteristics of A390.0 Alloy at Elevated Temperature Under Dry Friction Conditions

16:40 P281

M. Wyjadłowski and I. Bagińska

Reliability Analysis of Retaining Wall Using Seismic Cone Test Data

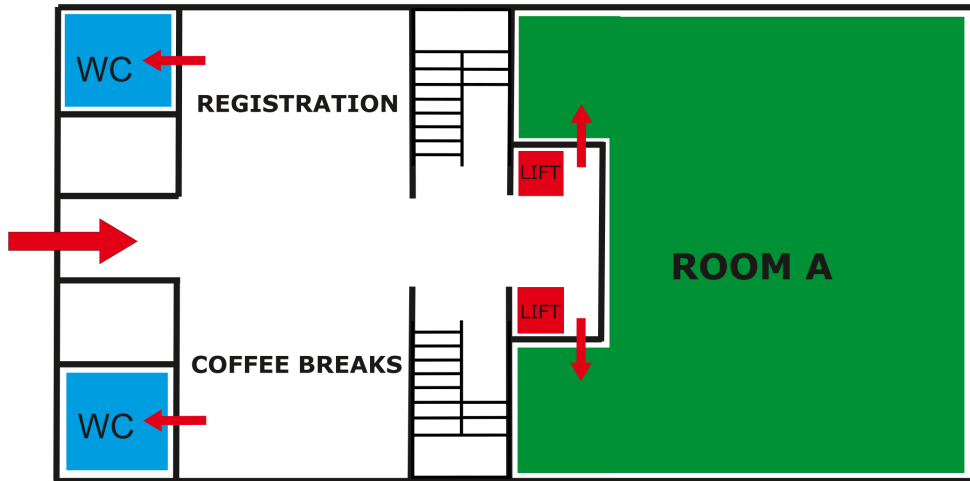
16:40 P292

S. Burzyński

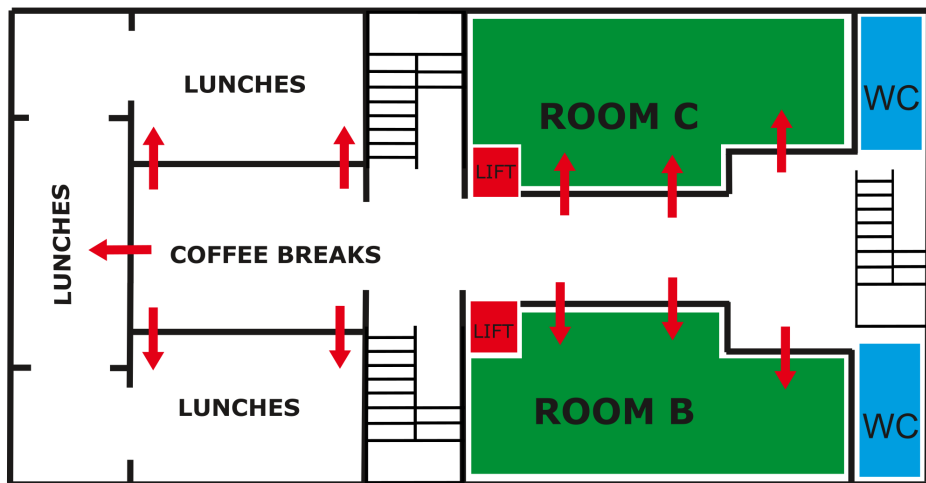
Strain Softening Cosserat Plasticity for FGM Shells in Nonlinear 6-Parameter Shell Theory

Layout of the conference building

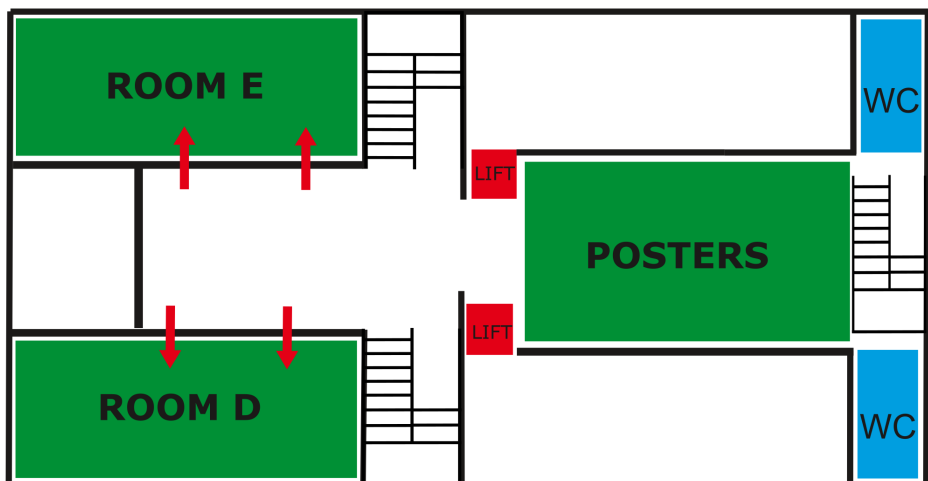
Ground floor



1st floor



2nd floor





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