

**INSTITUTE OF FUNDAMENTAL
TECHNOLOGICAL RESEARCH
and
COMMITTEE ON MECHANICS
Polish Academy of Sciences**

**40th SOLID MECHANICS
CONFERENCE**



Warsaw, Poland
29.08 - 2.09 2016

Conference programme

		ROOM A	ROOM B	ROOM C	ROOM D	ROOM E	
Tuesday, 30.08	08:00	Registration					POSTERS ON BOARD
	09:00	Opening					
	10:00	Plenary lecture	Z. Bazant				
	11:00	Coffee break					
	11:20	S1	P182	P158	P047	P256	
	11:40	P209	P188	keynote	keynote	keynote	
	12:00	P059	P164	P088	P018	P031	
	12:20	P069	keynote	P144	P155	P145	
	12:40	Lunch					
	13:40	Plenary lecture	A. Rusinek				
	14:40	P146	P055	P104	P126	P015	
	15:00	P132	P007	P255	keynote	P181	
	15:20	P215	P074	P087	P151	P131	
	15:40	P212	P163	P045	P199	P113	
	16:00	Coffee break					
	16:20	Plenary lecture	W. Wagner				
	17:20	P105	P187	P168	P008	P082	
	17:40	P051	P240	P222	P096	P156	
18:00	P053	P221	P052	P130	P026		
18:20	P129	P229	P084	P072	P046		
18:40		P231					
Wednesday, 31.08	09:00	Plenary lecture	I. Romero				POSTERS ON BOARD
	10:00	S2	P049	P108	P061	P073	
	10:20	P239	P060	keynote	P103	keynote	
	10:40	keynote	P230	P137	P134	P042	
	11:00	P094	P244	P004	P241	P122	
	11:20	Coffee break					
	11:40	P234	P223	P041	P085	P043	
	12:00	keynote	P184	P075	P044	P077	
	12:20	P253	P180	P090	P179	P218	
	12:40	keynote	P173	P023	P219	P100	
	13:00	Coffee break					
	13:20	Concert					
	14:00	Lunch					
	15:00	Plenary lecture	D. Bigoni				
	16:00	P050	P001	P172	P071	P030	
16:20	P119	P009	P054	P078	P141		
16:40	P152	P027	P038	P081	P083		
17:00	P174	P205	P228	P086	P127		
17:20	P177			P099			

Thursday, 1.09	09:00	Plenary lecture	T. Lewiński				POSTERS ON BOARD
	10:00	P021	P039	P242	P169	P162	
	10:20	keynote	P095	keynote	keynote	keynote	
	10:40	P002	P237	P014	P166	P136	
	11:00	keynote	P089	P064	P070	P076	
	11:20	Coffee break					
	11:40	POSTER SESSION					
	12:40	P202	P058	P161	P227	P066	
	13:00	P191	P185	keynote	keynote	P024	
	13:20	P159	P091	P165	P109	P147	
	13:40	P211	P106	P057	P114	P167	
	14:00	P236	P102	P208	P198	P203	
	14:20	Lunch					
	16:30	Żelazowa Wola departure					
	Friday, 2.09	09:00	Plenary lecture	K. Kowalczyk – Gajewska			
10:00		P056	P150	P040	P035	P216	
10:20		P118	keynote	keynote	P143	keynote	
10:40		P121	P110	P245	P246	P157	
11:00		P178	P080	P226	P247	P079	
11:20		Coffee break					
11:40		P160	P139	P065		P048	
12:00		P193	P116	P194		P063	
12:20		P210	P192	P189		P117	
12:40		Lunch					

Thematic Sessions

Biomechanics
Computational Aspects of Solid Mechanics, Fracture and Damage
Elasticity, Plasticity and Phase Transition
Experimental Mechanics
Geomechanics and Multiscale Modelling of Materials
Plates and Shells: Classical and Non-classical Models
Smart Materials and Structures
Stochastic Phenomena and Dynamics Inspired Methods in Neuroinformatics and Systems Biology
Structural Mechanics and Optimization
plenary: 45+15 min, keynote: 30+10 min, normal: 15+5 min

About SolMech

The series of Solid Mechanics Conferences have been organized by the Institute of Fundamental Technological Research since 1953. The conferences have maintained high scientific standard and served as a forum for exchange of ideas and research information. Traditionally a set of invited lectures have been presented at the Conferences by outstanding researchers. The aim of the Conference is to bring together the researches from different countries and to create them the possibilities for the presentation of scientific results from a wide area of solid mechanics.

Organizing Committee

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Conference Venue

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

Social Events

- Welcome reception – Monday, August 28, 17:00
Main Hall of the Old Library of Warsaw University
- Concert, Wednesday, August 31, 13:20
Room A of the Old Library of Warsaw University
- Concert and Gala Dinner in Żelazowa Wola
Thursday, September 1, departure 16:30

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Invited Plenary Lectures

Zděnek Bažant, USA

Probabilistic nano-mechanics based finite weakest-link model for quasibrittle structure strength, size effect, lifetime and fatigue

Davide Bigoni, Italy

Folding and faulting instabilities in extreme elastic solids

Katarzyna Kowalczyk-Gajewska, Poland

Modelling of microstructure evolution in metals and alloys of high specific strength

Tomasz Lewiński, Poland

Optimization of structural topology

Ignacio Romero, Spain

A model for the multiscale simulation of thermo-chemo-mechanical problems

Alexis Rusinek, France

Discussion about dynamic behaviour of materials and structures

Werner Wagner, Germany

Multiscale methods for shell and plate structures - theory and applications

Thematic Sessions and Chairmen

Biomechanics

R. Będziński (Poland), A. John (Poland) and
T. Lekszycki (Poland)

Computational Aspects of Solid Mechanics, Fracture and Damage

T. Burczyński (Poland) and E. Oñate (Spain)

Elasticity, Plasticity and Phase Transition

(Special session commemorating professor)

(Bogdan Raniecki)

D. Bigoni (Italy), Ch. Lexcellent (France) and
H. Petryk (Poland)

Experimental Mechanics

Z. Kowalewski (Poland) and A. Rusinek (France)

Geomechanics and Multiscale Modelling of Materials

(Special session devoted to the anniversary of)

(professor Zenon Mróz)

S. Pietruszczak (Canada), J. Rojek (Poland),
S. Stupkiewicz (Poland) and J. Tejchman (Poland)

Plates and Shells: Classical and Non-classical Models

J. Chróścielewski (Poland), V. Eremeyev (Russia),
W. Wagner (Germany) and K. Wiśniewski (Poland)

Smart Materials and Structures

E. Pieczyska (Poland) and H. Tobushi (Japan)

Stochastic Phenomena and Dynamics Inspired Methods in Neuroinformatics and Systems Biology

R. Iwankiewicz (Germany), Z. Kotulski (Poland),
E. Postek (Poland) and J. Szczepański (Poland),

Structural Mechanics and Optimization

T. Lewiński (Poland) and P. Kowalczyk (Poland)

10:00

Z. Bažant

Probabilistic Nano-Mechanics Based Finite Weakest-Link Model for Quasibrittle Structure Strength, Size Effect, Lifetime and Fatigue

Session 1

11:20 S1

Z. Mróz

Contribution of Prof. B. Raniecki to Nonlinear Mechanics of Solids

11:40 P209

Ch. Lexcellent

Review of Phase Transformation Surfaces Around a Crack Tip for Shape Memory Alloys

12:00 P059

K. Takeda, R. Matsui, H. Tobushi and E.A. Pieczyska

Subloop Deformation of Shape Memory Alloy

12:20 P069

K. Tůma, S. Stupkiewicz and H. Petryk

The Effect of Twin Spacing on the Morphology of Austenite-Twinned Martensite Interface

13:40

A. Rusinek

Discussion About Dynamic Behaviour of Materials and Structures

Session 2

14:40 P146

R. Denzer

A Phase-Field Approach for Liquid to Solid Phase Transformation for Binary Ni-Cu Alloy

15:00 P132

B. Skoczeń

Coupled Strain Induced Phenomena in Ductile Materials at Extremely Low Temperatures

Session 2 cd

15:20 P215

H. Petryk and S. Stupkiewicz

A Simple Approach to Boundary-Layer and Size Effects in Gradient-Enhanced Crystal Plasticity

15:40 P212

M. Lewandowski and S. Stupkiewicz

A Study of Rate-Dependent and Rate-Independent Regularization of Crystal Plasticity at Finite Strains

16:20

W. Wagner

Multiscale Methods for Shell and Plate Structures - Theory and Applications

Plenary lecture

Session 3

17:20 P105

R. Bustamante

Implicit Constitutive Relations for Thermoelastic Bodies

17:40 P051

V. Sadovskii

On Thermodynamically Consistent Form of Nonlinear Equations of the Cosserat Theory

18:00 P053

**S.N. Korobeynikov, A.Y. Larichkin,
T.A. Rotanova and A.A. Oleinikov**

Lagrangian Formulation of Hencky's Hyperelastic Material Model: Theory, Experiment, and Computer Simulation

18:20 P129

I.Yu. Zubko

Material Spin and Finite Hypo-Elasticity for Two-Dimensional Orthotropic Media

Elasticity, Plasticity and Phase Transition

Session 1

11:20 P182

M.S. Chaudhry and A. Czekanski

Effect of FDM Process Parameters on Mechanical Properties of Thermoplastic Elastomer Subject to High-Strain Rates

11:40 P188

W. Moćko, P. Grzywna, Z.L. Kowalewski and J. Radziejewska

Constitutive Behaviour of DP500 Steel Exposed to Prior Cyclic Loadings

12:00 P164 keynote

N.D. Alexopoulos, A. Proiou, S.K. Kourkoulis, S. Riekehr and N. Kashaev

The Effect of Artificial Ageing Heat Treatments on the Corrosion Resistance of 2198 (Al-Cu-Li) Aluminium Alloy

Session 2

14:40 P055

M.Z. Kabir, A.E. Seyf

Special Design and Production of Fixture to Measure the Symmetric and Anti-Symmetric Tensile Buckling Load of the Notched Thin Plates

15:00 P007

J. Szafran

From Full-Scale Testing of Steel Lattice Towers to Stochastic Reliability Analysis

15:20 P074

P. Bajerski and R.B. Peçherski

Influence of Additive Manufacturing Technology on Mechanical Properties of Glass-Filled Fine Polyamide PA3200 GF

15:40 P163

N. Alexopoulos, Z. Paragkamian, S.K. Kourkoulis and P. Poulin

Tensile and Fracture Toughness Enhancement of Epoxy Resin Reinforced with Graphene Nanoplatelets

Session 3

17:20 P187

**A.M. Stręk, K. Wańczyk, B. Lipowska, P. Kasza
and R.B. Pęcherski**

Compression of Aluminum Sponge

17:40 P240

K. Makowska and Z.L. Kowalewski

Barkhausen Noise and Magnetoacoustic Emission
as a Potential Tools for Mechanical Properties
Estimation of Ferromagnetic Materials

18:00 P221

**A. Kwiecień, M. Gams, T. Rousakis and
A. Viskovic**

Use of Deformable Polymers Between RC Frames
and Masonry Infills for Improved Seismic
Performance

18:20 P229

D.M. Jarząbek and M. Chmielewski

The Measurement of the Adhesion Force Between
Ceramic Particles and Metal Matrix in Ceramic
Reinforced-Metal Matrix Composites

18:40 P231

W. Dera, C. Dziekoński and D.M. Jarząbek

The Measurement of Viscosity of Thin Polymer
Films

Session 1

11:20 P158 keynote

M. Gilbert, L. He, C.J. Smith and T. Johnson

Layout Optimization in Structural Analysis & Design: Recent Developments

12:00 P088

M. Nowak, W. Gnarowski and P. Abratowski

Structural Optimization of Helicopter Air-Landing Rope Console with Multiple Loading Conditions

12:20 P144

B. Bochenek and M. Mazur

A Novel Heuristic Algorithm for Minimum Compliance Topology Optimization

Session 2

14:40 P104

B. Bochenek and K. Tajs-Zielińska

Efficient Generator of Structural Topologies Based on Irregular Cellular Automata

15:00 P255

W. Szteleblak

Generalized Topology Optimization of Shallow Shells

15:20 P087

R. Kutylowski and M. Szwechłowicz

Thighbone-Implant Interaction - Topology Optimization Analysis

15:40 P045

E. Šamec, K. Fresl and M. Baniček

Iterative Application of the Force Density Method

Session 3

17:20 P168

A. Pichugin, A. Tyas and M. Gilbert

Few Observations on the Optimal Configuration of Some Common Types of Bridges

17:40 P222

T. Sokół and T. Lewiński

Solution of the Three Force Problem in a Case of Two Forces Being Mutually Orthogonal

18:00 P052

M. Shimoda, K. Kameyama and J.X. Shi

Parameter-Free Shape-Size Optimization for Deformation Tailoring of a Frame Structure

18:20 P084

Z. Bieniek

Self-Equilibrium Geometry of the Class-Theta Tetrahedral Tensegrity Module

Session 1

11:20 P047 keynote

E. Majchrzak and G. Kałuża

Analysis of Thermal Processes Occuring in the Heated Multilayered Metal Films Using the Dual-Phase Lag Model

12:00 P018

H.M. Shodja and M.R Delfani

Capturement of the Nanoscopic Morphological Parameters in Chiral SWCNT's via a Well-Posed Continuum Model

12:20 P155

A. Uściłowska and M. Chudzicka-Adamczak

Collation of Thermal Imaging and Computer Simulations Using Method of Fundamental Solutions for Building Envelopes

Session 2

14:40 P126 keynote

M. Nitka, J. Suchorzewski and J. Tejchman

Effect of Aggregate Shape on Concrete Fracture During Compression and Bending in DEM Calculations

15:20 P151

M. Ostaszewska, J. Suchorzewski, E. Korol, J. Tejchman and Z. Mróz

Numerical and Experimental Investigations of Size Effect in Rainforced Concrete Beams Scaled in One Direction

15:40 P199

G. Vadillo, J. Reboul and J. Fernández-Sáez

A Modified Gurson Model to Account for the Influence of the Lode Parameter at High Triaxialities

Session 3

17:20 P008

A. Kaczyński

Thermal Stresses in an Elastic Isotropic Space
with an Anticrack Under Symmetric Temperature Loads

17:40 P096

J. Jaśkowiec

Very High-Order Elements in Thermal and
Mechanical Problems

18:00 P130

G. Dziatkiewicz

Complex Variable Step Method for Derivative
Computation of Green's Functions in 3D
Magneto-Electro-Elasticity

18:20 P072

A. Długosz

Multiobjective Optimization in Two-Scale
Thermoelastic Problems for Porous Solids

Session 1

11:20 P256 keynote

W. Witkowski

Selected Topics of Implementation of the Nonlinear 6-Parameter Shell Theory

12:00 P031

N. Chinchaladze and G. Jaiani

Antiplane Strain (Shear) of Orthotropic Non-Homogeneous Prismatic Shell-Like Bodies

12:20 P145

S.I. Zhavoronok

On the Variational Formulaton of the Extended High-Order Shell Theory of I. N. Vekua Type

Session 2

14:40 P015

N.F. Morozov, P.E. Tovstik and T.P. Tovstik

Multyilayer Plate Bending Model with Application to a Nano-Plate Bending and Free Vibrations

15:00 P181

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

Elastoplastic Analysis of Functionally Graded Shells in Nonlinear 6 Parameter Shell Theory

15:20 P131

M.R. Moeini, M. Salehi and M. Yarmohammadi

Dynamic Behavior of Composite Laminated Plate with Eco-Friendly Matrix and Natural Fibers and Bio-Inspired Stacking

15:40 P113

A. Al Sabouni-Zawadzka, J. Kłosowska, P. Obara and W. Gilewski

Continuum Model of Orthotropic Tensegrity Plate-Like Structures with Self-Stress Included

Session 3

17:20 P082

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

Pucks Criterion - Nonlinear 6 Parameter Shell Theory Approach

17:40 P156

A.P. Kerzhaev, M.D. Kovalenko and I.V. Menshova

On the Analytical Solutions of Boundary Value Problems of the Elasticity Theory for Finite Domains with the Angular Points of a Boundary and the Changing Points of the Type of Boundary Conditions

18:00 P026

D. Pawlus

Evaluation of Critical Loads of Three-Layered Annular Plates with Damaged Composite Facings

18:20 P046

F. Zakeś

Vibrations of Point Supported Rectangular Thin Plates Subjected to a Moving Force

09:00

I. Romero

A Model for the Multiscale Simulation of Thermo-Chemo-Mechanical Problems

Session 1

10:00 S2

S. Stupkiewicz

On Contributions of Professor Zenon Mróz to Solid Mechanics

10:20 P239 keynote

T. Wierzbicki, E. Sahraei and J. Zhu

The Mechanics of Lithium-Ion Batteries

11:00 P094

J. Kozicki and J. Teichman

Effect of Grain Shape on Creation of Vortex/Anti-Vortex- Structures in Granular Bodies Using DEM

Session 2

11:40 P234 keynote

S. Pietruszczak

Modelling of Localized Damage Using an Enhanced Embedded Discontinuity Approach: an Overview

12:20 P253 keynote

T. Burczyński, A. Mrozek and W. Kuś

Computational Models of New Graphene-Like Nano-Structures

15:00

D. Bigoni

Folding and Faulting Instabilities in Extreme Elastic Solids

Plenary lecture

Session 3

16:00 P050

M. Klimczak and W. Cecot

Comparison of Two Methods for Numerical Upscaling

16:20 P119

W. Bielski and R. Wojnar

Brinkman's Flow Through Porous Elastic Media: an Asymptotic Approach

16:40 P152

W. Beluch and M. Hałas

Multiscale Identification of Parameters of Inhomogeneous Materials by Means of Global Optimization Methods

17:00 P174

M. Wojciechowski and M. Lefik

Optimal Boundary Conditions and RVE of Arbitrary Shape for Computational Homogenization of Disordered Media

17:20 P177

M. Lefik and D.P. Boso

Identification of Parameters of Adsorption by Approximation of Inverse Relation and Using Artificial Neural Networks

Geomechanics and Multiscale Modelling of Materials

Session 4

10:00 P049

H. Zarrinzadeh, M.Z. Kabir and A. Deylami

Experimental and Numerical Fatigue Crack Growth of an Aluminum Pipe Under Mixed Mode Fracture Condition

10:20 P060

K. Takeda, R. Matsui, H. Tobushi and K. Hattori

Influence of Ultrasonic-Shot Peening on Fatigue Life of Tini Shape Memory Alloy

10:40 P230

C. Dziekoński, W. Dera, L. Fraś and D.M. Jarzabek

Precise Force Sensors for Micro and Nanotensile Tests

11:00 P244

L.J. Fraś, D. Jarzabek, C. Dziekoński and R.B. Pęcherski

Viscoplastic Deformation of Magnethoreological Solids

Session 4

11:40 P223

L. Rauch, K. Perzyński, L. Madej, K. Bzowski and M. Pietrzyk

The Strategy for Efficient Modelling of Phase Transformations in Materials Processing

12:00 P184

A. Uściłowska

The Computer Simulation of Some Metal Forming Processes - Numerical Experiment Based on FEM and MFS

12:20 P180

M. Kursa and H. Petryk

Algorithm for Rate-Independent Plasticity of Single Crystals Based on Incremental Work Minimization

12:40 P173

B. Wcisło, J. Pamin and A. Menzel

Simulations of Thermal Softening in Large Strain Thermoplasticity with Degradation

Session 5

16:00 P001

Yu.M. Grigoriev

Regularized Analytical Solution of Cauchy Problem for Elastic Rectangle

16:20 P009

D.R Mcarthur and L.J. Sudak

A Circular Inclusion with Inhomogeneous Rough Imperfect Interface in Harmonic Materials

16:40 P027

F. Ojaghnezhad and H.M. Shodja

Effective Elastic Constants and Surface Characteristics of Films with Nanometric Thickness

17:00 P205

A.R. Shahmohamadi, M. Salehi, M. Sadighi and S. Saber-Samandari

Improving Mechanical Properties of Composites by Nanoparticles Using a Three Dimensional Model

Session 4

10:00 P108 keynote

B. Poplawski, G. Mikułowski and Ł. Jankowski

On-Off Damping of Free Vibrations and Optimum Actuator Placement

10:40 P137

R Rafiee, M. Moradi and M. Khanpour

Analyzing Structural Behavior of a Composite Wind Turbine Blade Using Simplified Modeling

11:00 P004

R. Steinbuch

Improving the Earthquake Response of High Buildings by Bionically Optimized Passive Tuned Mass Dampers

Session 5

11:40 P041

I. Goda, J.F. Ganghoffer and T. Lewiński

Evolutionary and Topology Optimization Based Algorithms for Bone External and Internal Remodeling

12:00 P075

T. Łukasiak

Two-Phase Isotropic Composites of Extremal Moduli. The Inverse Homogenization Problem

12:20 P090

G. Dzierżanowski

Inverse Homogenization in Isotropic Material Design

12:40 P023

X. Chen and S.A. Meguid

Stability Analysis of Thermally and Electrically Actuated Functionally Graded Material Microbeam

Session 6

16:00 P172

J. Pozorska and Z. Pozorski

On Face Layer Wrinkling in Sandwich Structures with an Orthotropic Core

16:20 P054

R. Idzikowski and P. Śniady

System of Coupled Beams as a Model of Timber Face Sheets Sandwich Beam - Experimental Verification

16:40 P038

I. Paczelt, Z. Mróz, S. Kucharski and A. Baksa

Analysis of Wear Processes for Monotonic or Periodic Sliding and Loading Conditions

17:00 P228

L. Wittenbeck

Optimal Design of Pressure Vessel Head

Session 4

10:00 P061

S. Hirobe and K. Oguni

Modeling and Numerical Analysis Methods for the Desiccation Cracks

10:20 P103

J. Lachowski and J. Borowiecka-Jamrozek

Mathematical Model of Diamond Particle in Metallic Matrix

10:40 P134

J. Reboul and G. Vadillo

Extended Gurson-Type Yield Criteria for Strain Rate Sensitive Materials

11:00 P241

M. Korobeynikova and S. Schmauder

The Influence of Graphene Slices on the Mechanical Properties of Mono- and Polycrystalline α - Iron

Session 5

11:40 P085

K. Nowak

Nonlocal Approach to Cafe Solution of Creep Crack Growth Problem

12:00 P044

W. Ogierman and G. Kokot

Pseudo-Grain Discretization in Homogenization of Misaligned, Inelastic Composites

12:20 P179

A. Urbaś, A. Jabłoński and J. Kłosiński

Application of the Lugre Friction Model in the Dynamics Analysis of a Truck-Mounted Crane with a Flexible Link.

12:40 P219

P. Dziejulski and S. Stanisławek

The Influence of Forming Process on Road Barrier Strength

Session 6

16:00 P071

P. Fedeliński

Effective Mechanical Properties of Materials with Branched and Intersecting Cracks

16:20 P078

Ł. Kaczmarczyk and Ch. Pearce

Implicit Analysis of Crack Propagation in Brittle 3D Solids

16:40 P081

E. Postek and T. Sadowski

A Crack Model Around Junctions in Wc\Co Composite

17:00 P086

T. Sadowski, L. Marsavina and E. Craciun

Cracking in 2-Phase Ceramic Matrix Composite Materials Under Uniaxial Quasi-Static Deformation

17:20 P099

M. Majewski, P. Hołobut, M. Kursa and K. Kowalczyk-Gajewska

Micromechanical Modelling of Packing and Size Effects in Particulate Elastic-Plastic Composites

Session 4

10:00 P073 keynote

V. Eremeyev, B. Sun, K.A. Lazopoulos and E.C. Aifantis

On Plates Models Based on Strain Gradient Elasticity

10:40 P042

S. Fialko

Triangular Flat Shell Finite Element for Analysis of Reinforced Concrete Thin-Walled Structures

11:00 P122

K. Wiśniewski and E. Turska

Recent Results on Nine-Node Shell Elements Using Two-Level Approximation of Strains

Session 5

11:40 P043

J.C.G. Verschaeve

A Web-Spline Solver for Plates Supported by an Arbitrary Stiffener Arrangement

12:00 P077

Ł. Kaczmarczyk and Ch. Pearce

Prism Solid-Shell Element with Hierarchical Approximation

12:20 P218

S. Burzyński

On Deformations of Geometrically Nonlinear 6-Parameter Stiffened Shells

12:40 P100

P. Jarzębski and K. Wiśniewski

Evaluation of Partial Factorization for Condensation of Shell and Solid-Shell Elemental Matrices

Session 6

16:00 P030

T. Okawa, S. Shimizu, S. Shimizu, G. Fujita and N. Tanaka

Study on the Vertical Buckling Collapse of I-Shaped Steel Girders

16:20 P141

W. Guggenberger and M.B. Tekleab

Buckling of Liquid-Filled Thin-Walled Conical Shells: a Long-Standing Puzzle Resolved

16:40 P083

M. Psotny and J. Havran

Stability Analysis of the Very Shallow Shell with Imperfection

17:00 P127

N. Kuczyńska, P. Hajko, M. Wójcik and J. Tejchman

Stability Analyses of Cylindrical Steel Silos with Corrugated Sheets and Columns Containing Bulk Solids

09:00

T. Lewiński

Optimization of Structural Topology

Session 4

10:00 P021 keynote

A.V. Manzhirov

Fundamentals of the Theory of Surface Growth with Applications to Geomechanics and AM Technologies

10:40 P002 keynote

V.N. Hakobyan

Periodic and Doubly Periodic Problems for Piecewise Space with Defects

Session 5

12:40 P202

A. Niemunis, C.G. Tavera, T. Wichtmann and T. Triantafyllidis

Modeling of Peak Stress Obliquity in Drained and Undrained Sands

13:00 P191

P. Hajko and J. Tejchman

Modelling of Granular Flow in Silo Within Non-Local Hypoplasticity Using Material Point Method

13:20 P159

M. Sobótka and C. Macheliski

Hysteretic Live Load Effect in Soil-Steel Structures

13:40 P211

I. Bagińska, M. Kawa and M. Wyjadłowski

The Reliability Analysis of Sheet Pile Wall Located in Soil with Random Parameters

14:00 P236

Z. Mróz, J. Tejchman and A. Bobiński

Extended Scale Effect Analysis Required for Structural Size and Shape Variation

Session 6

10:00 P039

M. Svanadze

Boundary Value Problems of Steady Vibrations in the Theory of Thermoelastic Double Porosity Materials

10:20 P095

P.B Béda

On Non-Local Materials, Internal Length and Fractional Calculus

10:40 P237

W. Sumelka, J. Fernández-Sáez and R. Zaera

On Dispersion Phenomena in the Framework of the Fractional Continuum Mechanics

11:00 P089

O. Sergushova

Asymptotic Formulae for the Lowest Natural Frequencies of Strongly Inhomogeneous Structures

Session 7

12:40 P058

K. Takeda, R. Matsui, H. Tobushi and S. Hayashi

Deformation Property of Functionally-Graded Shape Memory Polymer

13:00 P185

M. Smaga and T. Beck

Phase Transformation and Deformation Behaviour of Steels with Different Content of Metastable Austenite

13:20 P091

T. Wegner and D. Kurpisz

Construction of the Limit Surface for Nonlinear Elastic Material Under Complex Load State with Using the Energetic Criteria

13:40 P106

P. Sulich, W. Egner, S. Mroziński and H. Egner

Thermomechanical Fatigue of P91 Steel

14:00 P102

M. Banaszekiewicz, W. Radulski and K. Dominiczak

Numerical Modelling of Creep-Fatigue Damage Development in Steam Turbine Rotors Using Inelastic Material Models

Session 1

10:00 P242 keynote

T. Ikeda

Constitutive Model of Shape Memory Alloy for Cyclic Deformation Based on One-Dimensional Phase Transformation Model

10:40 P014

I. Ario, Y. Chikahiro, M. Nakazawa, J. Holnicki-Szulc, P. Pawłowski and C. Graczykowski

Structural Analysis of a Two-Unit of Scissors Structure

11:00 P064

T. Węgrzyn, J. Piwnik, Z. Stanik and W. Tarasiuk
Argon-Nitrogen Gas Mixtures for Micro-Jet Cooling After Steel Welding

Session 2

12:40 P161 keynote

R. Lammering and N. Rauter

Nonlinear Elastic Waves for Evaluation of Composite Material Deterioration

13:20 P165

T. Bartel, B. Kiefer, K. Buckmann and A. Menzel

A Variational Framework for the Modelling of Variant Switching and Reorientation in MSMA Using Energy Relaxation Methods

13:40 P057

K. Takeda, R. Matsui, H. Tobushi and E.A. Pieczyska

Design of Rotary Driving Actuator by Using Torsional Deformation of Sma Tapes

14:00 P208

K. Golasiński, E. Pieczyska, M. Staszczak, M. Maj, T. Furuta and S. Kuramoto

Thermomechanical Behavior of Gum Metal Under Cyclic Loading

Session 7

10:00 P169 keynote

B. Wcisło, M. Mucha, K. Kowalczyk-Gajewska and J. Pamin

Large Strain Thermo-Elasto-Plasticity:
Simulation of Shear Banding for Different Stress States

10:40 P166

J. Tabin, B. Skoczeń and J. Bielski

Damage Affected Discontinuous Plastic Flow

11:00 P070

P. Sadowski, K. Kowalczyk-Gajewska and S. Stupkiewicz

Efficient Algorithmic Treatment of the
Incremental Mori-Tanaka Scheme for Elasto-Plastic
Composites

Session 8

12:40 P227 keynote

**M. Wilkus, M. Kaszuba, Z. Gronostajski,
Ł. Rauch and M. Pietrzyk**

Accounting for Various Mechanism of Failure in
Modelling of Tool Wear in Hot Forging

13:20 P109

A. Sahakyan and N.N. Shavlakadze

The Contact Problem for Piecewise-Homogeneous
Elastic Plate Reinforced by Finite Elastic Stringer of
Variable Stiffness

13:40 P114

P. Pandi and G. Bolzon

A Numerical Investigation of the Influence of
the Material Microstructure on the Failure Mode of
Metal-Ceramic Composites

14:00 P198

Z. Poniżnik, Z. Nowak and M. Basista

Numerical Modeling of Fracture Toughness
of Metal-Ceramic Interpenetrating Phase
Composites with Account of Material Microstructure

Session 1

10:00 P162 keynote

V. Alekna, O. Ardatov, R. Kačianauskas, N. Kizilova, J. Simonovic, A. Trykozko and M. Tamulaitien

FEM-based Estimation of Mechanical Strength of Human Vertebrae as New Indicator of Bone Disease and Fracture

10:40 P136

T. Klekiel, R. Będziński and J. Wodzisławski

Modeling of Damping Properties of Articular Cartilage During Impact Load

11:00 P076

S.K. Kourkoulis and A. Mitousoudis

An Experimentally Validated Model for the Ilizarov Fixator Considering the Loss of Wire's Pretension

Session 2

12:40 P066

E. Bednarczyk and T. Lekszycki

Osteophytes Development During OA - Consideration Angiogenesis, Mechanical Loading and Tissue Microstructure

13:00 P024

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

A New Model of Bone Remodeling

13:20 P147

A. Maknickas, V. Alekna, O. Ardatov, N. Kizilova, M. Tamulaitien and R. Kačianauskas

Numerical Failure Study of Trabeculae in Osteoporotic Degradation of Lumbar Vertebral Bod

13:40 P167

A.M. Ryniewicz and T. Madej

Fem Analysis in the Hip Joint Reconstructed by Hip Resurfacing

14:00 P203

K. Kamieniecki, J. Piechna and P. Borkowski

Analysis of a Dynamic Response of a Cochlea Using Fluid-Structure Interaction Model

09:00

K. Kowalczyk-Gajewska

Modelling of Microstructure Evolution in Metals and Alloys of High Specific Strength

Plenary lecture

Session 6

10:00 P056

R. Rafiee, A. Ghorbanhosseini

Hierarchical Multi-Scale Modeling of CNT-Coated Fiber-Reinforced Laminates

10:20 P118

G. Bolzon and M. Shahmardani

Adhesion Properties and Macroscopic Response of Metal-Polymer Laminates

10:40 P121

Z. Wang and R. Michalowski

Contact Maturing and Aging of Silica Sand

11:00 P178

R. Balevičius and Z. Mróz

Modeling of Frictional Contact Interaction of Spherical Particles

Session 7

11:40 P160

M. Doroszko and A. Seweryn

Pore-Scale Modeling of the Sintered Porous 316L Deformation Process Using Micro Computed Tomography

12:00 P193

J. Rojek, Sz. Nosewicz, M. Maździarz, P. Kowalczyk and K. Wawrzyk

Modelling of Powder Sintering at Various Scales

12:20 P210

K. Wawrzyk and P. Kowalczyk

Macroscopic Constitutive Model of Sintering Processes and Its Numerical Implementation

Geomechanics and Multiscale Modelling of Materials

Session 1

10:00 P150 keynote

R. Kačianauskas, A. Maknickas, J. Rojek and D. Vainorius

Numerical Simulation of Acoustic Wake Agglomeration of Microparticles in Aerosol

10:40 P110

P. Brzeski, M. Lazarek and P. Perlikowski

Dynamics of Inerter Based Vibration Absorber with Continuously Variable Inertia

11:00 P080

E. Postek, F. Dubois, R. Mozul and P. Cañadas

Modelling of a Collection of Non-Rigid Particles with Smooth Discrete Element Method

Session 2

11:40 P139

V. Volkova

Hybrid Modeling of Nonlinear Dynamic System with Rigid Restoring Force Under Polyharmonic External Excitation

12:00 P116

M. Lazarek, P. Brzeski and P. Perlikowski

Novel Type of Inerter Based Vibration Absorber: Conceptual Design and Practical Realization

12:20 P192

B. Paprocki, A. Pręgowska and J. Szczepański

Information Processing in Brain-Inspired Networks: Size and Density Effects

Session 3

10:00 P040 keynote

R. Matsui, K. Suzuki and A. Kato

Strain Distribution Analysis for Shape Memory Alloy with Functionally Graded Properties

10:40 P245

J. Ivanova, T. Petrova, Elisaveta Kirilova and W. Becker

Optimal Parameters of a Dynamically Loaded Patch/Layer Structure Against the Elastic-Brittle Interface Debonding

11:00 P226

Y. Chikahiro, I. Ario, M. Nakazawa, J. Holnicki-Szulc, P. Pawłowski and C. Graczykowski

Numerical Study on Reinforcement and Optimization of a Scissors Structure

Session 4

11:40 P065

B. Szczucka-Lasota, Z. Stanik, W. Tarasiuk and D. Sieteski

Modern Hybrid Spraying Method for Obtaining High Quality Coatings

12:00 P194

E.A. Pieczyska, M. Staszczak, H. Tobushi, K. Takeda, R. Matsui and S. Hayashi

Shape Memory Polymer - Influence of Temperature, Strain Rate and the Loading History on the Stress-Strain Curves

12:20 P189

M. Staszczak, E.A. Pieczyska and H. Tobushi

Thermomechanical Analysis of Polyurethane Shape Memory Polymer in Cyclic Loading - Shape Recovery and Shape Fixity

10:00 P035 keynote

A. Mleczek and P. Kłosowski

Numerical Analysis of the Carpentry Joints for Different Load Schemes

10:20 P143

A. Urbaś and M. Szczotka

Modelling Friction Phenomena in the Dynamics Analysis of Forest Cranes

10:40 P246

P. Ziółkowski, T. Kowalczyk, P. Ziółkowski and J. Badur

Advanced Thermal-FSI Conception and Application in Damage Assessment of Steam Turbine Caused by a Flood Wave

11:00 P247

J. Badur, P. Ziółkowski, S. Kornet, K. Banaś, T. Kowalczyk, M. Bryk, M. Stajnke and P.J. Ziółkowski

On the Advanced Thermal-FSI Approach to the Thermo-Elastic-Fragile Cracking Caused by Thermal Stresses Based on the Burzyński-Pęcherski Criterion

Session 3

10:00 P216 keynote

M. Ratajczak and R. Będziński

Biomechanical Aspects of Brain Tissue
Dysfunctions

10:40 P157

**G. Gaidulis, R. Kačianauskas, N. Kizilova and
Yu. Romashov**

A Mechanical Model of Heart Valves with Chords
for in Silico Real Time Computations and
Cardiosurgery Planning

11:00 P079

**E. Stupak, A. Kaceniauskas, V. Starikovicius,
A. Maknickas, R. Pacevic, M. Staskuniene,
G. Davidavicius and A. Aidietis**

Computational Analysis of Patient-Specific
Aortic Valves

Session 4

11:40 P048

**M. Ciesielski, B. Mochnacki and
A. Piasecka-Belkhat**

Analysis of Temperature Distribution in the
Heated Skin Tissue Under the Assumption of Thermal
Parameters Uncertainty

12:00 P063

A. John and M. John

Numerical Modelling of Foam Metal and Honeycomb
Structures for Application in Exoskeleton Devices

12:20 P117

**D. Gawel, P. Główka, Sz. Rubczak, T. Kotwicki
and M. Nowak**

Robust Method for Extracting 3D Medical Objects
From MRI Data

Thursday, 1.09: Short Presentations

11:40 P003

W. Ryżyński

Some Aspects of Analysis Structure Built by Robots

11:40 P016

J.B. Kim

The Effects of a Micro Hole in the Bellows Convolution with Positive Rotation Movement on the Stress Behavior

11:40 P022

J. García Sanz-Calcedo, D.R. Salgado, A. González, O. Lopez, I. Cambero and J.M. Herrera

Drilling Projects by Tool Condition Monitoring System (TCMS)

11:40 P029

I.K. Senchenkov, O.P. Chervinko, E. Turyk and I.A. Ryabtsev

Numerical Method of Calculation of Thermomechanical State of Cylindrical Bodies Under Growing and Subsequent Cyclic Loading

11:40 P065

B. Szczucka-Lasota, Z. Stanik, W. Tarasiuk and D. Sieteski

Modern Hybrid Spraying Method for Obtaining High Quality Coatings

11:40 P067

Ch.F. Markides, E.D. Pasiou, S.K. Kourkoulis

The Multi-Layered Ring Under Parabolic Pressure

11:40 P068

D. Miedzińska

Numerical Investigation of Pores Statistic Distribution Influence on Porous Material Mechanical Behaviour

11:40 P093

K. Kamiński and T. Krzyżański

Thermal Efficiency Investigation of Flat-Plate Solar Collector with Different Type of Geometry

Thursday, 1.09: Short Presentations

11:40 P107

T. Moldovan and A.M. Ioani

Effect of the Infill Walls on the Structural Response of a 13-Story RC Framed Building Subjected to the Removal of a Corner Column

11:40 P115

R. Grzejda

Modelling Nonlinear Preloaded Multi-Bolted Systems on the Operational State

11:40 P120

K. Augustynek and K. Warwas

Modeling of Closed Kinematic Chains with Flexible Links Using Modification of RFE Method

11:40 P124

B. Tomczyk and P. Szczerba

A New Asymptotic-Tolerance Model of Dynamic Problems for Thin Transversally Graded Cylindrical Shells

11:40 P125

B. Tomczyk and B. Ślęzowski

A New Tolerance Model of Thermodynamic Problems for Thin Uniperiodic Cylindrical Shells

11:40 P140

L. Obrezkov

Equilibrium and Stability of Nonlinearly Elastic Cylinder From Blatz-Ko Material

11:40 P142

M. Ryś and H. Egner

Damage Evolution in the Elastic Plastic Material Reinforced by Brittle Inclusion

11:40 P148

K. Talaśka

Searching for the Material Parameters of the Constitutive Models of the Blood Vessel Walls

Thursday, 1.09: Short Presentations

11:40 P149

I. Malujda and K. Talaśka

Identification of Thermo-Mechanical Properties of Natural Polymers with a Hybrid Method

11:40 P170

W. Ryniewicz, A. M. Ryniewicz, T. Madej, G. Wiśniewska and M. Nocoń

Strength Estimation of Teeth Reinforced with Different Types of Post Systems

11:40 P171

G. Mura, M. Adamczyk, M. Nocoń

Design and Multibody Dynamics Analysis of High Mobility Miners Rescue Robot

11:40 P176

M. Biglar, F. Stachowicz, T. Trzepieciński and M. Gromada

Multiscale Analysis of Piezoelectric Cermics by Using Boundary Element Method

11:40 P183

M. Krajewski and P. Iwicki

The Influence of Wind Loading on Stability of the Truss

11:40 P200

A. Łukowicz and M. Krajewski

Stability of Innovative Cold-Formed Geb Section

11:40 P201

M. Miśkiewicz, J. Chróścielewski, B. Sobczyk and Ł. Pyrzowski

Composite Sandwich Footbridge - Numerical ESL FEM Calculations vs. in Situ Measurements

11:40 P206

S. Kourkoulis, A. Kouvaka, Ch. Andriakopoulou and I. Dontas

An Alternative Approach for the Interpretation of Data From Three Point Bending of Long Bones

Thursday, 1.09: Short Presentations

11:40 P220

**A. Candelario, J. García Sanz-Calcedo,
D.R. Salgado, A. González and O. Lopez**

Planning, Monitoring and Control of Mechanics
Projects by BIM in Collaborative Environments

11:40 P232

**J. Radziejewska, A. Sarzyński, M. Strzelec,
J. Hoffman and W. Moćko**

Evaluation of Dynamic Hardness and Adhesion of
Thin Layer Using Nanosecond Laser Pulse

11:40 P235

K. Waclawiak

Simulation of Deposit Growth Onto Recuperator
Tubes in Pit Furnaces

11:40 P243

P. Nalepka, K. Nalepka and R.B. Pęcherski

Analysis of Deformation Mechanisms in Cu / α - Al₂O₃
Interfaces with the Use of HRTEM Images

11:40 P250

I. Pokorska and M. Grzywinski

Computational Sensitivity Analysis of
Ruled_Surface

11:40 P251

Ł. Derpenski and A. Seweryn

Ductile Fracture Elements with Notches Under
Complex Loading

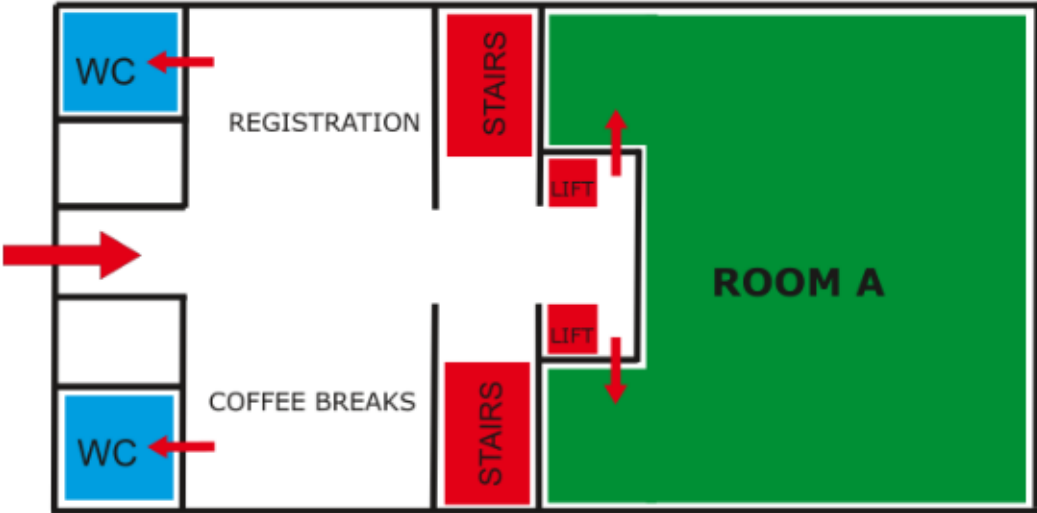
11:40 P254

**M. Biglar, F. Stachowicz, T. Trzepiecinski and
M. Gromada**

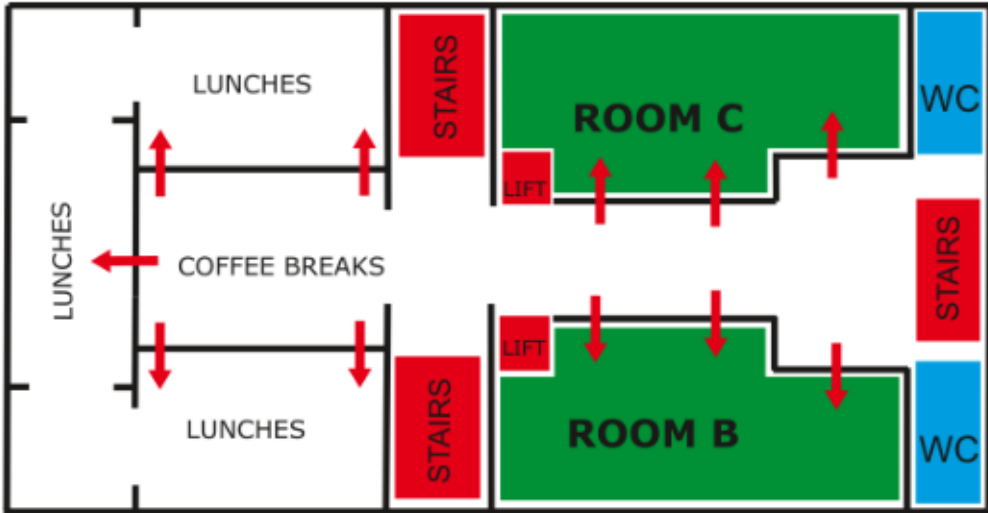
Multiscale Analysis of Piezoelectric Ceramics by
Using Boundary Element Method

SolMech 2016 Old Library building

Ground floor



1st floor



2nd floor

