SCIENTIFIC PROGRAM OF THE INTERNATIONAL CONFERENCE ON COMPUTER METHODS IN MECHANICS CMM-2025

TUESDAY, 08.07.2025

8.00-9.00, Registration

9.00-9.30, Conference Opening, Aula Major, Chairman: Marcin Kamiński

9.30-10.15, Plenary lecture, Aula Major, Chairman: George Stefanou, Marcin Kamiński

Pol D. Spanos, Hybrid analytical-numerical Monte Carlo approaches for stochastic response determination of systems endowed with fractional derivative elements

10.15-11.00, Plenary lecture, Aula Major, Chairman: Wojciech Sumelka, Mieczysław Kuczma

Christian Hellmich, Raphael Scharf, Ali Razgordanisharahi, Maximilian Sorgner, Bernd Moritz, Thomas Pilgerstorfer, Markus Brantner, Bernhard Pichler. Refinement of hybrid analyses reveals unexpected load-carrying mechanisms of NATM- and TBM-driven tunnels

11.00-11.30, Coffee break

11.30-13.30, Parallel sessions

	Aula Major	Chairs: Marek Lefik, Marek Wojciechowski	Arena Magica	Chairs: Eduardo Toledo, Marcin Kamiński	Aula Minor	Chairs: Anna Al Sabouni-Zawadzka, Jacek Szafran	Aula 1.05	Chairs: Agnieszka Tomaszewska, Piotr Kowalczyk
		Applications of AI for numerical modeling of engineering materials 1		**Probabilistic methods and reliability assessment 1**		**Mechanics in Engineering Problems 1**		**Numerical modeling in biomechanics 1**
11:30	156	**KEYNOTE LECTURE: Leonard Ziemiański, Bartosz Miller** Neural network-based surrogate modeling for multi-objective optimization of shell structures	23	**KEYNOTE LECTURE: Rafał Bredow, Marcin Kamiński** Dynamic reliability assessment of steel and steel-aluminum telecommunication skeletal towers based on relative entropy concept	36	**KEYNOTE LECTURE: Nicholas Fantuzzi, Dimitra Tsimpli, Francesco Fabbrocino** Data-driven self-healing concrete model and analysis	47	**KEYNOTE LECTURE: Katarzyna Szepietowska, Wiktoria Korbut, Aleksandra Kondrusik, Zuzanna Iwicka, Julia Niemierko, Mateusz Zamkowski, Maciej Śmietański,** Statistical shape model of the healthy abdominal wall towards finite element modelling including geometrical variability
11:50	30	**Amirhossein Davarpanah T.G., Marcin Koniorczyk** Evolutionary programming techniques for modeling the behavior of concrete containing RCA at high temperatures	54	**Anna Jabłonka, Radoslaw Iwankiewicz** Dynamical systems under parametric stochastic impulse process excitations. Equations for response probability density and moments	27	**Monika Chuda-Kowalska, Michał Malendowski, Zbigniew Pozorski** Experimental and numerical analysis of the effect of facing perforation on the mechanical properties of sandwich panels	71	**Piotr Kowalczyk** Parametric analysis of cancellous bone damage

12:10	33	**Łukasz Domagalski , Izabela Kowalczyk** Application of machine learning models in predicting vibration frequencies of variable thickness plates	64	**Marcin Kamiński, Rafał L. Ossowski** Application of shannon entropy to uncertainty quantification in time-dependent reaction-diffusion problems using the stochastic finite difference method	28	**Hyunseung Chung, Hyo-Gyoung Kwak** Approximation of pressure-impulse diagram of RC beams exposed to blast loading based on a section analysis approach	101	**Michał Nowak, Jan Polak, Kamil Sędłak** Structural optimization principles as a base for trabecular bone stimulation algorithms development
12:30	45	**Artur Góral, Marek Lefik** Interpretation of the pile static load test using artificial neural networks	102	**Paulina Obara, Urszula Radoń** Influence of the initial prestress level on the reliability index of Geiger domes	31	**Arkadiusz Denisiewicz, Tomasz Socha, Krzysztof Kula, Wojciech Błażejewski, Marek Wyjadłowski** Numerical determination of the load-bearing capacity of a perforated thin-walled beam in a structural system with a chipboards	124	**Anna Skorupa, Alicja Piasecka-Belkhayat** Determination of diffusion coefficient during cryopreservation of selected biological tissues
13:00	60	**Mateusz Jocz , Marek Lefik** Artificial neural networks in the recognition of geotechnical parameters	95	**Mauricio A. Misraji, Marcos A. Valdebenito, Matthias G.R. Faes** Importance line sampling for reliability estimation in stochastic linear dynamics	26	**Zhen Pei Chow** Evaluation of simplified finite element models for predicting impact response of thin composite plates	115	**Alicja Piasecka-Belkhayat** Application of the boundary element method to numerical modelling of heat transfer in cryopreservation
13:20			53	**Noman Jabbar, Wojciech Sumelka, Paulina Stempin** Parametric analysis of stochastic space-fractional truss model	38	**Sergiy Fialko** Nonlinear dynamic analysis of building structures subjected to extremal loading	61	**Antoni John, Henryk Bąkowski, Paweł Dudek** Design and strength analysis of a low-cost ambulance stretcher
13.40-14.45, Lunch and coffee break								
14.45-15.30, Plenary lecture, Aula Major, Chairman: Christian Hellmich, Witold Cecot								
Alberto Corigliano, Andrea Manzoni, Luca Rosafalco, Matteo Torzoni. Computing for mechanics and mechanics for computing								
15.30-16.45, Parallel sessions								
	Aula Major	**Chairs: Witold Cecot, Mieczysław Kuczma**	**Arena Magica**	**Chairs: Eduardo Toledo, Marcin Kamiński**	**Aula Minor**	**Chairs: Zbigniew Pozorski, Tomasz Krykowski**	**Aula 1.05**	**Chairs: Agnieszka Tomaszewska, Piotr Kowalczyk**
		Minisymposium in Honor of Prof. Janusz Orkisz's 90th Birthday: Advances in Meshless Methods 1		**Probabilistic methods and reliability assessment 2**		**Mechanics in Engineering Problems 2**		**Numerical modeling in biomechanics 2**
15:30	59	**KEYNOTE LECTURE: Irena Jaworska**	13	**Andrew Angus, Mustafa Okumus, Łukasz Figiel** Bayesian approach to	62	**Michał Jukowski, Ewa Błazik-Borowa, Jarosław Bęc** The influence of the velocity	151	**Jolanta M. Wołowicz, Ryszard Wojnar**

		On MFDM as part of the meshless methods		probabilistic modelling of mass transport in composite materials		and mass of moving body on the dynamic response of the beam		Epithelial structure and hexatic phase
15:50	93	**Sławomir Milewski** Identification of heat source for inverse thermal problems using the Monte Carlo method with finite difference-based random walks	65	**Marcin Kamiński, Łukasz Supeł** Stochastic Finite Difference Method-based computations of the critical moments in steel structures	52	**Safdar Iqbal, Marcin Kamiski** Analytical and numerical homogenization equivalence for elastic and plastic models of 2D hexagonal cellular structures	137	**Anita Gryko, Piotr Prochor** Numerical analysis of the effect of an orthopaedic scaffold biodegradation on the long bone healing process
16:10	89	**Jacek Magiera** Analysis of stability of an iterative a posteriori estimation of experimental data error by the physically based global method approximation	34	**Grzegorz Dziatkiewicz** First-order uncertainty propagation analysis of specific figures of merit for 1-3 magnetoelectroelastic two-phase composites using isofield micromechanical models and complex variable step method	73	**Damian Kozanecki, Artur Wirowski, Martyna Rabenda** Analytical and numerical assessment of bidirectionally sinusoidal corrugated steel shells under selected support and load conditions	46	**Jakub Krzysztof Grabski** Metaheuristic and meshless methods applied for tumor localization
16:30	57	**Jan Jaśkowiec, Artur Krowiak** Meshless least-squares collocation method with boundary constraints	44	**Lucas P Gouveia, Eduardo Toledo Lima Junior** Probabilistic assessment of tubular collapse using ultrasonic inspection data and nonlinear finite element analysis	74	**Marcin Krajewski** The numerical analysis and experimental tests of the connection stiffness between selected steel sections	141	**Agnieszka Tomaszewska, Milena Drozdowska, Piotr Aschenbrenner** Resonant frequency of a muscle as an indicator of its functional status
16.50-17.10, Coffee break								
17.10-18.40, Parallel sessions								
	Aula Major	**Chairs: Irena Jaworska, Sławomir Milewski**	**Arena Magica**	**Chairs: Tomasz Sokół, Wacław Kuś**	**Aula Minor**	**Chairs: Ryszard Walentyński, Jerzy Podgórski**		
		Minisymposium in Honor of Prof. Janusz Orkisz's 90th Birthday: Advances in Meshless Methods 2		**Structural optimization, theory and numerical methods 1**		**Mechanics in Engineering Problems 3**		
17:10	42	**Maciej Głowacki, Janusz Orkisz** Dedicated evolutionary algorithms and MFDM applied to chosen large optimization problems of mechanics	29	**Tadeusz Chyży** The alghoritms to automatic designing of truss structures	77	**Tomasz Krykowski** Application of FEM to assess the load-bearing capacity of reinforced concrete structures subjected to corrosion and cyclic loads		

17:30	83	**Artur Lax, Sławomir Milewski** Selected examples of steel frame and truss optimization of varying complexity aided by a pattern-based approach	49	**Andrzej Myśliński** Phase field topology optimization of finite strain viscoplastic structures in contact	113	**Jan Pelczynski, Kamila Martyniuk-Sienkiewicz, Anna Al Sabouni-Zawadzka** Numerical modeling of a prestressed tensegrity core in a sandwich panel		
17:50	100	**Marcin Nowak, Paweł Szeptyński, Sandra Musiał, Michał Maj** Application of the virtual fields method for hyperelastic characterization of polymers under nonhomogeneous deformation	70	**Izabela Kowalczyk, Łukasz Domagalski** Genetic algorithm optimization of truss towers in terms of dynamics properties	126	**Przemysław Smela** Numerical analysis of cryogenic tank exposed to the influence of the earthquake		
18:10	78	**Mieczysław Kuczma** Statics and dynamics of shape memory alloy octet-truss lattice structures	72	**Damian Kowalski** Stress-biased topology optimization using artificial neural networks	138	**Alireza Tabrizikahou, Mieczysław Kuczma** Numerical simulation and experimental investigation of concrete prestressed with iron-based shape memory alloy (Fe-SMA) short fibers		
18:40	25	**Witold Cecot, Marek Klimczak, Marta Oleksy** Application of the discontinuous Petrov-Galerkin (DPG) methodology in the meshless methods			142	**Ako Umar Abdulaziz** The use of advanced numerical methods to analyze underground structures in complex geometrical and boundary conditions		

19.15 19.00-21.00, Tramway city trip (19.15 - 21.00)
WEDNESDAY, 09.07.2025
8.00-9.00, Registration
9.00-9.45, Plenary lecture, Aula Major, Chairman: Marek Lefik
Nicholas Fantuzzi, Meral Tuna, Patrizia Trovalusci, Mechanical homogenization and optimization of porous 3D printable composites for biomedical applications
9.45-10.30, Plenary lecture, Aula Major, Chairman: Pol Spanos, Marcin Kamiński
George Stefanou, Random field modeling of the mechanical properties of heterogeneous materials based on their microstructure
10.30-11.00, Coffee break
11.00-13.00, Parallel sessions

	Aula 1.05	Chairs: Marek Galewski, Anna Ochal	Arena Magica	Chairs: Robert Cichowicz, Marcin Koniorczyk	Aula Major	Chairs: Tomasz Sokół, Wacław Kuś	Aula Minor	Chairs: Ewa Błazik-Borowa, Nicholas Fantuzzi
		Variational and monotone methods with applications in mechanics		**Computer methods in heat and mass transfer 1**		**Structural optimization, theory and numerical methods 2**		**Mechanics in Engineering Problems 4**
11:00	16	**KEYNOTE LECTURE: Piotr Bartman-Szwarc, Anna Ochal, Meir Shillor, Ken Kuttler** Dynamic membrane obstacle problems with the damped normal compliance condition	90	**KEYNOTE LECTURE: Ewa Majchrzak, Bohdan Mochnacki** Formulation of the boundary-initial conditions supplementing the energy equation with delay times	98	**KEYNOTE LECTURE: Wacław Kuś** Bio and quantum inspired evolutionary algorithms in optimization of structures	145	**Ryszard Walentyński, Robert Cybulski, Henryk Myrcik** Numerical study of doubly-corrugated thin-walled steel panels
11:20	17	**Krzysztof Bartosz** Vanishing viscosity method for a noncoercive hyperbolic differential hemivariational inequality	35	**Grzegorz Dziatkiewicz, Adam Długosz** Optimization of thermal metamaterials for the desired heat flux distribution	127	**Przemysław Sobczak, Tomasz Sokół** Hilbertian descent directions for level-set method in plane structural shape optimization problems	152	**Qingxia Yue, Qingru Liu** Finite elements based numerical investigation of a novel slit-damped web-type plate and its application in Frame Structure Retrofitting
11:40	19	**Michał Bełdziński** An analogue of the smallness condition for uniformly monotone operators	20	**Jakub Bobrowski, Artur Gutkowski, Marcin Łęcki** Numerical study of heat transfer in microchannel heat exchangers	130	**Tomasz Sokół, Tomasz Lewiński** Longitudinal distortions of bars in truss layout optimization	154	**Maciej Zawistowski, Arkadiusz Poteralski** Optimization of mechanical properties of multiphase materials with auxetic phase
12:00	68	**Igor Kossowski** Evolution equations with generalized fractional Laplacian	106	**Iman A.N. Omrani, Marcin Koniorczyk, Marta Choińska Colombel, Patrycja Duży** Improved random hierarchical capillary bundle model for simulating the gas permeability of porous media	140	**Katarzyna Tajs-Zielińska** Periodic topology optimization including design-dependent loads	116	**Arkadiusz Poteralski, Maciej Zawistowski** Mechanical testing of auxetic structures strength and deformation
12:20	88	**Barbara Łupińska, Tatiana Odziejewicz, Ewa Schmeidel** On solutions to the boundary value problem with ψ-derivative	133	**Tomasz Stręk** Computational modelling of heat sink with cellular core	94	**Bartosz Miller, Leonard Ziemiański** Advanced multi-fidelity FEM-model based optimization of dynamic and cost parameters in composite shell structures	117	**Zbigniew Pozorski, Jolanta Pozorska, Annalena Schardt** On the influence of support conditions on the structural behavior of sandwich panels subjected to thermal actions

12:40	107	**Urszula Ostaszewska, Małgorzata Zdanowicz, Ewa Schmeidel** Asymptotic behavior of solutions to difference equations of Volterra type with p-Laplacian	149	**Julia Wiśniewska** Phase change materials in passive solutions for maintaining thermal comfort in buildings	81	**Maksym Grzywiński** Jaya algorithm for design optimization of truss tower structures	134	**Jacek Szafran** Reinforcements of the steel structural members – computational aspects
13:00	112	**Ewa Pawłuszewicz, Mohammad Reza Molaei, Adrian Kawecki** Aspects of the equations of rigid body motion depending on the time scale					41	**Wojciech Gilewski, Adam Zawadzki, Maciej Kołodziejczak, Anna Al Sabouni-Zawadzka** Evaluation of a class of 2D graded cellular metamaterials fabricated using 3D printing
13:20	63	**Michał Jureczka** Application of Graph Neural Networks to model reduction in contact mechanics simulations						

13.00-14.30, Lunch and Coffee

14.30-15.30, Sponsor's presentation - TOYA: "Zagrożenia cybernetyczne - człowiek i sprzęt", Aula Major, Chairman: Marcin Kamiński

15.30-16.15, Witold Kąkol, An Introduction to NAFEMS Activities, Aula Major, Chairman: Wojciech Sumelka

16.15-17.30, Coffee break, panel discussions, CMM-2025 Organizing Committee Meeting

17.30-18.30, Public lecture, prof. dr hab. inż. Anna Fabijańska "When Artificial Intelligence Becomes an Engineer – From Learning to Applications in the Engineering of Tomorrow", Aula Major, Chairman: Marcin Kamiński, Marek Lefik

18.30-20.00, PACM meeting, Aula Major

THURSDAY, 10.07.2025

8.00-9.00, Registration

9.00-9.45, Plenary lecture, Aula Major, Chairman: Witold Cecot

Chongmin Song. A scaled boundary finite element framework for fully automated computational engineering analysis

9.45-10.30, Plenary lecture, Aula Major, Chairman: Dariusz Gawin, Alberto Corigliano

Jerzy Rojek. Multiscale and multiphysics modelling of powder metallurgy processes using the discrete element method

10.30-11.00, Coffee break

11.00-13.00, Parallel sessions

	Arena Magica	**Chairs: Eduardo Toledo, Marcin Kamiński**	**Aula 1.05**	**Chairs: Jacek Szafran**	**Aula Minor**	**Chairs: Wacław Kuś, Jerzy Rojek**	**Aula Major**	**Chairs: Marek Wojciechowski, Marek Lefik**

		Probabilistic methods and reliability assessment 3		Experimental and computational mechanics		Computational mechanics 1		Applications of AI for numerical modeling of engineering materials 2
11:00	155	**KEYNOTE LECTURE: Zbigniew Zembaty** Peak factor in non-stationary random vibrations	55	**Iwona Jankowiak** Modeling of pull-off test of FRP strip bonded to concrete surface by means of different numerical approaches	58	**KEYNOTE LECTURE: Jan Jaśkowiec, Piotr Pluciński** Advances in orthogonalized finite element method	150	**KEYNOTE LECTURE: Marek Wojciechowski** Surrogate modeling of the unsteady heat conduction problem using artificial neural networks to determine the shape of the jet-grouting column
11:20	132	**Michał Strąkowski, Marcin Kamiński** On the relative entropy as a measure of structural reliability of an I-profile beam in fire conditions	51	**Bogusław Hościło, Andrzej Werner, Piotr Mrozek, Krzysztof Molski, Robert Latoś** 3D scanning methodology of painting path: a case study in preparing a numerical model of an object with minor height variations	40	**Mihiretu Gezahagn Ganta, Marta Kurek** Effect of corrosion on multi-axial fatigue performance of maraging steel produced by laser powder bed fusion (LPBF)	43	**Tomasz Godlewski, Łukasz Wodzyński, Leszek Chomacki** Application of chosen artificial tools for assessment of georisk caused by underground constructions in urban space
11:40	136	**Danuta Szeliga, Jakub Foryś, Natalia Jażdżewska, Jan Kusiak, Rafał Nadolski, Piotr Oprocha, Maciej Pietrzyk, Paweł Potorski, Łukasz Rauch** Stochastic phase transformation model: Identification, verification and application to the evaluation of the uncertainty of the process parameters	79	**Krzysztof Kula, Arkadiusz Denisiewicz, Tomasz Socha, Cristiane Lopes, Bruno Pedrosa, Grzegorz Lesiuk, Paweł Zielonka, Szymon Duda, Hermes Carvalho, José Correia** Numerical and experimental development of glass/carbon/basalt hybrid FRP rebars for reinforced-concrete beams under bending	48	**Piotr Grześ, Michał Kuciej** FE modeling of temperature, thermal stresses and wear in the 2Bgu tread brake	84	**Marek Lefik, Marek Wojciechowski** Reduced model of a foundation on a weak soil reinforced with rigid inclusions, numerically defined using a complex artificial neural network
12:00	147	**Hanna Weber, Radosław Iwankiewicz** Non-linear stochastic vibrations of the guy line in the three-cable guyed tower model under seismic excitation	114	**Zbigniew Perkowski, Mariusz Czabak** Defect detection in timber composite I-beams based on the measurement error distribution normality tests	32	**Yared D. Desta, Paweł Olejnik** A comprehensive review of the complex interplay between friction-induced vibration and acoustics	110	**Cezary Pałczyński** Anomaly classification in mechanical systems using dual-branch neural networks and wavelet transform

				for deflection local linear approximation				
12:20	129	**Damian Sokołowski, Marcin Kamiński** Structural safety analysis of corrugated web beam subjected to structural static load and corrosion using relative entropy approach	120	**Ali Raza, Chengfang Yuan** Numerical and experimental investigation of durability and microstructural performance of sustainable 3D-printed engineered cementitious composites with Yellow River Sand	80	**Krzysztof Kurowski, Cezary Mazurek, Tomasz Pecyna, Piotr Rydlichowski** Reshaping the future with quantum technologies in computing and networking	125	**Marek Słoński** Data-driven design space exploration with conditional variational autoencoder for design of steel structures
12:40			122	**Mir Sayad Shah** Investigating the rheological and strength performance of low cost reactive powder concrete	69	**Andrzej Koszewnik, Krzysztof Kamil Żur** Modelling and analysis of active vibration control of collocated and non-collocated structures with contact and contactless sensors	146	**Zhihui Wang, Roberto Cudmani** Validating data-driven geo-constitutive models through initial boundary value problems
13.00-14.30, Lunch and coffee break								
14.30-15.15, Plenary lecture, Chairman: George Stefanou, Marcin Kamiński								
Michael Beer. Aleatory and epistemic uncertainties in engineering analysis								
15.15-16.30, Parallel sessions								
	Arena Magica	**Chairs: Stanisław Stupkiewicz, Jerzy Rojek**	**Aula 1.05**	**Chairs: Jarosław Jędrysiak, Piotr Ostrowski**	**Aula Minor**	**Chairs: Michał Guminiak**	**Aula Major**	**Chairs: Marek Wojciechowski, Marek Lefik**
		Computational mechanics 2		**Modelling of micro-structured media 1**		**Applications of the Boundary Element Method for mathematics and mechanics 1**		**Applications of AI for numerical modeling of engineering materials 3**
15:15	76	**KEYNOTE LECTURE: Jaroslav Kruis, Aleš Jíra, Jan Vorel** Numerical simulations of 3D printed structures based on alloy of titanium with betastructure	37	**Piotr Fedeliński** Investigation of the effect of stiffening by nanotubes on the dynamic response of nanocomposites	14	**KEYNOTE LECTURE: Tadeusz Burczyński** Applications of the Boundary Element Method for mathematics and mechanics	148	**Marcin Wierszycki, Jakub Michalski** Using LSTM-based surrogate models for efficient material calibration in finite element simulations
15:35	67	**Anna Knitter-Piątkowska, Michał Guminiak** Theory and application	56	**Piotr Jankowski, Krzysztof Kamil Żur** Coupled vibration of	24	**Nikhil Arora, Martin Schanz** Parameter choices for a time domain boundary element formulation based on the	150	**Marek Wojciechowski** Surrogate modeling of the unsteady heat conduction problem using artificial

		of Discrete Wavelet Transform for selected structural mechanics problems		nanocomposite beam with discontinuities		generalized convolution quadrature method		neural networks to determine the shape of the jet-grouting column
15:55	85	**Nicolas G. Leiva, Ricardo Herrera, Rafael Ruiz** Exploring fluid-membrane interaction on highly flexible containers under hydrostatic pressure	103	**Witold Ogierman** Prediction of the effective behavior of composites with discontinuous reinforcement using data-driven mean-field homogenization	50	**Michał Guminiak, Marcin Kamiński** Random buckling analysis of thin plates considering internal constraints by the Boundary Element Method	39	**Tomasz Gajewski, Jakub K. Grabski, Damian Mrówczyński, Aram Cornaggia,Tomasz Garbowski** Determination of material and structural properties of corrugated board in manufacturing and processing
16:15	86	**Agnieszka Lenartowicz, Maciej Przychodzki, Michał Guminiak** Eigenvibrations of plates resting on viscoelastic constraints considering its optimal placement and description by fractional derivatives	104	**Witold Ogierman, Iwona Pokorska, Tadeusz Burczyński** Computational homogenization of cement paste: influence of microstructure model parameters on mechanical properties	66	**Marcin Kamiński, Arkadiusz Tomczyk** On the AI-based implementation of the Stochastic Boundary Element Method	92	**Jakub Matkowski, Mateusz Żurawski, Robert Zalewski** Artificial intelligence for real-time control of adaptive impact damper
16.30-17.00, Coffee break								
17.00-18.30, Parallel sessions								
	Arena Magica	**Chairs: Jerzy Pamin**	**Aula 1.05**	**Chairs: Jarosław Jędrysiak, Piotr Ostrowski**	**Aula Minor**	**Chairs: Michał Guminiak**	**Aula Major**	**Chairs: Łukasz Figiel**
		Computational mechanics 3		**Modelling of micro-structured media 2**		**Applications of the Boundary Element Method for mathematics and mechanics 1**		**Computational mechanics 4**
17:00	87	**Magdalena Łasecka-Plura** Laplace-based interval analysis of frequency response function in systems with viscoelastic elements	109	**Piotr Ostrowski, Ewelina Kubacka, Barbara Tomczyk** On the effect of laminate microstructure layout on the unidirectional heat wave propagation and duration	75	**KEYNOTE LECTURE: Thomas Kramer, Benjamin Marussig, Martin Schanz** A higher order isogeometric boundary element method in the time domain	128	**Agnieszka Sobierańska, Balbina Wcisło** Numerical modeling of aluminium alloy using large strain thermo-elasto-plasticity at different temperatures
17:20	91	**Jakub Marczak** Dynamics of sandwich plates with honeycomb core	121	**Miroslav Repka, Ladislav Sator** Multiphysical effects in micro/nano structures in energy harvesting devices	119	**Jacek Ptaszny** Application of FMBEM to the numerical/mean-field homogenization of 3D composite materials	141	**Piotr Tarasiuk, Krzysztof Kamil Żur, Andrzej Koszewnik** Numerical vibration analysis of an active cantilever beam with collocated and non-

								collocated sensors and actuators
17:40	96	**Hojjat Mousavisogolitappeh, Aneta Ustrzycka, Stanisław Stupkiewicz** Anisotropic effects on radiation-induced embrittlement in Fe-Ni-Cr alloys: a molecular dynamics study	15	**Marek Barski, Krzysztof Kamil Żur, Victor Giurgiutiu** Guided waves in carbon-based polymer composites	82	**Vibudha Lakshmi Keshava, Martin Schanz** Partial integration based regularization in BEM for 3D elastostatic problems: The role of line integrals	135	**Krzysztof Szajek, Wojciech Sumelka** A comparative study of space-fractional truss and spring-mass model with variable stiffness
18:00	12	**Hasan Al-Rifaie, Nima Movahedi, Teik-Cheng Lim** Near-zero Poisson's ratio metamaterials: a hybrid approach enhancing crashworthiness	131	**Paulina Stempin, Wojciech Sumelka** Space-fractional finite element approach for size-dependent frame structures			99	**Jakub Nowak, Rafał Radecki, Wiesław J. Staszewski** Crack-wave interaction in ultrasonic shear horizontal wave propagation – modelling based on hysteresis and numerical parallel processing
18:20	123	**Mateusz Sitko, Łukasz Madej** Parallel computing performance for cellular automata models						
19.30-23.00, Conference dinner								
8.00-9.00, Registration								
9.00-9.45, Plenary lecture, Aula Major, Chairman: Marek Lefik, Mieczysław Kuczma								
Chenfeng Li. Heterogeneous materials: characterization, reconstruction, simulation, and application								
9.45-10.30, Plenary lecture, Aula Major, Chairman: Marcin Kamiński								
Vladimir Sladek, Jan Sladek. Modelling and numerical treatment of scale effects in nanoscopic structures								
10.30-11.00, Coffee break								
11.00-10.45, Plenary lecture, Aula Major, Chairman: Mieczysław Kuczma, Marcin Kamiński								
Dariusz Gawin, Marcin Koniorczyk, Francesco Pesavento, Bernhard A. Schrefler. Non-equilibrium modeling of some physico-chemical processes in concrete elements in variable environmental conditions								
11.45-13.00, Parallel sessions								
	Aula Major	**Chairs: Michał Guminiak**	**Aula Minor**	**Chairs: Jan Jaśkowiec**	**Arena Magica**	**Chairs: Marcin Kamiński**		

		Computational mechanics 5		Computational mechanics 6		Computational mechanics 7		
11:45	105	**Paweł Olejnik, Yared D. Desta, Marcin Mydłowski** Estimation of energy losses in a driven table-beam dynamical system with stick-slip friction	138	**KEYNOTE LECTURE: Paulina Świątkiewicz, Zdzisław Więckowski** Reissner-Mindlin plate bending theory in multiply connected domains by the equilibrium finite element method	97	**Marzena Mucha, Lars Rose, Balbina Wcisło, Andreas Menzel, Jerzy Pamin** Modelling of propagative instabilities using an Estrin-McCormick extension of large strain thermo-visco-plasticity		
12:05	111	**Jerzy Pamin, Balbina Wcisło, Marzena Mucha, Andreas Menzel** Regularization options for finite strain softening thermo-plasticity	144	**Muhammad Umer, Paweł Olejnik** Challenges and solutions of approximate analytical methods for nonlinear systems	18	**Błażej Bartoszewicz, Krzysztof Kamil Żur** Numerical and experimental stationary vibroacoustic analysis of a cracked shaft		
12:25	118	**Maciej Przychodzki, Marcin Kamiński** Random eigen vibrations of multilayered viscoelastic beams modeled using zig-zag theory	153	**Monika Zaczyńska, Mehdi Bohlooly Fotovat** Impact of extension-bending coupling on the stability of thin-walled composite laminates	22	**Piotr Bońkowski** Experimental analysis of response-based stiffness identification using axis rotation measurements		
12:45			157	**Weronika Zwolińska-Faryj, Kinga Nalepka, Błażej Skoczeń, Rafał Schmidt, Elwira Schmidt, Robert Chulist** The impact of phase transformation on crack propagation in austenitic stainless steels at cryogenic temperatures	21	**Jakub Bobrowski, Krzysztof Sobczak** Numerical investigation and improvement of solar vehicle aerodynamics		
13.00-14.30, Lunch and coffee break								
14.30-15.15, Conference closing								