



PROGRAM

TKI2026

XVIII Scientific and Technical Conference
„Computational Technologies in Engineering”

PATRONAGE



SCIENTIFIC PATRONAGE



Polskie Towarzystwo Biomechaniki



MEDIA PATRONAGE



PARTNERS



Ministry of Science and Higher Education
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TUESDAY, OCTOBER 20

15:00 – 20:00 Participant Registration

18:00 – 20:30 Dinner

WEDNESDAY, OCTOBER 21

08:00 – Participant Registration

08:00 – 09:00 Breakfast

09:00 – 09:20 Opening of the Conference and Welcome Address – „Antresola” room

09:20 – 10:50 Plenary Session – „Antresola” room

09:20 – 10:10 Marian Wiercigroch
Computational Methods for Non-smooth Dynamics

10:10 – 10:50 Alexis Rusinek
Dynamic Behaviour and Failure of Materials: Constitutive Modelling and Applications to Welded Structures

10:50 – 11:10 Coffee break

11:10 – 13:00 Thematic Session 1 - „Structural and Materials Mechanics” – „Antresola” room

11:10 – 11:25 Marek Borowiec, Dominika Wiśnios, Jarosław Gawryluk
The Effect of Environmental Aging on the Dynamic Properties of Hybrid Composites

11:25 – 11:40 Karolina Głowacka, Joanna Małecka, Jernej Klemenc, Tadeusz Łagoda
Three-Point Cyclic Bending of Nylon-Fiber-Reinforced Rubber Composites—Part 1: Experimental Studies

11:40 – 11:55 Joanna Małecka, Karolina Głowacka, Jernej Klemenc, Tadeusz Łagoda
Three-Point Cyclic Bending of Nylon-Fiber-Reinforced Rubber Composites—Part 2: experimental results

Zbigniew Kołakowski, Andrzej Teter
Stability of thin-walled plates made of laminate with an arbitrary layer arrangement subjected to complex loading conditions

11:55 – 12:10 Michał Rogala
Numerical and experimental analysis of damage distribution in hybrid sandwich structures under low-velocity impact

Krzysztof Ciecieląg, Patryk Różyło, Krzysztof Kęciki
The Finite Element Method and Experimental Verification During the Milling of Composites Based on Bidirectional GFRP and CFRP Fabrics

11:10 – 13:00 Thematic Session 2 – „3D-Printed and Foamed Materials Research” – „Alfa” room

11:10 – 11:25 Mirosław Wesołowski, Naftal Ngughu, Jon Aurrekoetxea Narbarte
Transient response of a 3D-printed composite cantilever plate

11:25 – 11:40 Grzegorz Moneta, Sebastian Szałkowski, Wojciech Wdowiński
Numerical Homogenization of the Properties of Additively Manufactured PEEK-Based Composite Materials

11:40 – 11:55 Paweł Zielonka, Szymon Duda, Grzegorz Lesiuk
Micromechanical Modeling of the Structural Integrity of Hybrid Composite Bars

11:55 – 12:10 Chala Amsalu Tefera, Sławomir Duda, Sebastian Sławski, Grzegorz Gembalczuk, Tomasz Machoczek, Grzegorz Kokot
Adhesive-interface-controlled flexural behaviour of aluminium foam-core sandwich panels under three-point bending



	Aleksandra Kłós, Piotr Korzeniowski, Erwin Wojtczak
12:10 – 12:25	<i>Experimental and Numerical Studies of a Metamaterial Produced Using 3D Printing Technology in the Context of Damage Diagnostics</i>
	Erwin Wojtczak, Magdalena Rucka
12:25 – 12:40	<i>Experimental and numerical damage imaging of porous defects in additively manufactured elements using elastic wave propagation</i>
	E. G. Esmael, C. Grabowik, Anna Ziebowicz, I. S. ELDeeb
12:40 – 12:55	<i>Customization versus Standardization in Metal Orthodontic Bracket Manufacturing: A Comparative Perspective on SLM and MIM</i>
11:10 – 13:00	Thematic Session 3 – „Dynamic impacts, ballistics and explosive loads” – „Omega” room
11:10 – 11:25	Radosław Kiciński, Bogdan Szturomski, Andrzej Grządziela <i>Engineering Analysis of Damage to the Nord Stream Pipelines</i>
11:25 – 11:40	Leszek Flis, Kihei Tsutsui <i>Numerical Simulation of a Close-Proximity Underwater Explosion with Experimental Verification</i>
11:40 – 11:55	Artur Iluk <i>Numerical Analysis of the Resistance of Shelter Doors to Explosion Blast Waves</i>
11:55 – 12:10	Paweł Krysiński, Robert Panowicz, Marcin Konarzewski, Józef Paszula, Marcin Hara <i>Tests on the effectiveness of FOX-7 and NTO explosives</i>
12:10 – 12:25	Jakub Polkowski, Robert Panowicz, Marcin Konarzewski, Maciej Grudnik, Paweł Krysiński, Adam Jeschke <i>Preliminary Research: Machine Learning for Predicting Shock Wave Parameters of a Cylindrical HMX Charge</i>
13:00 – 14:00	Lunch
14:00 – 15:30	Thematic Session 4 – „Structural and Manufacturing Process Modeling” – „Antresola” room
14:00 – 14:15	Tomasz Kubiak <i>A Comparative Analysis of the Parametric Stability of Sandwich Panels: FEM and Mathieu's Equations</i>
14:15 – 14:30	Ewa Błazik-Borowa, Michał Jukowski, Jarosław Bęc <i>Selection of Parameters for the Numerical Model of a Test Stand for Static and Dynamic Response Testing</i>
14:30 – 14:45	Miroslaw Ferdynus <i>Numerical analysis of energy absorbers with a crumple zone in the form of spheroidal corrugations and with pre-buckle deformation</i>
14:45 – 15:00	Marcin Januszka <i>Numerical and Experimental Evaluation of the Geometry of Formed Steel Components Using 3D Scanning Techniques for Mass Production</i>
15:00 – 15:15	Ireneusz Wróbel, Piotr Danielczyk <i>Design of a hot-forming die with controlled, independent cooling water circuits—model studies on a prototype</i>
15:15 – 15:30	Adam Korbel, Valeria Manița <i>Measurements and numerical analysis of the mechanical properties of a joint after the installation of aircraft rivets made of selected alloys, taking into account various degrees of rivet crimping</i>
14:00 – 15:30	Thematic Session 5 – „Numerical Modeling in Biomedical Engineering” – „Alfa” room
14:00 – 14:15	Wojciech Danek <i>Building Reduced-Order Models in optiSLang for Use in the Analysis of Complex Systems</i>
14:15 – 14:30	Tomasz Klekiel, Agnieszka Mackiewicz, Izabela Janus-Ziółkowska, Iwona Staniszevska, Justyn Gach, Agnieszka Noszczyk-Nowak <i>Biomechanical Analysis of the Mitral Valve in a Dog with Mitral Valve Degenerative Disease Using Numerical Modeling</i>
14:30 – 14:45	Łukasz Mazurkiewicz, Marcin Paturalski, Paweł Baranowski <i>Optimization of Coronary Stent Geometry Using the Finite Element Method</i>



	Zbigniew Tyfa, Piotr Reorowicz, Karol Wiśniewski, Damian Obidowski, Krzysztof Jóźwik
14:45 – 15:00	<i>An assessment of the impact of the method for surface-to-volume transition of patient-specific blood vessel structures on typical flow parameters</i>
	Aleksandra Kondrusik, Wiktoria Korbut, Mateusz Zamkowski, Maciej Śmiateński, Katarzyna Szepietowska
15:00 – 15:15	<i>Numerical Modeling of the Reconstruction of the White Line Using the Finite Element Method</i>
	Katarzyna Szepietowska, Wiktoria Korbut, Aleksandra Kondrusik, Zuzanna Iwicka, Julia Niemierko, Mateusz Zamkowski, Maciej Śmiateński
15:15 – 15:30	<i>Shape Variability in Modeling the Human Abdominal Wall</i>
14:00 – 15:30	Thematic Session 6 – „Flow and Heat Transfer Processes Modeling” – „Omega” room
	Michał Tomaszewski, Zbigniew Tyfa
14:00 – 14:15	<i>Methodology for the fabrication of transparent vascular phantoms for hemodynamic studies using the PIV technique</i>
	Claudia Sbriglio, Mariusz Ptak, Artur Kwiatkowski
14:15 – 14:30	<i>Age-Dependent Cerebrospinal Fluid Volume Redistribution and Its Biomechanical Implications for Traumatic Brain Injury</i>
	Yuliia Tarasevych, Barbara Drenda, Wojciech Horak
14:30 – 14:45	<i>Experimental and CFD analysis of a stagnant interfacial layer in gap-dependent rheometry of a water-based gel</i>
	Anna Nawara, Alicja Piasecka-Belkhat
14:45 – 15:00	<i>Fuzzy Modeling of Transient Heat Transfer in a Cylindrical Vessel Containing a Phase-Changing Material</i>
	Nikolaos Stavrakakis, Jan Stobierski, Wiktor Sieklicki
15:00 – 15:15	<i>A Methodology for Modernizing Existing Potato Storage Facilities Using CFD Simulation of Airflow and Modeling in the Simulink Environment</i>
15:30 – 15:50	Coffee break
15:50 – 17:20	Thematic Session 7 – DYNAMAT 1 Session – „Antresola” room
	Mateusz Banaszek, Michał Kuciewicz, Paweł Płatek, Paweł Baranowski
15:50 – 16:05	<i>Static and Dynamic Testing of Regular Cellular Structures Manufactured from M300 Steel Using the Selective Laser Melting (SLM) Technique</i>
	Konrad Siwek, Michał Kuciewicz, Jacek Janiszewski, Ludovic Blanc, Paweł Baranowski
16:05 – 16:20	<i>Energy Absorption of Cellular Structures Manufactured from Resin Using Stereolithography (SLA) under Quasi-Static and Dynamic Loading Conditions</i>
	Paweł Płatek, Paweł Baranowski, Mateusz Banaszek, Michał Kuciewicz, Michał Stankiewicz, Wojciech Stopyra, Marcin Madeja, Tomasz Kurzynowski
16:20 – 16:35	<i>Energy Absorption Performance of PBF-EBM Ti-6Al-4V TPMS Structures dedicated for Ballistic Protection</i>
	Michał Kuciewicz, Paweł Baranowski, Paweł Płatek, Kamil Cieplak
16:35 – 16:50	<i>Parametric Study of Geometric Effects and Perforation Conditions on the Ballistic Performance of Additively Manufactured Lattice Panels</i>
	Samuel Gómez-Garraza, Mario Álvarez-Blanco, Diego Infante-García, Miguel Marco, M. Henar Miguélez
16:50 – 17:05	<i>Numerical Assessment of Behind-Armor Blunt Trauma in Human Torso Subjected to Non-Penetrating Ballistic Impact</i>
	Ignacio Rubio Diaz, José A. Loya, M. Henar Miguélez
17:05 – 17:20	<i>Experimental Assessment of Head and Neck Rotational Kinematics under Different Impact Scenarios for Head Protection</i>





15:50 – 17:20	Thematic Session 8 – „Modeling and Analysis of Mechanical Systems” – „Alfa” room
15:50 – 16:05	Dariusz Żardecki <i>Luz (...) and tar (...) mappings as tools for modeling nonlinear mechanical systems</i>
16:05 – 16:20	Szymon Duda, Paweł Zielonka, Mirosław Bocian, Grzegorz Lesiuk <i>Fatigue Properties of the A6061-RAM2 Alloy, Taking into Account Notch Geometry, Surface Condition, and Manufacturing Orientation</i>
16:20 – 16:35	Mikołaj Gapiński, Ewelina Ciba, Anna Kozłowska <i>Predicting Changes in Propeller Thrust Due to Ventilation Using Machine Learning Algorithms</i>
16:35 – 16:50	Bartłomiej Śnieżyński, Sławomir Kaźmierczak, Marek Górnik, Wojciech Roszczyński, Piotr Stępień, Grzegorz Wolski, Wojciech Wons <i>Predictive Control of a Cement Grinding System Based on Particle Size Measurements at the WARTA S.A. Cement Plant</i>
16:50 – 17:05	Szymon Saternus, Kamil Sybilski, Jerzy Małachowski, Jerzy Kwaśniewski <i>Development and Sensitivity Analysis of an Analytical-Numerical Model of the Spine</i>
17:30 – 18:30	Scientific Committee Meeting – “Niebieska” Room
19:00 –	Prof. J. Szmelter Awards Ceremony Dinner

THURSDAY, OCTOBER 22

08:00 –	Participant Registration
08:00 – 09:00	Breakfast
09:00 – 10:45	Thematic Session 9 – „Operation, Diagnostics and Data Analysis in Technical Systems” – „Antresola” room
09:00 – 09:15	Henryk Wachta, Pablo Quintana-Barcia, Marek Balsky, Tomasz Popławski, Marek Kurkowski <i>The influence of the positioning of luminaires at pedestrian crossings on the visibility conditions of pedestrians</i>
09:15 – 09:30	Krzysztof Baran, Marek Pavlik, Juan Carlos Viera Pérez, Sebastian Różowicz, Paweł Strączyński <i>Analysis of the operation of a hybrid road lighting system in Polish conditions</i>
09:30 – 09:45	Marcin Leško, Antoni Różowicz, David Gacio <i>Methodology for arranging LED sources in a luminaire with variable luminous intensity distribution</i>
09:45 – 10:00	Mohammed Alfeki, Andrzej Katunin, Tomasz Rogala <i>Comparative Investigation of Harmonic Excitation Strategies for Self-Heating based Vibrothermography</i>
10:00 – 10:15	Mateusz Klimas, Tadeusz Nowicki <i>The Use of Clustering Models and Methods for the Analysis and Presentation of Medical Data in the NHANES Database</i>
10:15 – 10:30	Joanna Szkutnik-Rogoż <i>A Method for Assessing the Impact of Operational Conditions on Vehicle Technical Readiness Using a Semi-Markov Process</i>
09:00 – 10:45	Thematic Session 10 – „Advanced Methods in Structural Design and Analysis” – „Alfa” room
09:00 – 09:15	Robert Panowicz, Marcin Konarzewski, Adam Jeschke, Maciej Grudnik, Jakub Polkowski, Paweł Krysiński <i>New Ways to Control the Properties of Cellular Structures</i>
09:15 – 09:30	Mirosław K. Gerigk, Marek Chodnicki, Karol Żmich <i>Analysis of the Impact of the Dynamics of an Unmanned Surface-Air Platform on the Structural Design Solutions Employed</i>
09:30 – 09:45	Marcin Dopieralski, Filip Polak <i>Numerical and experimental studies of a multi-fuel turbine engine under steady-state conditions for the GTM 160 engine</i>



- 09:45 – 10:00 Jacek Karliński
Experimental validation of simulation results for the structural systems of machines and vehicles
- 10:00 – 10:15 Łukasz Mazurkiewicz
Parametric Modeling of Heart Valve Implants
- 10:15 – 10:30 Jacek Spisak
How Can We Keep Up with Rapid Changes in Science and Industry? Measurement and Computation Solutions in 2026

09:00 – 10:45 Thematic Session 11 – „Analysis and Design of Transport Structures” – „Omega” room

- Tomasz Kurzynowski
The Level of Technological Readiness of Additive Manufacturing Technologies: A Case Study of Their Application in the Automotive and Aerospace Industries
- 09:15 – 09:30 Daniel B. Nycz, Oskar Plata
Strength Calculations for the Load-Bearing Structures of City Buses in Light of New Market Requirements
- 09:30 – 09:45 Wiesław Krasoń, Daniel Dobrowolski, Maciej Łomiak
Numerical Strength Analysis of Prototype Suspension Structures with Special Springs for Heavy-Duty Vehicles
- 09:45 – 10:00 Grzegorz Sławiński, Seweryn Koziak, Daniel Dobrowolski, Krasoń Wiesław
Numerical Studies of the Effect of a Railroad Car's Suspension on the Motion Parameters of a Three-Truck Car
- 10:00 – 10:15 Grzegorz Śliwa, Mariusz Ptak, Emma Garatea, Helmuth Kristen
Numerical tests of an airbag for bicycle child seat using PIPER child model
- 10:15 – 10:30 Daniel Wdowicz, Mariusz Ptak
Is headform impact velocity representative of actual pedestrian accidents? Large-scale numerical investigation for a sedan vehicle
- 10:30 – 10:45 Wiktoria Kolczyk, Dawid Bruski, Agnieszka Sabik
Vehicle Occupant Safety in Collisions—Limitations of the Standards-Based Approach and the Potential for Using the THUMS Model

10:45 – 11:15 Coffee break

11:15 – 13:00 Thematic Session 12 – DYNAMAT 2 Session – „Antresola” room



- 11:15 – 11:30 Krzysztof Damaziak, Konrad Siwek, Konrad Szydło, Paweł Baranowski
Numerical Simulation of Steel Cutting Using a Linear Shaped Charge
- 11:30 – 11:45 Bin Jia, Pengwan Chen
Martensitic transformation behavior of 304 austenitic stainless steel under different strain rates, temperatures and stress states
- 11:45 – 12:00 Maciej Roszak, Mikołaj Kazimierczak, Wojciech Stopyra, Teresa Frasz, Krzysztof Jamrozak
Challenges in Modeling Anti-Tank Ammunition in the ABAQUS/Explicit Computational Environment
- 12:00 – 12:15 Robert Zalewski, Arthur Bourdin, Paweł Chodkiewicz
Experimental Investigation of a Novel Vacuum Packed Particle Damper: A Sustainable Alternative to Magnetorheological Dampers
- 12:15 – 12:30 Piotr Kędzierski, Arkadiusz Popławski, Michał Stankiewicz, Paweł Dziewulski, Kamil Krasnodębski, Sebastian Stanisławek
Numerical and experimental development of a redirective crash cushion with cantilever-bending tubular posts
- 12:30 – 12:45 Natalia Daniel, Paweł Płatek, Kamil Cieplak, Witold Bużantowicz
A Methodology for the Rapid Design and Fabrication of Structural Components for FPV Drone Frames Using the FFF Method

11:15 – 13:00 Thematic Session 13 – „Digital Technologies in Industry” – „Alfa” room



11:15 – 11:30	Adam Glema, Magdalena Pyszkowski <i>A scalable AI spatial assistant is transforming BIM from static data to spatial interoperability</i>
11:30 – 11:45	Dominik Szostak, Anna Borucka <i>A transportation agent who assists in selecting the driver-vehicle combination for carrying out tasks at a military unit</i>
11:45 – 12:00	Mateusz Klimas, Tadeusz Nowicki <i>A Genetic Algorithm for the Problem of Efficient Task Allocation in a Team Implementing an IT Project</i>
12:00 – 12:15	Mateusz Mazur, Anna Borucka <i>Computer Modeling of a Regional Emergency Resource Distribution Network Under Conditions of Disruption</i>
12:15 – 12:30	Maciej Wójtowicz, Michał Nessel, Rafał Zieliński, Franciszek Wołoch <i>Terrestrial Laser Scanning as the Basis for Creating BIM Resources to Support the Operation of Protective Structures</i>
12:30 – 12:45	Piotr Sielicki <i>Numerical determination of loads on underground structures from debris resulting from the progressive collapse of multi-story buildings</i>
12:45 – 13:00	Zuzanna Lewandowska, Marcin Nowak, Piotr Sielicki <i>The Effect of Modeling the Interaction Between Reinforcement and Concrete on the Numerical Response of Joints in a Reinforced Concrete Retaining Structure</i>
11:15 – 13:00	Thematic Session 14 – „Analysis and Control of Modern Power Systems” – „Omega” room
11:15 – 11:30	Maciej Klebba, Adrianna Klebba, Arkadiusz Frącz, Michał Brodzicki, Kamil Łukasik <i>Analysis of Discontinuous Energy Transfer Using Fryz's Power Theory</i>
11:30 – 11:45	Adrianna Klebba, Maciej Klebba, Arkadiusz Frącz, Michał Brodzicki <i>Theories of Non-Sinusoidal Waveform Power in Modern Computer Technology</i>
11:45 – 12:00	Michał Brodzicki, Maciej Klebba, Arkadiusz Frącz, Jacek Klucznik, Zbigniew Lubośny, Krzysztof Dobrzyński, Adrianna Klebba, Przemysław Chrabąszcz <i>A voltage source model for harmonic distortion analysis</i>
12:00 – 12:15	Michał Brodzicki, Maciej Klebba, Arkadiusz Frącz, Jacek Klucznik, Zbigniew Lubośny, Krzysztof Dobrzyński, Adrianna Klebba <i>Coordination of the permissible operating regions of VSC converters and synchronous generators in power flow analyses</i>
12:15 – 12:30	Zbigniew Lubośny, Krzysztof Dobrzyński, Jacek Klucznik, Dominik Falkowski, Michał Roman, Michał Brodzicki, Arkadiusz Frącz, Maciej Klebba <i>BESS in the HV grid as a source of virtual inertia</i>
12:30 – 12:45	Jacek Klucznik, Krzysztof Dobrzyński, Zbigniew Lubośny, Dominik Falkowski, Michał Roman, Michał Brodzicki, Arkadiusz Frącz, Maciej Klebba <i>Controlling MV Grid Voltage Using Energy Storage</i>
13:00 – 14:00	Lunch
17:30 – 19:00	Special Session NCBR – „Antresola” room
17:30 – 19:00	Poster Session 1 – „Alfa” room
	Przemysław Rumianek, Piotr Żach <i>Selected Topics in the Modeling of Two-Phase Safety Structures in Passenger Cars</i>
	Marcin Konarzewski, Robert Panowicz, Dorota Gajda, Tomasz Szreder, Magdalena Czerwińska, Piotr Prasuda <i>Properties of polyethylene terephthalate (PET) after X-ray-induced aging</i>
	Naftal Ngughu, Mirosław Wesołowski <i>Bimodulus Modelling of 3D-Printed Composite Beams</i>



Patryk Różyło

Experimental and Numerical Studies of Stability and Limit States of Thin-Walled Compressed Composite Profiles with Closed Cross-Sections

Eryk Babej, Tadeusz Smolnicki, Krzysztof Kozan

Numerical Analysis of the Effect of Torispherical Bottom Geometry on the Stress State Using the Finite Element Method

Kuba Roślaniec

Experimental and Numerical Analysis of the Stability of Thin-Walled ABS Structures Manufactured Using the FDM Additive Manufacturing Method

Sebastian Sławski, Aleksandra Kozłowska, Wojciech Borek

Analysis of the Distribution of Plastic Deformation During Uniaxial Hot Compression of Medium-Manganese Steel

Grzegorz Gembalczyk, Sławomir Duda

The Use of Acoustic Methods to Identify Changes in the Modular Stiffness of Aluminum Frames

Artur Zbiciak, Wiesław Grzesikiewicz, Zofia Kozyra, Michał Makowski

A dual-primitive optimization method for beam and frame systems with geometric constraints under strict and non-strict convexity

Leszek Czechowski

The Effect of Cross-Section Shape on the Stiffness and Strength of Printed Polymer Specimens

Grzegorz Kokot, Tomasz Rusin, Emilia Lewandowska

Full-field analysis of the deformation of a specimen with a local lattice structure using a multi-camera DIC system

Michał Doroszko, Wojciech Grodzki, Andrzej Seweryn

Numerical modeling of the deformation of metamaterials with a gyroid mesostructure produced by the LPBF method from a Ti-6Al-4V titanium alloy

Przemysław Rumianek, Piotr Żach

Hybrid Modelling of the Mechanical Response of EPP Foam Using Finite Element Analysis and Machine Learning Methods

Alicja Bera, Jakub Kowalski, Andrzej Seweryn

Deformation and Fracture of Notched Specimens Made of 2024 Aluminum Alloy Under Four-Point Asymmetric Bending Conditions

Augustine Appiah

Achieving Strength-Ductility Synergy in PBF-LB/M-Fabricated AlSi10Mg Alloys via SPD Post-Processing

Grzegorz Dulęba, Kamil Joszko, Ilona Łysy, Bożena Gzik-Zroska, Marek Łos, Marek Gzik

Experimental Determination of the Material Properties of a Biocompatible Polymer Matrix for the Design of Biomimetic Composite Structures

Jarosław Korpysa, Michał Leleń, Jerzy Józwik, Paul Bere

Assessment of the Effect of High-Pressure Waterjet Cutting Conditions on the Surface Condition of Multilayer CFRP/Al/CFRP Structures

Martyna Zemlik, Szymon Kocłęga, Jozef Bárta, Łukasz Konat, Krzysztof Jamroziak

Effect of Laser Welding Speed on the Microstructure, Mechanical Properties and Tribological Performance of Martensitic Abrasion-Resistant Steel

Katarzyna Falkowicz

Influence of tailored mechanical couplings on manufacturing-induced distortions of thin-walled CFRP profiles

Elżbieta Bura, Andrzej Seweryn

A Comparison of Constitutive Models in the Description of PMMA Behavior as a Function of Strain Rate



Ewelina Kosicka, Edward Kozłowski

Predictive modeling based on the results of experimental studies of selected properties of polymer composites

Paweł Pieśko, Magdalena Zawada-Michałowska, Paweł Bałon, Edward Rejman, Bartłomiej Kiełbasa

The Use of Experimental Modal Analysis and Cutting Force Component Measurements to Determine the Maximum Direction of Statistical Elasticity

Magdalena Zawada-Michałowska, Paweł Pieśko, Wojciech Jajuga

A Study of the Effect of Cutting Tool Geometry on Post-Machining Deformations in a Thin-Walled Component Made of a Selected Aluminum Alloy

Nikola Szypulska, Agnieszka Tomaszewska

Determination of Material Properties for a Mesoscale Model of a Knitted Surgical Mesh Based on a Biaxial Tensile Test

17:30 – 19:00 Poster Session 2 – „Omega” room

Sebastian Stanisławek, Kamil Sybilski, Anna Ewa Kuc, Szymon Saternus, Jerzy Małachowski

Numerical Analysis of Loads in the Stomatognathic System

Kacper Zajdel, Michał Stankiewicz

Design of an EMG-Controlled Hand Prosthesis

Krzysztof Kosiuczenko

Fatigue strength analysis of the load-carrying frame of a light off-road vehicle

Piotr Rybak, Zdzisław Hryciów, Andrzej Wiśniewski

Modeling of Power Transmission Systems for High-Speed Tracked Vehicles

Michał Makowski, Maciej Słomczyński, Katarzyna Rutczyńska-Wdowiak

Numerical Studies of the Effect of Damage to a Controlled Damper on Vehicle Vibrations

Filip Polak, Mirosław Karczewski

A Comparison of the Characteristics of AC and DC Motors for Powering Special-Purpose Vehicles

Adrianna Szumiejko, Mariusz Ptak, Bartosz Dołęga-Kozierowski, Jakub Skórniak

SMART-Breast Fusion: Integration of multimodal imaging, biomechanical models, and AI in the planning of breast-conserving surgeries

Marta Chmura, Piotr Wodarski, Anna Miller-Banaś, Mateusz Janecki, Justyna Romanek, Michał Szlęzak, Patryk Niczke, Marek Gzik, Jacek Jurkojć

The Effect of Proprioceptive Training on Anticipatory and Compensatory Postural Responses in Female Basketball Players

Daniel Dobrowolski, Wiesław Krasoń, Paweł Ziniewicz

Numerical Determination of the Elastic Characteristics of Multi-Leaf Spring Suspension Systems for Heavy-Duty Vehicles

Jakub Augustyniak, Dariusz Mariusz Perkowski

Image-based 3D trajectory analysis of air bubbles rising in water and in dilute SiO₂ nanofluids

Zdzisław Hryciów, Piotr Rybak, Andrzej Wiśniewski, Igor Golenia

Assessment of the Mobility of a Tracked Combat Vehicle

Liviu-Cristian Matache, Andrei-Mihai Braic, Adrian-Nicolae Rotariu, Marius-Ionut Marmureanu, Madalina-Gabriela Butnaru

Computational Analysis of Propellant Grain Configurations and Internal Ballistic Performance of Solid Rocket Motors



Ilona Łysy, Miłosz Chrzan, Sławomir Suchoń, Michał Burkacki, Aleksandra Błaszczak, Sandra Kaczmarek, Katarzyna Jochymczyk-Woźniak, Wojciech Wolański, Marek Gzik
Development and Validation of an Intraoral Device for Measuring Bite Force

Alicja Głowacka, Bartosz Minorowicz
Analytical Adaptation of a Machine for People with Mobility Disabilities

Żaneta Staszak, Michał Stasiak, Joanna Siwek, Przemysław Siwek
Modeling and Optimizing the Implementation of a Circular Economy in Businesses Using Digital Technologies

Robert Panowicz, Marcin Konarzewski, Adam Jeschke, Maciej Grudnik, Jakub Polkowski, Paweł Krysiński, Józef Paszula, Marcin Hara, Leszek Szymańczyk
Numerical analyses of the effects of explosives containing aluminum powder

Jarosław Selech, Jacek Marcinkiewicz
Analysis and Experimental Studies of New Mounting Techniques Used in Vibration Testing of Electric Vehicle Battery Packs

Krzysztof Twardoch, Igor Kotłowski, Daniel Stryjewski, Bogumił Chiliński
Analysis of the Concept for an Autonomous Mechatronic Platform to Support Field Work in Specialized Crops

Bogumił Chiliński, Adam Ptaszyński, Franciszek Gawiński, Krzysztof Twardoch
A Concept for a Spot-Spraying System Based on Vision Detection Enhanced by Artificial Intelligence Methods

Kamil Cieplak, Paweł Płatek, Paweł Baranowski, Konrad Szydło
The Use of MEX-FFF Technology and Metal Filaments in the Manufacturing of Linear Components for Cumulation Charges

Mirosław Karczewski, Filip Polak
Assessment of the Impact of Fuel Type on the Performance of a Hybrid-Powered Tracked Vehicle

Zdzisław Hryciów
Validation of Numerical Vehicle Models

Maksymilian Stępczak, Maciej Roszak, Mikołaj Kazimierczak, Krzysztof Jamroziak
Experimental Validation of Numerical Models under Dynamic and Ballistic Loading - An Overview of Multilevel Validation Strategies

Danuta Miedzińska, Krzysztof Kosiuczenko
Rigid body mechanics and FEM in the reconstruction of road and operational accidents

Zuzanna Barcikowska, Paweł Baranowski, Kamil Sybilski
Analysis of changes in bone structural loading during maxillary distraction

19:00 – Dinner

FRIDAY, OCTOBER 23

08:00 – 09:00 Breakfast

09:00 – 10:45 **Thematic Session 15 – „Mechanics and Strength of Advanced Materials and Structures” – „Antresola” room**

09:00 – 09:15 Robert Panowicz, Adam Jeschke, Marcin Konarzewski, Paweł Krysiński, Jakub Polkowski, Maciej Grudnik
Determining the actual stress-strain curve of materials over a wide temperature range before and after the formation of a constriction

09:15 – 09:30 Adam Wójcik, Danuta Miedzińska
Experimental and numerical studies of the mechanical properties of composites made from waste Kevlar, taking into account the degree of fiber fragmentation and PVB coating

09:30 – 09:45 Karolina Spychel, Paweł Baranowski
Research and Numerical Simulations of High-Strength Fabrics



09:45 – 10:00	Martyna Witkowska, Kamil Sybilski, Paweł Baranowski, Jerzy Małachowski <i>Cellular Structures as Shock-Absorbing Elements in Ballistic Helmets—A Numerical Analysis</i> Emilia Lewandowska, Grzegorz Kokot, Tomasz Rusin
10:00 – 10:15	<i>Analysis of Displacement and Strain Fields in Arundo donax Stems in a Four-Point Bending Test Using the DIC Method</i>
10:15 – 10:30	Szymon Kalinowski, Katarzyna Szepletowska, Éric Florentin, Izabela Lubowiecka <i>Optimization of the Thickness Distribution of the Hernia Mesh in a Biaxial Tensile Test</i>
09:00 – 10:45	Thematic Session 16 – „Human Motion Analysis and Biomedical Process Modeling” – „Alfa” room
09:00 – 09:15	Michał Stankiewicz, Marcin Konarzewski, Monika Chmielewska <i>A Comparative Analysis of Traditional and Multidirectional Treadmills in Terms of Determining Biomechanical Parameters of Gait</i>
09:15 – 09:30	Karolina Piela, Marcin Konarzewski, Michał Stankiewicz <i>A Comparative Assessment of the Impact of Marker Placement in Human Motion Analysis Systems on the Accuracy of Results</i>
09:30 – 09:45	Piotr Wyszomirski, Michał Stankiewicz <i>Implementation of an inertial body motion capture system based on custom hardware and software stacks</i>
09:45 – 10:00	Katarzyna Jakubowska, Michał Stankiewicz <i>Design of a Finger Exoskeleton</i>
10:00 – 10:15	Anna Miller-Banaś, Katarzyna Nowakowska-Lipiec, Robert Michnik <i>An Assessment of the Accuracy of a Spatial Reconstruction Model of Infants' Spontaneous Movements</i>
10:15 – 10:30	Anna Skorupa, Alicja Piasecka-Belkhat <i>A fuzzy analysis of the impact of setpoint temperature uncertainty in the Pegg's protocol on the cryopreservation process</i>
10:45 – 11:15	Coffee break
11:15 – 12:00	Closing of the Conference – „Antresola” room
12:00 – 13:00	Lunch and the participants' departure