10th International Conference on Advanced Materials and Structures

AMS'24

30 May-01 June 2024 Timișoara, Romania

Conference Program		
Thursday 30/05/2024		
18:00–19:00	**Registration**	**Casa POLITEHNICII 2 (University guesthouse) Blv. Mihai Eminescu 2**
19:00-21:00	**Welcome reception**	
Friday 31/05/2024		
8:30-9:00	**Registration**	**Central Library of Politehnica University Timisoara,** Vasile Pârvan 2B 300223 Timișoara
9:00-9:30	**Welcome addresses**	
9:30-11:00	**Plenary Session (Papers 1, 2, 3)**	
11:00-11:30	**Coffee Break**	
11:30-13:45	**Parallel Sessions 1**	
13:45-15:00	**Lunch**	
15:00-17:15	**Parallel Sessions 2**	
17:15-18:00	**Coffee Break + Poster Session**	
19:00-22:00	**Conference Dinner**	**Timișoreana Brewery,** Strada Ștefan cel Mare, No. 28, Timișoara
Saturday 01/06/2024		
8:30	**Departure to Hunedoara**	
11:00-12:00	**Closing lectures (Papers 4, 5) and closing ceremony**	**Faculty Engineering Hunedoara**
12:00-14:00	**Visit of the Corvin Castle Hunedoara**	**Hunedoara**
14:00	**Lunch**	
15:00	**Departure to Timisoara**	

Friday 31/05/2024

Plenary Session (Auditorium Room)

*Chairman: **I.D.Uțu** (Romania)*

9:30-10:00	Topology optimization of 3D structures considering realistic milling tools as constraints (Germany) *Christopher Colling, Axel Schumacher, Klaus Mecking*
10:00-10:30	Development and properties of composite metal foams (Hungary) *Imre Norbert Orbulov*
10:30-11:00	Strain analysis in a 3D printed car brake pedal by numerical and experimental methods (Romania) *Mircea Cristian Dudescu, Laszlo Racz, Cristian Vilău*

Parallel Sessions 1

Advanced materials and Surface engineering – *Auditorium Room*

*Chairman: **G. Mărginean** (Germany) and **R. Muntean** (Romania)*

11:30-11:45	Unidirectional steel wire reinforced metal matrix syntactic foams *Benedek Szovák, Alexandra Kemény, Imre Norbert Orbulov*
11:45-12:00	Investigation of the tensile strength of waste material: Romanian "Țurcana" Wool and its prospective applications in composites *Corina Șoșdean, Sergiu Galatanu, Emanoil Linul*
12:00-12:15	Experimental investigations regarding the anisotropic properties of pre-impregnated woven carbon fibre-reinforced epoxy resin *Robert-Cătălin Sîrbu, Alexandru-Viorel Coșa, Lucian Rusu, Dan-Andrei Șerban*
12:15-12:30	Characterization of a low-friction EPDM for dynamic sealing applications: tensile, wear behavior, hot water resistance and component identification using HPLC *Daniel Foltuț, Georgiana-Iulia Sosoi, Oana Simoc, Dragoș-Toader Pascal, Ion-Dragoș Uțu, Francisc Peter, Cristina Paul Viorel-Aurel Șerban*
12:30-12:45	Comprehensive study of EPDM rubber properties: temperature-dependent stiffness, tensile behavior, compression set, hardness, and fea model calibration *Daniel Foltuț, Estera Vălean, Georgiana-Iulia Sosoi, Dragoș-Toader Pascal, Jan Pospisil, Monica Buzdugan, Viorel-Aurel Șerban*
12:45-13:00	Comparative corrosion and wear behavior of cermet coatings obtained from conventional and recycled powders *Dino Woelk, Julian Essler, Ion-Dragoş Uțu, Gabriela Mărginean*
13:00-13:15	Microstructural investigation of vacuum brazed graded NiCrBSi alloy *Marco Brand, Mareen Goßling, Ion-Dragoş Uțu, Gabriela Mărginean*

13:15-13:30	Study on wear and thermal conductivity properties of HVOF sprayed Cr3C2-NiCr and hBN Cr3C2-NiCr coatings *Julian Essler, Dino Woelk, Ion-Dragoş Uţu, Gabriela Mărginean*
13:30-13:45	Nanoporous Cu-based amorphous alloys prepared by selective dissolution in acidic media *Sebastian Ambruș, Roxana Muntean, Dragoș Buzdugan, Cosmin Codrean, Viorel-Aurel Șerban*

Materials damage under time-dependent-actions (fatigue, creep, impact, corrosion)
Modern fabrication, additive manufacturing, joints and recycling technologies – *Polivalent Room*

Chairman: **J. Kováčik** *(*Slovakia*) and* ***L. Marsavina*** *(Romania)*

11:30-11:45	Impact of aging on tensile properties of EPDM, TPV, and eco-TPV: a comparative study across diverse environments *Daniel Foltuț, Georgiana-Iulia Sosoi, Estera Vălean, Jan Pospisil, Dragoș-Toader Pascal, Oana Simoc, Viorel-Aurel Șerban*
11:45-12:00	Quality assessment of aluminum alloys for automotive rims *Doru Sapta, Ana Socalici, Corneliu Birtok Baneasa, Vasile Putan*
12:00-12:15	The influence of anisotropy on the vibration behavior of additively manufactured AlSi10Mg specimens *Christian Öhl, Sergiu-Valentin Galațanu, Emanoil Linul*
12:15-12:30	Evaluation of artichoke extract as a corrosion inhibitor for copper and ol45 in aggressive environments *George-Daniel Dima, Mircea Laurențiu Dan, Nataliia Rudenko, Alin Faur, Cristian George Vaszilcsin*
12:30-12:45	The influence of citric acid on the corrosion process of different metallic materials *Nataliia Rudenko, George-Daniel Dima, Mircea Laurențiu Dan*
12:45-13:00	Influence of curing time and temperature on the mechanical properties of resins manufactured through stereolithography *Alexandru-Viorel Coșa, Marian-Vasile Baban, Dan-Andrei Șerban*
13:00-13:15	Possibilities of recycling ferrous sludges in steel industry *Adriana Bobora, Ana Socalici, Corneliu Birtok Baneasa, Doru Sapta*
13:15-13:30	Influence of various parameters on mode I fracture toughness of UV sensitive resin specimens manufactured through DLP *Marian Vasile Baban, Alexandru Viorel Coșa, Emanoil Linul*
13:30-13:45	304L austenitic stainless steel corrosion studies in neutral environment in presence of sulphite ions *Mihaela-Alexandra Lăboșel, Nataliia Rudenko, George-Daniel Dima, Mircea Laurențiu Dan, Nicolae Vaszilcsin*

Parallel Sessions 2

Advanced materials and Surface engineering – *Auditorium Room*

Chairman: ***C. Codrean*** *(Romania) and* ***D. Buzdugan*** *(Romania)*

15:00-15:15	Composite and gradient aluminium foams prepared using artificial sun at Synlight *Jaroslav Kováčik, Peter Oslanec, Dmitrij Laaber, José Galindo, José Rodríguez, Inmaculada Cañadas*
15:15-15:30	Synthesis of Cu/Cu2O-ZrO mix oxide by self-sustained combustion of amorphous ribbons *Mircea Nicolaescu, Cosmin Codrean, Petru Hididis, Mina Morariu(Popescu), Carmen Lazau, Cornelia Bandas, Corina Orha*
15:30-15:45	Influence of dealloying on wetting behavior and adhesion properties of Cu-Zr-Al-Ag glassy ribbons *Petru Hididis, Mircea Nicolaescu, Iosif Hulka, Viorel-Aurel Şerban*
15:45-16:00	Soft magnetic composite compacts of Permalloy/alumina type prepared by reaction spark plasma sintering *Traian Florin Marinca, Bogdan Viorel Neamțu, Florin Popa, Virgiliu Călin Pricăi, Argentina Niculina Sechel, Ionel Chicinaș*
16:00-16:15	Effect of electrolyte pH on additive-free NiFe electrodeposition for electrocatalytic OER application in AEM water electrolysis *Maximilian Cieluch, Norbert Kazamer, Swen Zerebecki, Leonard Böhm, Florian Wirkert, Ulf-Peter Apfel, Michael Brodmann*
16:15-16:30	Effect of laser beam wobbling on the microstructure and mechanical properties of heterogeneous Al alloy welded joints *Silviu-Adrian Oană, Olimpiu Karancsi, Ion Mitelea*
16:30-16:45	Femtosecond laser-induced periodic nanosurface structuring on porous nickel transport layers for use in alkaline membrane water electrolyzers *Haujin Salih, Maximilian Cieluch, Norbert Kazamer, Florian Wirkert, Cemal Esen, Michael Brodmann*
16:45-17:00	Obtaining antimicrobial polymer composites based on copper oxide nanoparticles for sports medical *Vasile Dzitac, Gerlinde Iuliana Rusu, Daniel Foltuț, Estera Valean, Mircea Vodă, Viorel-Aurel Şerban*
17:00-17:15	A head-to-head comparison of hexahedral and tetrahedral meshes in simulating tire behavior under high loading-rate in ABAQUS explicit *Baurice Sylvain Sadjiep Tchuigwa, Jan Krmela, Jan Pokorny*

Modern fabrication, additive manufacturing, joints and recycling technologies
Computational techniques for advanced engineering materials and structures - *Polivalent Room*

Chairman: ***M. C. Dudescu*** *(Romania) and* ***D. Serban*** *(Romania)*

15:00-15:15	A study of the effect of welding parameters on macrostructure properties and heat distribution in FSW of aluminium metal matrix composite *Marius Pop-Călimanu*

15:15-15:30	Determination and validation of resonance frequencies of a frame concept for an experimental impact testing stand *Vasiliu Andrei-Florentin, Murariu Gabriel, Sergiu Galatanu, Philip Coanda*
15:30-15:45	Behaviour of AZ91 magnesium alloy in tension and torsion: experimental investigations and numerical modelling *Mihai-Alin Murariu, Lucian Rusu, George Belgiu, Dan-Andrei Șerban*
15:45-16:00	Evaluation of the layering adhesion between PLA and TPE materials *Gabriel Murariu, Matei Marin-Corciu, Sergiu-Valentin Galațanu*
16:00-16:15	Determination of the ductile damage parameters of hot rolled S700MC steel *Dan-Andrei Șerban, Alexandru-Viorel Coșa, Radu Negru*
16:15-16:30	Design and structural optimization of an assembled re-entrant auxetic structure *Dan-Andrei Șerban*
16:30-16:45	Failure analysis of Cu-DHP joining processes: a comparative study of FSW and SFSW techniques *Lia-Nicoleta Boțilă, Ion-Aurel Perianu, Bogdan Radu, Cosmin Codrean, Mircea Nicolaescu, Emilia-Florina Binchiciu*
16:45-17:00	A thermomechanical analysis of a steady state rolling tire with hyper-pseudo-viscoelastic rubber compound using finite element analysis *Baurice Sylvain Sadjiep Tchuigwa, Jan Krmela, Jan Pokorny*
17:00-17:15	Finite element analysis of the impact of the choice of rubber compound constitutive behavior on the transient response of a tire rolling over an obstacle *Baurice Sylvain Sadjiep Tchuigwa, Jan Krmela, Jan Pokorny*
17:15-17:30	Finite element modeling and analysis of tire creep test *Baurice Sylvain Sadjiep Tchuigwa, Jan Krmela, Jan Pokorny*
17:30-17:45	A comprehensive investigation of the influence of the choice of rubber compound material behavior on steady-state rolling tire using finite element analysis *Baurice Sylvain Sadjiep Tchuigwa, Jan Krmela, Jan Pokorny*

Poster Session

Chairman: ***C. Opriș*** *(Romania)*

Paper code / Title / Author(s)

001 – Optimizing milling processes through FEA: an in-depth analysis of cutting tool geometric parameters and their impact on performance of milling
Martin Necpal, Jozef Peterka, Marek Vozár

002 – Application and impact of automation in crimping processes
Ilca Dacian, Manescu Tiberiu, Gillich Gilbert-Rainer, Praisach Zeno-Iosif, Tufisi Cristian

003 – Crimp height influence over resistivity in wiring crimping process
Florin Dragomir, Tiberiu Manescu, Gilbert-Rainer Gillich

004 – Effects of immersion in sulfuric acid-water solutions on the physico-chemical properties of EPDM, TPV and eco TPV: a combined approach using volumetric, mass, thermal, and microscopic techniques
Daniel Foltuț, Georgiana-Iulia Sosoi, Jan Pospisil, Dragoș-Toader Pascal,Viorel-Aurel Șerban

005 – Characterisation of the properties of arc welded aluminium matrix syntactic foam-filled tubes
Gábor Pados, Alexandra Kemény, Imre Norbert Orbulov

006 – The influence of welding angle in the process of submerged arc welding of pressure vessel steel P355 N
Cioroagă Bogdan-Dorel, Socalici Ana Virginia, Cioată Vasile George, Dascăl Amalia Ana, Linul Emanoil

007 – Strain analysis in a 3D printed car brake pedal by numerical and experimental methods
Gyorgy Thalmaier, Niculina A. Sechel, Ioan Vida-Simiti, Andreea Hegyi

008 – Boosting dynamic energy absorption performance and stability loss prediction of an all-PET sandwich structure through artificial neural networks
Prodan Iulia Maria, Lache Simona, Berariu Andrei Ionut

009 – Statistical method of extracting assembly stresses in over-constrained solder-less press-fit pin technology for vibration reliability analysis
Mihai Drienovsky, Marius Daniel Pop, Cristian Sorin Nes, Arjana Davidescu

010 – Effect of ethylene glycol on NiMo pulsed electrodeposition for AEM water electrolysis cathodes
Leonard Böhm, Norbert Kazamer, Maximilian Cieluch, Florian Wirkert, Pit Podleschny, Gabriela Mărginean, Ulf-Peter Apfel, Michael Brodmann

011 – The scale effect of PLA-printed components under compression
Cristina Vălean, Sergiu-Valentin Galațanu, Nicușor-Alin Sîrbu, Ion Aurel Perianu, Emanoil Linul

012 – Cryogenic behavior of closed-cell AlSi10 foams
Răzvan Paul Bercuci, Liviu Marsavina, Jaroslav Kováčik, Emanoil Linul

013 – Effect of infill density on flexural characteristics of material extrusion-based additive manufacturing PLA parts
Ion Miron, Cristina Vălean, Emanoil Linul

014 –	Compressive behavior of PVC filled tubes *Andreea-Iustina Rusu, Cristina Vălean, Emanoil Linul*
015 –	Laser cladding of bioceramic coatings on titanium alloy substrate for biomedical applications *Aura – Cătălina Mocanu, Florin Miculescu, Alexandru Pascu, Elena – Sorina Dondea, Paul Stoica, Damian Căruntu*
016 –	Composite materials with antimicrobial features used for 3D printing implantable devices *Elena – Sorina Dondea, Florin Miculescu, Dan Batalu, Aura – Cătălina Mocanu, Paul – Gabriel Stoica, Damian Căruntu*
017 –	Development of a cost-effective anode for PEM water electrolysis *Roxana Muntean, Sebastian Ambruș, George Dima, Mircea Laurențiu Dan, Andrea Kellenberger, Corneliu Crăciunescu, Nicolae Vaszilcsin*
018 –	Microstructure and surface properties of Co-based brazed alloys coatings *Iasmina-Mădălina Anghel (Petculescu), Ion-Dragoș Uțu, Diana Uțu, Albert Titus Constantin*
019 –	Fe35Co20Ni23Si10Cu7Mo5 soft magnetic high entropy alloys *E. Karaçay, C.V. Pricã, T.F. Marinca, F. Popa, B.V. Neamţu, I. Chicinaş*
020 –	Investigation of an automotive part obtained by the WIG process *Florin Chepetean, Anamaria Ioana Feier, Felicia Veronica Banciu*
021 –	Determination of material properties for cellular foams using computer tomography scans and correlation between finite elements analysis and experimental data from resonance test *Andrei-Nicolae Bădăluță, Ionuț-Iulian Ailinei*
022 –	Mechanical properties of egg-shell powder reinforced polymer composites *Iasmina-Mădălina Anghel (Petculescu), Carmen Opriș, Ion-Dragoș Uțu, Emanoil Linul, Diana Uțu*
023 –	Rapid prototyping using laser scanning and 3D modeling techniques *Ștefan Adrian Țimpea, Adrian - Ilie Dume, Vasile Dzitac, Viorel - Aurel Șerban*
024 –	Microstructural and compositional characterization of grade 304L stainless steel surfaces cut by abrasive water jet technology *Ion-Aurel Perianu, Dragoș Buzdugan, Iosif Hulka, Ion Mitelea*

Saturday 01/06/2024

Closing lectures (Papers 4, 5) and closing ceremony

Chairman: ***Gelu Ovidiu Tirian*** *(Romania)*

11:00-11:30	Testing and simulation of composites and tires (*Slovakia*) *Jan Krmela*
11:30-11:50	Arcelor Mittal – The world's leading steel and mining company *(Romania)* *Pawar Shimoga*