



## 9<sup>th</sup> International Conference on Advanced Materials and Structures

### AMS'22

16-18 June 2022 Timisoara, Romania

<b>Conference Program</b>		
<b>Thursday 16/06/2022</b>		
18:00-19:00	<b>Registration</b>	<b>Casa POLITEHNICII 2 (University guesthouse) Blv. Mihai Eminescu 2</b>
19:00-21:00	<b>Welcome reception</b>	
<b>Friday 17/06/2022</b>		
8:00-9:00	<b>Registration</b>	<b>Central Library of Politehnica University Timisoara, Vasile Parvan 2B 300223 Timisoara</b>
9:00-9:30	<b>Welcome addresses</b>	
9:30-11:00	<b>Plenary Session</b>	
11:00-11:30	<b>Coffee Break</b>	
11:30-13:30	<b>Parallel Sessions 1</b>	
13:30-15:00	<b>Lunch</b>	
15:00-17:00	<b>Parallel Sessions 2</b>	
17:00-18:00	<b>Coffee Break + Poster Session</b>	
18:00-18:30	<b>Open lab visit: "Innovative design for enhanced functionalities"</b>	<b>Mechanical Faculty for Engineering, Bv. Mihai Viteazu 1, SPM building, room 113</b>
19:30-22:00	<b>Conference Dinner</b>	<b>Timisoreana Brewery, Strada Stefan cel Mare, No. 28, Timisoara</b>
<b>Saturday 18/06/2022</b>		
10:00	<b>Departure to Buzias</b>	
10:45-12:00	<b>Visit Buzias Resort</b>	
12:00-14:00	<b>Lunch</b>	<b>ARAMIC Wine Cellar, Buzias</b>
14:00	<b>Departure to Timisoara</b>	

## Friday 17/06/2022

### Plenary Session

*Chairman: V.A. Serban (Romania) and L. Marsavina (Romania)*

9:30-10:00	Effect of sample shape on compression behavior of Aluminum foams (Slovakia) <i>Jaroslav Kováčik, Jaroslav Jerz, Arun Gopinathan, Liviu Marsavina, Emanoil Linul</i>
10:00-10:30	Combinatorial Design of Novel Bipolar Plate Coatings for Proton Exchange Membrane Electrolyzers - A Romanian-Norway EEA Grant (Romania) <i>Corneliu-Marius Craciunescu</i>
10:30-11:00	Investigations of novel two-phase composites – experimental assessment of mechanical properties and numerical modelling under low velocity and impact loadings (Poland) <i>Tomasz Sadowski, Eligiusz Postek, Daniel Pietras, Kamil Łosiewicz</i>

### Parallel Sessions 1

#### Advanced materials, Joints and Surface engineering – KI Room

*Chairmans: C. Craciunescu (Romania) and I. D. Utu (Romania)*

11:30-11:45	Preparation and analysis of electrocatalysts for PEM water electrolyzers based on laser-generated iridiumoxide nanoparticles for oxygen evolution reaction <i>Norbert Kazamer, Sven Reichenberger, Mathias Spree, Ulrich Rost, Meike Tack, Tejas Bopardikar, Florian Wirkert, Haujin Salih, Leonard Böhm, Maximilian Cieluch, Jeffrey Roth, Tom Zoz, Tim Hülser, Stephan Barcikowski, Michael Brodmann</i>
11:45-12:00	Influence of the powder feed rate on the properties of HVOF sprayed WC-based Cermet coatings <i>Julian Eßler, Dino Woelk, Dragos Utu, Gabriela Marginean</i>
12:00-12:15	Corrosion behavior of 316L additively produced by Directed Energy Deposition-Arc <i>Marco Brand, Ghazal Moeini, Gabriela Marginean</i>
12:15-12:30	Structural transformations in resistance spot-welded joints from Nimonic 80A superalloys <i>Lucian Calin Burca, Olimpiu Karancsy, Ion Mitelea, Ion-Dragos Utu, Mircea Burca</i>
12:30-12:45	Inoculating Elements and Solidification Cooling Rate Influence on the Graphite Characteristics in High-Si Ductile Cast Iron <i>Iulian Riposan, Eduard Stefan, Stelian Stan, Denisa Anca, Iuliana Stan, Mihai Chisamera</i>
12:45-13:00	Heat aging effect on tensile behavior at different strain rates of thermoplastic styrene elastomer <i>Daniel Foltut, Estera Valean, Vasile Dzitac, Dragos-Stefan Batrina, Oana Simoc, Viorel-Aurel Serban</i>

13:00-13:15	The role of filler material selection in the laser welding process of deformable 6xxx series aluminum alloys <i>Silviu-Adrian Oana, Olimpiu Karancsy, Ion Mitelea, Ion-Dragos Utu, Corneliu-Marius Craciunescu</i>
13:15-13:30	Experiments on Nd:YAG pulsed laser welding of thin sheets <i>Dragos - Dumitru Valsan, Vlad Bolocan, Mircea Burca, Corneliu-Marius Craciunescu</i>

### **Computational techniques, composite and cellular materials – K2 Room**

*Chairmans: J. Kováčik (Slovakia) and E. Linul (Romania)*

11:30-11:45	The effect of interfacial reaction on the compressive properties of syntactic foams <i>Csilla Kádár, Pierre Kubelka, Attila Szlancsik, Imre Norbert Orbulov, Norbert Jost</i>
11:45-12:00	On the mechanical properties of functionally graded hybrid metal foams <i>Dóra Kovács, Benedek Szovák, Alexandra Kemény, Csilla Wiener</i>
12:00-12:15	Assessment of Mechanical Properties by Massive Nanoindentation of Interpenetrated Composites AlSi12/SiC <i>Tomasz Sadowski, Kamil Łosiewicz</i>
12:15-12:30	Pop-in Phenomenon at Nanoindentation and Fracture Toughness of Two-Phase Ceramic Composites <i>Tomasz Sadowski, Kamil Łosiewicz</i>
12:30-12:45	The Influence of Anisotropy on the Quasi-Static Compressive Behavior of Closed-Cell Aluminum Foam <i>Bercuci Razvan Paul, Marsavina Liviu, Kováčik Jaroslav, Galatanu Sergiu-Valentin, Linul Emanoil</i>
12:45-13:00	Static and Dynamic Fracture Toughness of Polycarbonate Composites <i>Krausz Tamas, Popa Cosmin Florin, Galatanu Sergiu-Valentin, Marsavina Liviu</i>
13:00-13:15	Numerical analysis of glass – adhesive – steel bonding <i>Madroane Denis-Florin, Linul Emanoil, Galatanu Sergiu-Valentin</i>

### **Parallel Sessions 2**

#### **Advanced materials, Joints and Surface engineering – K1 Room**

*Chairmans: C. Codrean (Romania) and B. Radu (Romania)*

15:00-15:15	On-site solution for dimensional nonconformity of the injected parts <i>Stan Daniel Voicu, Firu Adrian Ciprian, Tapirdea Alin Ion</i>
15:15-15:30	Microactuation in bi-layered shape memory alloy structures <i>Vlad Bolocan, Dragos-Dumitru Valsan, Aurel Ercuta, Corneliu-Marius Craciunescu</i>
15:30-15:45	The behaviour of EDPM specimens during strain tests <i>Dohan Vlad, Zub Ciprian-Ionut, Sirbu Nicusor-Alin, Linul Emanoil, Galatanu Sergiu-Valentin</i>

15:45-16:00	Anodic sulphite oxidation on lead electrode in a neutral environment <i>Mihaela-Alexandra Labosel, Mircea Laurentiu Dan, George-Daniel Dima, Delia-Andrada Duca, Nicolae Vaszilcsin</i>
16:00-16:15	Analysis of electric flux arc welding parameters influence using visual x-ray inspection <i>Cioroaga Bogdan-Dorel, Socalici Ana Virginia, Cioata Vasile George, Dascal Amalia Ana, Ardelean Marius</i>
16:15-16:30	Extension of cutting domain for aluminium plates with fiber laser using active assist gas <i>Zgripcea Laurentiu, Ardelean Marius, Putan Vasile, Corneliu Birtok-Baneasa, Richard Molnar</i>
16:30-16:45	Comparative study of filtration parameters depending on the nature of the filter material <i>Bucevschi Robert, Socalici Ana, Budiul Berghian Adina, Birtok Baneasa Corneliu</i>
16:45-17:00	Synthesis of nanoporos copper decorate with copper oxide nanowire by dealloying and thermal oxidation of CuZrAl amorphous ribbons <i>Mircea Nicolaescu, Petru Hididis, Coet Celestin, Damien Brierec, Cosmin Codrean, Melinda Vajda, Corina Orhab, Cornelia Bandas, Carmen Lazau, Mircea Voda, Viorel Aurel Serban</i>
<b>Additive manufacturing – K2 Room</b>	
<i>Chairmans: L. Marsavina (Romania) and D. Serban (Romania)</i>	
15:00-15:15	Effect of Infill Pattern on Fatigue Characteristics of 3D Printed Polymers <i>Laszlo Racza, Florin Popa, Mircea Cristian Dudescu</i>
15:15-15:30	The effect of process parameters on fracture toughness of components obtained via DLP additive manufacturing technology <i>Roberto Brighenti, Liviu Marsavina, Mihai P. Marghitas, Matteo Montanari, Andreea Spagnoli, Farzad Tatar</i>
15:30-15:45	Mode I Fracture Toughness of DLP Printed PLA Specimens <i>Baban Marian, Galatanu Sergiu-Valentin, Linul Emanoil</i>
15:45-16:00	The influence of temperature on the mechanical properties of 3D printed and injection ABS <i>Daniel Foltut, Estera Valean, Vasile Dzitac, Liviu Marsavina</i>
16:00-16:15	Numerical and experimental study for FDM printed specimens from PLA under Izod impact tests <i>Popa Cosmin Florin, Krausz Tamas, Galatanu Sergiu-Valentin, Linul Emanoil, Marsavina Liviu</i>
16:15-16:30	Geometrical optimization of a CFRP prosthetic running blade using computer-aided methods <i>Alexandru Szabo, Robert Catalin Sirbu, Dan-Andrei Serban, Radu Negru</i>
16:30-16:45	Numerical analysis of a Rugby union protective helmet under impact loading <i>Sorin Sarandan, Radu Negru, Liviu Marsavina, Dan-Andrei Serban</i>
16:45-17:00	Numerical analysis of osteosynthesis plates used in the reconstruction of the mandible <i>Burca Beatrice Adelina, Popa Cosmin Florin, Urechescu Horatiu, Galatanu Sergiu-Valentin</i>

## Poster Session

Chairman: *C. Opris (Romania)*

### Paper code / Title / Author(s)

- 001 – Investigation of the bending properties of ex-situ functional metal foams  
*Gábor Pados, Alexandra Kemény, Dóra Kovács, Imre Norbert Orbulov*
- 002 – Possibility of nuclear and space applications of metal foams  
*János Endre Maróti, Imre Norbert Orbulov*
- 003 – Effect of the technological conditions on the surface properties of electron-beam modified Ti6Al4V alloy  
*Maria Ormanova, Stefan Valkov, Georgi Kotlarski, Borislav Stoyanov*
- 004 – Comparison of dynamic testing methods on graded and homogenic composite metal foams  
*Borbála Leveles, Zsolt Iklódi, Dóra Kovács, Alexandra Kemény*
- 005 – Evaluation of biomimetic dental fillings by computed tomography and scanning electron microscopy  
*Levente Borhy, Péter Zoltán Farkas, Borbála Leveles, Alexandra Kemény*
- 006 – In-situ mechanical characterisation of composite metal foams during computed tomography analysis  
*Alexandra Kemény, Borbála Leveles, Dóra Kovács, Tamás Bubonyi, János Endre Maróti, Imre Norbert Orbulov*
- 007 – Alternative Technological Processes for Increasing the Cavitation Erosion Resistance of Nimonic 80 A Superalloys  
*Cosmin Belin, Ion Mitelea, Ilare Bordeasu, Ion-Drăgost Utu, Corneliu-Marius Crăciunescu*
- 008 – Pulsed TIG cladding of a highly C- Cr- Mo- Nb- W- V- alloyed flux-cored wire electrode on Duplex stainless steel X2CrNiMoN 22-5-3  
*Daniel Mutascu, Olimpiu Karaneci, Ion Mitelea, Ion-Drăgost Utu, Mircea Burca*
- 009 – Statistical method of extracting assembly stresses in over-constrained solder-less press-fit pin technology for vibration reliability analysis.  
*Drienovsky Mihai, Pop Daniel Marius, Nes Cristian Sorin, Davidescu Arjana*
- 010 – Enhancing the cavitation erosion resistance of GX40CrNiSi25 - 20 cast stainless steel by surface TIG remelting  
*Daniela Cosma (Alexa), Ion Mitelea, Ilare Bordeasu, Drăgost Utu, Corneliu Marius Crăciunescu*
- 011 – Implementation Of Manual Metal Arc Welding With Pulsed Current On Tig Modern Inverter Welding Equipment  
*Aurelian Magda, Mircea Burca*
- 012 – Surface characteristics assessment among layers of different translucent multilayered dental zirconia related to aging  
*Flavia Roxana Toma, Mihaela Ionela-Birdeanu, Ion-Drăgost Utu, Liliana Porojan*

- 013 – Surface Roughness and Color Changes of Dental Peek Related to Staining Beverages and Cleaning Methods  
*Porojan Liliana, Toma Flavia Roxana, Vasiliu Roxana Diana, Matichescu Anamaria*
- 014 – Cavitation erosion characteristics of the EN AW - 6082 aluminum alloy by TIG remelting  
*Florin Frant, Ion Mitelea, Ilare Bordeasu, Ion-Dragos Utu, Corneliu-Marius Craciunescu, Cristi Ghera*
- 015 – Influence of the Heat Input on the Microstructure of Wire Arc Additively Manufactured AlSi5 (Al4043) components  
*Georgi Kotlarski, Maria Ormanova, Stefan Valkov, Nikolay Doynov, Ralf Ossenbrink, Vesselin Michailov*
- 016 – Tensile properties of carbon fiber - reinforced PLA composites manufactured by FDM  
*Valean Estera, Florea Gabriel, Dragos-Stefan Batrina, Galatanu Sergiu Valentin, Linul Emanoil*
- 017 – Mechanical characterization of CuSn6 material  
*Pop Daniel Marius, Drienovsky Mihai, Nes Cristian Sorin, Anghel Cernescu*
- 018 – The characteristics of the spot welding process with stored energy of Ni63Cr12Fe4Si8B13 amorphous alloy ribbons  
*Draganescu Dragoş, Codrean Cosmin, Buzdugan Dragos, Mitelea Ion, Burca Mircea*
- 019 – A Mini-Review on Mechanical Behavior of Recycled FDM Printed Parts  
*Madroane Denis-Florin, Galatanu Sergiu-Valentin, Marsavina Liviu, Linul Emanoil*
- 020 – Impurity Clustering Effect in Fe-Doped Lead Titanate  
*Zarbo Liviu, Morari Cristian*
- 021 – Computational investigation of Aluminum Oxide formation at Aluminum surface  
*Buimaga-Iarinca Luiza, Zarbo Liviu, Morari Cristian*
- 022 – Numerical modelling of response of continuous composite - Al-SiC to applied the mechanical loadings  
*Daniel Pietras, Tomasz Sadowski, Lidia Wójcik*
- 023 – Data image correlation analyses of the destruction process of 3D printable layered structures subjected to the bending process  
*Wojciech Zbyszynski, Tomasz Sadowski, Daniel Pietras*
- 024 – Research regarding reducing oxygen content in steels used in pipe manufacturing  
*Poenaru Iulia Olivia, Socalici Ana, Magaon Miruna, Ardelean Erika, Budiul Berghian Adina*
- 025 – Research on the behavior of the immersion tubes in continuous castings of steels  
*Radu Mihai, Heput Teodor, Ardelean Erika, Popa Erika, Putan Vasile*
- 026 – The effect of coupling medium on color and translucency of Polyetheretherketone (PEEK)  
*Bris Roxana-Cristina, Roxana-Diana Vasiliu, Liliana Porojan*
- 027 – Corrosion resistance of hydroxyapatite-modified TiO2 coatings obtained by plasma electrolytic oxidation and electrophoretic deposition

*Muntean Roxana, Brindusoiu Mihai, Buzdugan Dragos, Nemes Nicoleta, Kellenberger Andrea, Utu Ion Dragos*

- 028 – 3D printed mold for prototype fabrication of graphite/paraffin spheres  
*Gyorgy Thalmaier, Uifalean Steluta, Griga Alexandru, Niculina A. Sechel, Ioan Vida-Simiti*
- 029 – Effect of heating on flame straightening on STRENX 960 steem microstructure  
*Richard Molnar, Anamaria Feier, Oana Chivu, Aurelian Magda, Irinel Stefan*
- 030 – Automotive components obtained through Wire Arc Additive Manufacturing  
*Ioan Buta, Cosmin Paval, Andrei Becheru, Anamaria Feier, Felicia Banciu*
- 031 – A robot arm based on additive manufacturing principle used in FDM Process  
*Laurentiu Stamorean, Alin Ciupescu, Mihai Brindusoiu, Anamaria Feier, Felicia Banciu*
- 032 – Core-shell structures developed from polymeric filaments and biogenic ceramic coatings destined for guided bone regeneration  
*Aura-Catalina Mocanu, Florin Miculescu, Catalina-Andreea Dascalu, Andreea Elena Constantinescu*
- 033 – Development of ceramic coatings on titanium alloy substrate by laser cladding: influence of natural hydroxyapatite ratio and beam power  
*Aura-Catalina Mocanu, Florin Miculescu, Tudor Mihai Butte, George E. Stan, Marian Miculescu, Alexandru Pascu, Robert-Catalin Ciocoiu*
- 034 – The Chemical Composition of Postconsumer Aluminum Scrap – A Challenge in Aluminum Recycling  
*Ciprian Bulei, Mihai–Paul Todor, Imre Kiss*
- 035 – Composite Molding Press used to Produce Plate Composite Parts  
*Mihai–Paul Todor, Ciprian Bulei, Imre Kiss*
- 036 – Non–Steel Reinforcements for Reinforced Concrete  
*Andrei–Mihai Baciu, Imre Kiss, Teodor Heput*
- 037 – Considerations on ZrO<sub>2</sub> reinforced self-fluxing Ni-based thermally sprayed alloys  
*Norbert Kazamer, Roxana Muntean, Ion-Dragos Utu, Gabriela Marginean*
- 038 – Investigations of galvanically deposited NiMo hydrogen evolution electrocatalysts in alkaline media  
*Leonard Böhm, Norbert Kazamer, Florian Wirkert, Ulrich Rost, Roxana Muntean, Dragos Buzdugan, Ulf-Peter Apfel, Michael Brodmann*
- 039 – 3D modeling and numerical simulation of various modify lattice structure  
*Stefan Adrian Timpea, Viorel-Aurel Serban, Cosmin Codrean, Cristian Cosma, Adrian Ilie Dume*
- 040 – Analysis of Quality Characteristics of Abrasive Water-Jet Cutting of Kevlar Fiber-Reinforced Polymers  
*Dinu Gubencu, Carmen Opris, Adelina Han, Cristian Lazar*
- 041 – Corrosion Resistance Enhancement of the PEMWE Bipolar Plates by Ni-Ti Magnetron Sputtering Deposition  
*Mircea Dan, Delia Duca, Corneliu Craciunescu, Sigrid Lædre, Ion Mitelea, Vlad Bolocan, Andrea Kellenberger*

042 – The using of the valerian extract as potential corrosion inhibitor for carbon steel in acid and neutral media

*George-Daniel Dima, Oana-Tabita Serboiu, Mircea Laurentiu Dan, Liviu-Virgil Costea*

043 – Mechanical and Structural Properties of Ultrasonic Welded Joints of Cu-Zr -Al-Ag based glassy ribbons

*Petru Hididis, Mircea Nicolaescu, Bogdan Radu, Sebastian Ambrus, Viorel-Aurel Serban*