



International Conference of Metals,
Ceramics and Composites
25th–27th September 2019, Varna, Bulgaria

PROGRAMME

Azalia Hotel Balneo & SPA
Sts. Constantine & Helena Resort
9006 Varna, Bulgaria

25th September 2019, Wednesday

12.00 – 14.00	Registration
12.30 – 14.30	Lunch
14.30 – 15.00	Opening ceremony
	SESSION I <i>Foundry engineering and plastic deformation</i> Chairpersons: Tomasz Babul/Beata Grabowska
15.00 – 15.15	<i>Hybrid system for producing functional casting prototypes</i> Pavel Ikonov , Western Michigan University, USA
15.15 – 15.30	<i>Application potential of carboxymethylcellulose (CMC) modified bentonite in the foundry industry</i> Sylwia Cukrowicz , AGH University of Science and Technology, Poland
15.30 – 15.45	<i>Isothermal and cyclic oxidation behaviour of alloys for high temperature applications</i> Savko Malinov , Queen's University of Belfast, United Kingdom
15.45 – 16.00	<i>Assessing ceramic resin coated sand for iron castings</i> Sam Ramrattan , Western Michigan University, USA
16.00 – 16.15	<i>A new method for limiting the fragmentation phenomenon in local reinforced composite castings</i> Lukasz Szymański , AGH University of Science and Technology, Poland
16.15 – 16.45	Coffee break
	SESSION II <i>Foundry engineering and plastic deformation</i> Chairpersons: Ludmil Drenchev/Deyan Veselinov
16.45 – 17.00	<i>The analysis of microhardness variations in longitudinal sections of hydroformed axisymmetric components made from P265TR1 steel</i> Tomasz Milek , Kielce University of Technology, Poland
17.00 – 17.15	<i>Thermal conductivity of “VARI-MORPH” (VM) cast iron with graphite of several forms</i> Marcin Myszka , AGH University of Science and Technology, Poland
17.15 – 17.30	<i>Melting of fine-grained aluminum scrap with salt flux</i> Piotr Palimaka , AGH University of Science and Technology, Poland

17.30 – 17.45	<i>Hybrid magnesium gasars – innovative ultralight porous materials</i> Jerzy Józef Sobczak , AGH University of Science and Technology, Poland
17.45 – 18.00	<i>New European initiative for novel ultralight materials with unique properties</i> Jerzy Józef Sobczak , AGH University of Science and Technology, Poland
18.00 – 18.15	<i>Effect of conditions of heating process on microstructure and corrosive resistance of titanium alloy used in implantology</i> Jagoda Ryba , AGH University of Science and Technology, Poland
19.00 – 22.00	Dinner

26th September 2019, Thursday

7.30 – 9.00	Breakfast SESSION III <i>Surface and coating technologies and powder metallurgy</i> Chairpersons: Mihail Kolev/Dawid Myszka
10.00 – 10.15	<i>Structural evolution in Al-Fe materials made by powder metallurgy route</i> Magdalena Majchrowska , AGH University of Science and Technology, Poland
10.15 – 10.30	<i>Electrochemical deposition of silver on aluminum alloys</i> Vladimir Petkov , Institute of Metal Science, Equipment and Technologies with Hydroaerodynamics Centre, BAS, Bulgaria
10.30 – 10.45	<i>Sintered structural alloy steels—processing, properties, microstructure</i> Maciej Sulowski , AGH University of Science and Technology, Poland
10.45 – 11.00	<i>Study of cobalt castings plated on Ti-6Al-4V</i> Georgi Tomov , Institute of Metal Science, Equipment and Technologies with Hydroaerodynamics Centre, BAS, Bulgaria
11.00 – 11.15	<i>Influence of the electrochemical anodizing parameters on the microstructure, microroughness and microhardness of anodized Ti-6Al-7Nb</i> Deyan Veselinov , Institute of Metal Science, Equipment and Technologies with Hydroaerodynamics Centre, BAS, Bulgaria
11.15 – 11.45	Coffee break SESSION IV <i>Surface and coating technologies and powder metallurgy</i> Chairpersons: Wojciech Polkowski / Maciej Sulowski
11.45 – 12.00	<i>Influence of the type of substrate on structure and properties of aluminide NiAl coatings</i> Iłona Nejman , AGH University of Science and Technology, Poland
12.00 – 12.15	<i>High quality corrosion protection of sintered steel with chromium coating doped with diamond nanoparticles</i> Radoslav Valov , Institute of Metal Science, Equipment and Technologies with Hydroaerodynamics Centre, BAS, Bulgaria

12.15 – 12.30	<i>A mathematical model of magnetron sputter deposition</i> Georgi Evt. Georgiev , Institute of Metal Science, Equipment and Technologies with Hydroaerodynamics Centre, BAS, Bulgaria
12.30 – 12.45	<i>3D copper/graphene composite - production, properties, implementation</i> Tomasz Babul , ŁUKASIEWICZ Research Network - Institute of Precision Mechanics, Poland
13.00 – 14.00	Lunch
14.00 – 15.00	POSTER SESSION
15.00 – 17.00	Trip to Delphinarium
19.00 – 22.00	Dinner

27th September 2019, Friday

7.30 – 9.00	Breakfast SESSION V <i>Advanced materials characterization, additive manufacturing and heat treatment</i> Chairpersons: Joanna Sobota/Justyna Kasińska
10.00 – 10.15	<i>High temperature interaction of Si-rich alloys with graphite under thermocycling conditions</i> Natalia Sobczak , ŁUKASIEWICZ Research Network – Foundry Research Institute, Poland
10.15 – 10.30	<i>Structure and mechanical properties of ductile iron with different initial matrix after nanostructuralisation heat treatment</i> Dawid Myszka , Warsaw University of Technology, Poland
10.30 – 10.45	<i>AO translational research and development</i> Boyko Gueorguiev , AO Research Institute Davos, Switzerland
10.45 – 11.00	<i>Properties and microstructure of laser welded dissimilar joints of TP347-HFG and S235JR steels with additional material</i> Hubert Danielewski , Kielce University of Technology, Poland
11.00 – 11.30	Coffee break SESSION VI <i>Advanced materials characterization, additive manufacturing and heat treatment</i> Chairpersons: Hristo Skulev/Radoslav Valov
11.30 – 11.45	<i>Mechanical and tribological characterization of open cell aluminum/babbitt composites and their application to sliding bearings</i> Mihail Kolev , Institute of Metal Science, Equipment and Technologies with Hydroaerodynamics Centre, BAS, Bulgaria
11.45 – 12.00	<i>Development of tailor-made equipment for experimental preclinical surgeries using computer simulations and 3D printing</i> Jan Barcik , AO Research Institute Davos, Switzerland

12.00 – 12.15	<i>Modeling studies for the recycling of paladium from high entropy alloys, special purpose components and waste from different processes</i> Boris Yanachkov , Institute of Metal Science, Equipment and Technologies with Hydroaerodynamics Centre, BAS, Bulgaria
12.15 – 12.30	<i>Effect of hydrogen atmosphere on the mobility of 1/2[111] screw dislocation in BCC Fe</i> Ivaylo Katzarov , Institute of Metal Science, Equipment and Technologies with Hydroaerodynamics Centre, BAS, Bulgaria
13.00 – 14.30	Lunch
15.00 – 19.00	Excursion to Botanic Garden
19.30 – 22.00	Dinner
28th September 2019, Saturday	
7.30 – 9.30	Breakfast
until 12.00	Check-out

POSTER SESSION

Microstructure and properties of laser additive deposited of nickel base super alloy inconel 625
Hubert Danielewski, Kielce University of Technology, Poland

Microstructure of welds of galvanised steel sheets and cap electrodes at final stages of exploitation
Joanna Sobota, ŁUKASIEWICZ Research Network - Institute of Non-Ferrous Metals, Poland

Materials in foundry engineering: study of polylactide used as filament in 3D printing
Beata Grabowska, AGH University of Science and Technology, Poland

Fabrication and characteristics of copper-intermetallics composites
Marcin Kargul, Kielce University of Technology, Poland

A formation of multicomponent Mo-Si-B alloys via reactive interaction in Si-B/Mo system
Grzegorz Bruzda, ŁUKASIEWICZ Research Network – Foundry Research Institute, Poland

Structural and rheological characterisation of polacrylate-polysacharyde hydrogels for foundry application
Karolina Kaczmarek, AGH University of Science and Technology, Poland

Thermal regeneration of used moulding sand - conditions of implementation
Mariusz Łucarz, AGH University of Science and Technology, Poland

Effect of rare earth elements additions on critical temperatures of manganese cast steel for use at low temperatures
Justyna Kasińska, Kielce University of Technology, Poland

Knowledgebase as a part of Industry 4.0 in casting production
Paweł Malinowski, AGH University of Science and Technology, Poland

DSC study on recrystallization and precipitation in solution annealed and cold rolled Haynes 282 superalloy
Wojciech Polkowski, ŁUKASIEWICZ Research Network – Foundry Research Institute, Poland

Effect of hafnium alloying addition on wettability and reactivity between nickel and zircon sand mould
Rafal Nowak, ŁUKASIEWICZ Research Network – Foundry Research Institute, Poland

Processing and characterization of Fe-Cu-Ni sinters prepared by ball milling and hot pressing
Joanna Borowiecka-Jamrozek, Kielce University of Technology, Poland

Laser treatment of copper surface layer – computing simulation
Justyna Domagała-Dubiel, ŁUKASIEWICZ Research Network - Institute of Non-Ferrous Metals, Poland

Research on the impact of vibration machining of titanium alloys
Damian Bańkowski, Kielce University of Technology, Poland

Investigations of electro-discharge mechanical machining of manganese cast steels
Piotr Młynarczyk, Kielce University of Technology, Poland

Tribological performance of ionic liquids used as lubricants on steel with diamond-like carbon coating
Monika Madej, Kielce University of Technology, Poland

Influence of the processing conditions on the microstructure and properties of 3D printed components from titanium alloy
Savko Malinov, Queen's University Belfast, United Kingdom

High temperature interaction of molten hayness[®]282[®] alloy with MgO and MgAl₂O₄ substrates
Robert M. Purgert, Energy Industries of Ohio, USA

Development of an innovative technology for the production of massive slag ladles with increased operation parameters (SLAG LADLE TECH) at the Krakodlew S.A. Foundry.
Marcin Paszkiewicz, Krakodlew SA, Poland