



10-14 October 2022 Grand Hotel Bernardin, Portorož, Slovenia

Conference Program

Monday 10.10.2022

18:00 – 20:00 Registration and Welcome reception (Hotel Bernardin, 11th floor)

Tuesday 11.10.2022

8:00 -> Registration

9:00 – 9:20 Opening ceremony (Hall 1)

Plenary session 1 (Hall 1)

9:20 – 10:05 Invited talk 1: Dermot Brabazon (Ireland), Key challenges and advancements in additive manufacturing

10:05 – 10:50 Invited talk 2: Imre Felde (Hungary), On the Bio-inspired computational methods and AI technics supporting Heat Treatment processes

10:50 – 11:20 Coffee break & Exhibition

Session 1 – Additive Manufacturing 1 (Hall 1)

11:20 – 11:50 Keynote talk 1: Ewald Badisch (Austria), Friction, wear and lubrication functionality for 3D printed lightweight components and tools

11:50 – 12:10 R. Coelho, Hot stamping tools with conformal channels produced by additive manufacturing: state of the art and critical analysis

12:10 – 12:30 N. Agarwal, Heat Treatment of Nitinol Manufactured via L-PBF For Biomedical Application

12:30 – 12:50 M. Godec, Plasma Nitriding of Various Additive Manufactured Metallic Materials

12:50 – 13:10 Z.A. Zakaria, Development of Functionality Graded Materials (FGM) via Fused Deposition Modelling (FDM) Technique.

Session 2 – Smart Manufacturing & Micro/Nano-technology (Hall 2)

11:20 – 11:50 Keynote talk 2: Leszek A. Dobrzański (Poland), Synergy of Dentistry Sustainable Development 4.0 and Design of Engineering Materials and Materials Processing Technologies

11:50 – 12:10 N. Arunachalam, Coolant life management through a hybrid compact filter and real time monitoring the coolant properties

12:10 – 12:30 A.M. Omer, Heat exchangers Technology and Applications in Heat Exchanger Engineering

12:30 – 12:50 A. Dobrzańska-Danikiewicz, Influence of manufacturing conditions on the structure of carbon-rhenium nanocomposites

12:50 – 13:10 I. Gaidan, Response of ZnO / Fe₂O₃ sensors at room temperature to the breath from individuals with diabetes

13:10 – 14:40 Lunch (Bernardin restaurant, 9th floor)

Session 3 – Additive Manufacturing 2 (Hall 1)

- 14:40 – 15:00 A.L. Heuer, Direct foaming with the APF process: Characterization of the influencing parameters on the volume increase
- 15:00 – 15:20 H. Krishnaswamy, Influence of Melt Pool Geometry on Defect Control in Laser Powder Bed Fusion Processing of Maraging Steel (18Ni300)
- 15:20 – 15:40 J.C. Chekotu, Investigating the Effect of L-PBF Process Parameters on 3D Printed Nitinol Part Properties
- 15:40 – 16:00 R. Coelho, NbC-Based Cermet Production Comparison: L-PBF Additive Manufacturing versus Conventional LPS powder metallurgy
- 16:00 – 16:20 M. Mosayebi, Focused Ion Beam Microscopy and Patterning for Digital Twin Input Data for Modelling Materials Performance

Session 4 – Modelling and Simulation 1 (Hall 2)

- 14:40 – 15:00 R. Coelho, FEM modeling high cycle fatigue tests for titanium (Ti6Al4V) grade 5 orthopaedic prosthesis 3D printed by EBM additive manufacturing
- 15:00 – 15:20 V. Balaji, Formability study of ultrafine-grained aluminium alloy sheets through finite element implementation of dislocation density-based model
- 15:20 – 15:40 N. Padmapriya, Estimation of Porosity in Aluminium Closed Cell Foam Images using 3D Voronoi Tessellation Models
- 15:40 – 16:00 M. Pravin Kumar, Optimization of the Process parameters of Magnetic Pulse Welded AA 6061 T6 tubular joints
- 16:00 – 16:20 A. Elayaperumal, Data Science Approach for the Prediction of Fatigue Strength of Steel from Composition, Grain Size and Processing Parameters

16:00 – 16:30 Coffee break & Exhibition

16:20 – 18:00 Poster session

- P1 Zong-Ru Yu, et al., Construction of a Feedrate-based Iterative Algorithm for CNC Bonnet Polishing Process
- P2 Ali Kursun, et al., Static and Dynamic Behaviour of Recycled Thin Sheet “Ti-Al/Ni-Al” based Composites reinforced with Scrap AA1050 and Nb produced by Hot-Forged Bonding
- P3 Habil Hadi Mohammed, Roadblocks to Continuous FGM Implementation in Open-Source Extrusion-Based Additive Manufacturing
- P4 A. Kowalski, et al., Manufacturing technology of the Cu-Ni-Si feedstock for WAAM technology
- P5 M. Łagoda, et al., Influence of titanium on the mechanical properties of CuMgAl alloy after rolling
- P6 M. Maleta, et al., Influence of heat treatment on the properties and structure of CuMg alloy with the addition of zircon
- P7 Ž. Meral et al., Surface characterization of polymer material using the touch method
- P8 U. Župerl, Modeling of cutting forces in end milling of metallic multilayer material
- P9 D. Kubátová et al., Experimental verification of the influence of part temperature when measuring selected dimensional parameters
- P11 V. Yarasu et al., A comparative study on wear behaviour of conventionally and cryogenically treated cold work tool steel

- P12 J. Kulasa et al., Prototype of the propellers manufactured using 3D Metal Printing process and quality verification in non-destructive tests
- P13 A. Brudny et al., Optimization of WAAM 3D printing parameters for the production of elements made of multi-component aluminium bronzes
- P14 Jhy-Cherng Tsai et al., Prediction of Cutting Forces Via Motor Current in Metal Milling
- P15 Dhurata Katundi et al., Design of Ti-Al/Nb2Al/Al2O3 Fibre based Composites for Aircraft Engine Applications produced by combined method: Sintering + Forging
- P16 Maamar Hakem, et al., Effect of microstructure and intermetallic precipitates on the electrochemical behavior of dissimilar AA6061-T6/ER5183/AA5086-H32 aluminum TIG-weld
- P17 Sahil Bharti, et al., Evaluation of formability in ISF for feature based and face filling toolpath strategies
- P18 H. H. Teo, et al., Enhancement of Hydrophilic Modified Polyvinylidene Fluoride Membranes Tailored by Copper(I) Oxide Inorganic Nanoparticles using New Hybrid Membrane Manufacturing System
- P19 S. Sreenivasan, et al., Influence of Fiber Content and Fiber Length on the thermal and Electrical Properties of Kenaf Short Fiber Reinforced Bulk Moulding Compounds (BMC) For Compression Moulding
- P20 R. Padmananbhan, Study on a novel asbestos-free phenolic resin composite material for friction applications
- P21 Y. H. Seo, et al., Development and application of die limit life prediction system utilizing manufacturing data of forging process
- P22 H.R. Lee, et al., Investigation on tube end forming behaviour of STS430 0.7t sheet based on two-point incremental forming process
- P23 M. Kim, et al., Correlation of Electromagnetic Properties to Springback for Real-time Prediction of Shape Quality in Forming Process

Wednesday 12.10.2022

8:30 -> Registration

Plenary session 2 (Hall 1)

9:20 – 10:05 Invited talk 3: Bekir S. Yilbas (Saudi Arabia), Current and Future Trends in Surface Engineering: Practical Applications of Hydrophobic Surfaces

10:05 – 10:50 Invited talk 4: Cho-Pei Jiang (Taiwan), New direction and novel AM technology development in biomedical applications

10:50 – 11:30 Coffee break & Exhibition

Session 5 – Surface Engineering 1 (Hall 1)

11:30 – 11:50 L.-M. Berger, State and Development Trends of Thermally Sprayed Hardmetal Coatings

11:50 – 12:10 H. Paschke, Surface modifications to reduce the adhesion of aluminum during twin roll casting

12:10 – 12:30 A. Thewes, Surface modifications to reduce wear in hot extrusion of copper

12:30 – 12:50 P. Verma, Erosive Wear of Some Dual-Phase Steels Developed via Quenching of Low and Medium Carbon Steels

12:50 – 13:10 L.-M. Berger, Application of the High Entropy Concept for Tool Materials and Coatings

Session 6 – Materials Science and Processing 1 (Hall 2)

11:30 – 11:50 G. P. Karmakar, Hydrofracturing Materials for Production of Unconventional Natural Gases

11:50 – 12:10 D. Sam Leo Xavier, Development of Al - TiB₂- Mg₂ (Si, Sn) hybrid composite by salt melt in-situ reaction: a comparative evaluation of properties

12:10 – 12:30 B. Kılıç, Investigation of hot press joining of glass fiber reinforced PA6 and AISI 304

12:30 – 12:50 Bin Zhu, Novel Semiconductor-ionic materials and advanced applications

12:50 – 13:10

13:30 – 18:00 Lunch box and visit to Škocjan caves

19:00 – 22:00 Conference dinner (Hotel Bernardin)

Thursday 13.10.2022

8:30 -> Registration

Plenary session 3 (Hall 1)

9:20 – 10:05 Invited talk 5: Massimo Pellizzari (Italy), Considerations about cryogenic treatment of tool steel, twenty years after the AMPT'99 conference in Dublin

Session 7 – Machining and Forming 1 (Hall 1)

10:05 – 10:25 Y. Okude, Development of warm and cold incremental press forming method of titanium alloy sheets

10:25 – 10:45 H. Krishnaswamy, Electro-plastic behaviour of the advanced high strength steel

10:45 – 11:05 M.N. Bassim, Mechanisms of Formation of Adiabatic Shear Bands

Session 8 – Surface Engineering 2 (Hall 2)

10:05 – 10:25 M.K. Mahto, Evaluation of Tungsten Carbide Tool Materials During Friction Stir Cladding of Copper on Steel Substrate

10:25 – 10:45 A. Učakar, Formation of surface layer on strontium hexaferrite magnets during Sintering by Intense Thermal Radiation (SITR)

10:45 – 11:05 T. Aizawa, Convection and Boiling Heat Transfer Control by Acicular Microtexturing

11:05 – 11:40 Coffee break & Exhibition

Session 9 – Machining and Forming 2 (Hall 1)

11:40 – 12:00 T. Ohashi, Detection of Foreign Bodies by Accelerometers Attached to the Stripper Plate of a Blanking Die Set

12:00 – 12:20 K.-J. Fann, Finite Element Study on Forming Cylindrical Springs with Initial Tension by Wire Bending

12:20 – 12:40 R. Yadav, Finite Element Modelling of Burr during Micro-milling of Ti alloy

12:40 – 13:00 A. Chaudhari, Finite element analysis of tangential ultrasonic vibration assisted grinding for AISI D2 tool steel using single cBN abrasive particle

13:00 – 13:20 S. Ganesh, Computer Simulation of Realizability of Tactile Graphics by Vacuum Forming

Session 10 – Materials Science and Processing 2 (Hall 2)

11:40 – 12:00 R. Padmanabhan, A study on sound absorption ability of closed cell aluminium foams

12:00 – 12:20 M. Mejauschek, New Surface Boriding Technologies

12:20 – 12:40 M. Youssef, Microstructure and Phase Transformations in Microalloyed ARMOX 500T Steel during Dilatation Process

12:40 – 13:00 A. Moshkovich, Plastic deformation in surface layers of Ag, Cu, Ni and Al under friction in lubricated conditions

13:00 – 13:20 K. Tsutsumida, Battery Performance of corrosion characteristics of AZ31 magnesium alloy

13:20 – 14:40 Lunch (Bernardin restaurant, 9th floor)

Session 11 – Machining and Forming 3 (Hall 1)

14:40 – 15:00 Chao-Chang A. Chen, Research on Plasma Electrolytic Polishing of Tiny Metal Tube

- 15:00 – 15:20 R. Babu Tere, Effect of Textured Cutting Inserts in Micro Turning of Ti-6Al-4V Alloy
- 15:20 – 15:40 S. Vipparla, Wettability studies on femtosecond laser textured N-Type silicon surfaces
- 15:40 – 16:00 Sri Phani Sushma, Predicting the optimal parameters by multi-objective decision-making method while machining Al6061 alloy using CBN inserts of different cutting edge geometries

16:00 – 16:20

Session 12 – Modelling and Simulation 2 (Hall 2)

- 14:40 – 15:00 S. Shabberhussain, Analysis of Multi-Layered Polymer Composite Cylindrical Shells under Internal Pressure and Thermal Loading
- 15:00 – 15:20 V.S. Chandel, Nonlocal stochastic buckling analysis of porous gradient nanobeams using first order perturbation theory
- 15:20 – 15:40 V. Balaji, Exploring Stress Relaxation Phenomenon through Finite Element analysis using conventional Elasto – Viscoplastic models
- 15:40 – 16:00 M. Bahramyan, Atomic-scale study of the effect of composition on the phase transformation temperatures in NiTi shape memory alloy

16:00 – 16:20

16:20 – 17:00 Coffee break & Exhibition

Friday 14.10.2022

8:30 -> Registration

Session 13 – Heat treatment & Surface Engineering 3 (Hall 1)

- 9:20 – 9:40 B. Podgornik, Deep cryogenic treatment - how and when to expect improvement
9:40 – 10:00 M. Sedlaček, Tribological properties of different combination of polymer films rubbing against polymer balls
10:00 – 10:20 M. Hočevar, Laser Surface Functionalization of Biomaterials
10:20 – 10:40 M. Conradi, Water versus oil lubrication of laser-textured Ti6Al4V alloy upon addition of MoS₂ nanotubes for green tribology
10:40 – 11:00 B. Šetina, TBA

Session 14 – Materials Science and Processing 3 (Hall 2)

- 9:20 – 9:40 S. Yadav, An investigation of the effects of high amplitude vibrations on the microstructure, mechanical and fracture behaviour of LM4 alloy
9:40 – 10:00 J. Burja, Microbiologically assisted corrosion of a stainless steel turbine in a hydroelectric power plant
10:00 – 10:20 B. Žužek, Importance of analyzing approach and methods utilization on failure analysis results
10:20 – 10:40 A. Bajželj, Effect of austenitisation time and temperature on crystal grain size, carbide dissolution and martensitic phase transformation of 51CrV4 steel
10:40 – 11:00 Mahesh Unnam, Effect of Montmorillonite Nano Clay on the Morphological, Mechanical and Thermal properties of Epoxy-Polypropylene Shape Memory Materials

11:00 – 11:30 Coffee break

Session 15 – Additive Manufacturing 3 (Hall 1)

- 11:30 – 11:50 C. Massey, Influence of power, scanning speed and layer thickness on solidification and the strength of SLM AlSi10Mg alloys
11:50 – 12:10 S. Kumar, 3D Printing of Clay Ceramics Using The Direct Ink Writing (DIW) Technique
12:10 – 12:30 S. Malej, Hybrid additive manufacturing of Ti6Al4V parts by powder bed fusion and direct energy deposition.
12:30 – 12:50 D.A. Skobir Balantič, Low-Temperature Plasma Nitriding of Additive Manufactured 316L Stainless Steel for Improved Surface Properties
12:50 – 13:10 T. Mede, Modelling the Heat Transfer in Selective Laser Melting

Session 16 – Modelling and simulation 3 (Hall 2)

- 11:30 – 11:50 A. Vishwakarma, Design of a Smart-Phone Self-Charging Device Based on Permanent Magnets
11:50 – 12:10 J. Adhikari, Modelling and simulation of functionally graded graphene reinforced piezoelectric tile
12:10 – 12:30 A. Guštin, Creep-life data extrapolation
12:30 – 12:50 F. Vode, Automatic analysis of thermal cracks propagation
12:50 – 13:10

13:10 – 13:30 Closure of the Conference (Hall 1)