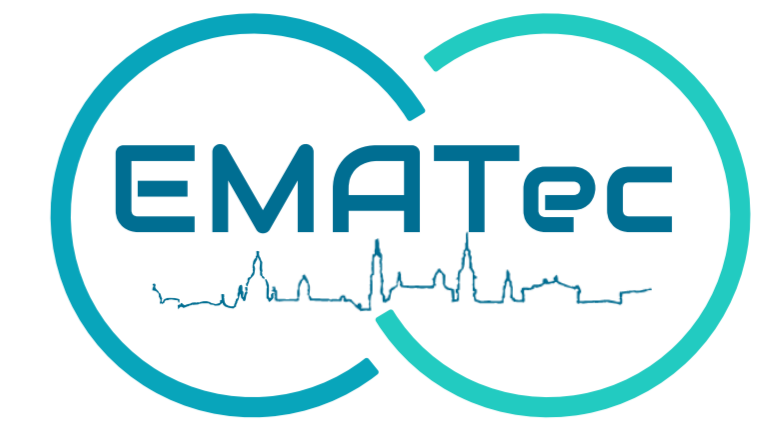


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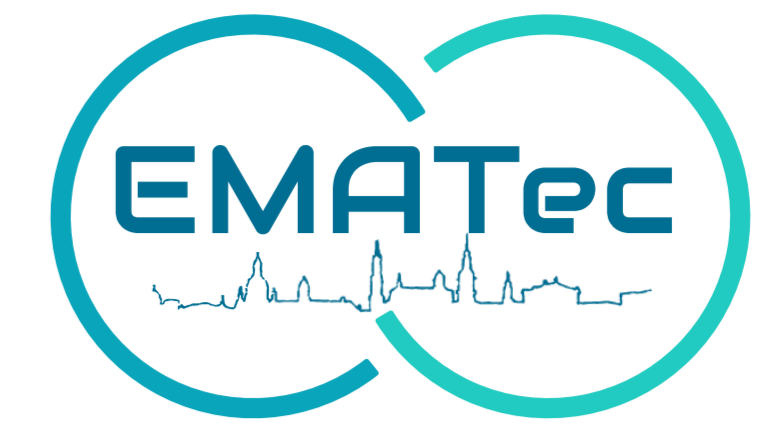


Wednesday, 5 July 2023

08:00	Registration		
09:00	<p>Opening EMATec & MetFoam 2023 Prof. Dr. Thomas Weißgärber, Dr. Olaf Andersen, Fraunhofer IFAM Dresden</p> <p>Welcome address Prof. Dr. Michael Beckmann, Dean Faculty of Mechanical Science and Engineering, TU Dresden</p>		
09:30	<p>PLENARY Ralph Spolenak (ETH Zürich) Additively manufactured nano-porous micro-scale Ag structures for SERS sensing</p>		
10:00	<p>PLENARY Pedro Nehter (Airbus) Additive Manufacturing of Lightweight Solid Oxide Fuel Cells for Aviation</p>		
10:30	Coffee Break		
	<p>EMATec AM Advanced Materials and Technologies Session Chair: Johannes Trapp</p>	<p>MetFoam Properties Session Chair: David Dunand</p>	<p>Metfoam Applications Session Chair: Georg Pöhle</p>
11:00	<p>Fuad Osmanlic Industrial scale Additive Manufacturing using Electron Beam Powder Bed Fusion</p>	<p>Anja Mauko Impact behaviour of cellular metamaterial with axisymmetric chiral auxetic</p>	<p>Jorge García-Cañadas Heat-to-electricity energy conversion by means of thermo-electrochemical cells using metal foams</p>
11:20	<p>Eduard Hryha Impact of powder properties and powder reuse on additive manufacturing of copper</p>	<p>Hongfei Shen Capillary performance of bi-porous TiAl fabricated by reaction sintering with space holder</p>	<p>Norbert Babcsán High density and microcellular aluminium foams</p>
11:40	<p>Simon Rauh Laser powder bed fusion of copper-tungsten composite powders</p>	<p>Csilla Kádár Compressive Properties and Deformation Mechanisms in Various, Differently Manufactured Zinc-based Biodegradable Metal Foams</p>	<p>Viviana Marcela Posada Perez In vivo stability of diamond-lattice porous-Mg modified via directed plasma nanosynthesis</p>
12:00	<p>Christian Kukla Metallic Fused Filament Fabrication of Aluminium alloys</p>	<p>Sompong Srimanosaowapak Tailored Energy Absorption Properties of Open Cell Aluminium Foams via Different Porosities and Base Materials for Foam Filled Crash Box Design</p>	<p>Joachim Baumeister Simulation of the unloading behavior of a PCM storage equipped with open porous aluminium foam</p>
12:20	<p>Ofer Ben Zur Advantages of paste feedstock over loose powder in high volume green part manufacturing applications</p>	<p>Tillmann Neu Aluminium-Foam-Sandwiches – Correlation between foam structure and mechanical performance</p>	<p>Yoon Chang Jeong A novel pressure vessel with a TPMS structure</p>
12:40	<p>Philipp Kluge AM + HIP – Tools for the future</p>		<p>Yoon Chang Jeong A 3D-printed main frame for convex-deformable mobile devices</p>
13:00	Lunch		
14:00 – 18:00	Guided Tour to Fraunhofer IWU (Bus transfer to Chemnitz)		
	Break		
19:00	Welcome Reception		

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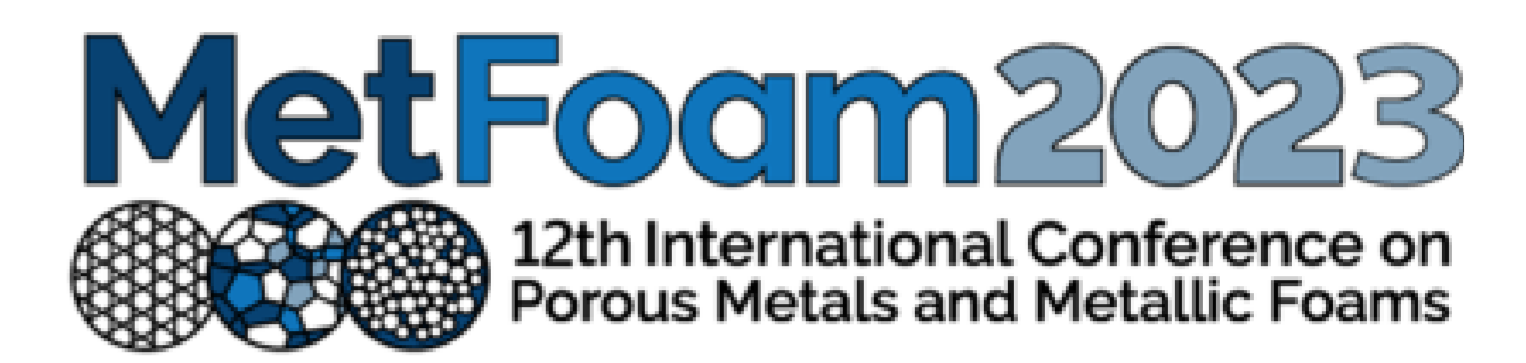
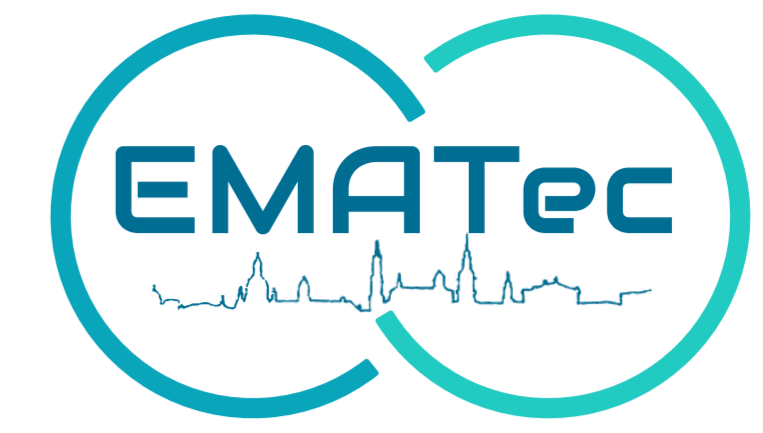


Thursday, 6 July 2023

09:00	PLENARY Julia Carpenter (ETH Zürich) Hierarchically Porous Steel Monoliths with Ultra-High Surface Area and Self-Reinforcing Adaptive Properties		
	EMATec PM Advanced Materials and Technologies (I) Session Chair: Christian Kukla	Metfoam Simulation Session Chair: Matej Vesenjak	Metfoam AM Session Chair: Olaf Andersen
09:30	Johannes Trapp Novel Alloy Systems for Brake Discs from Aluminum Matrix Composites in Electric Vehicles	Merugu Rakesh Numerical Investigation on Deformation Behavior of Aluminium Foams with in situ Composite Particles	John Misiaszek Direct-Ink Writing of Hierarchically Porous Titanium for Enhanced Osseointegration
09:50	Niels Herter Application of an Innovative Tip Clearance System in an Electric Fan Engine	Anna Stręk Stress-strain behavior of porous metals using artificial neural networks	David Dunand 3D Ink Extrusion Printing of CoCrFeNi and (Zr _{0.50} Ti _{0.35} Nb _{0.15}) _{100-x} Al _x Microlattices
10:10	Sun Jinhua Synthesis and applications of graphene/metal composites	Xuezheng Yue Additive Manufacturing of High Porosity Magnesium Scaffolds with Lattice Structure and Random Structure	David Dunand Equiatomic CoCrCuFeNi and HfNbTaTiZr Microlattices via 3D-Ink-Extrusion Printing, Reduction and Sintering
10:30	Thomas Rauscher AM and PM materials as novel electrodes for alkaline water electrolysis		Mandy Uhlig Opportunities of metal structures in Cooling Systems
10:50	Coffee Break		
	EMATec Magnets Session Chair: Inge Lindemann-Geipel	Metfoam Manufacturing Session Chair: Tillmann Neu	Metfoam Applications Session Chair: Francisco Garcia-Moreno
11:20	Torsten Mix Powder metallurgical concepts to manufacture soft magnetic components	Satomi Takamatsu Relationship between Fabrication Conditions of Semi-solid Route and Morphology of Aluminum Alloy Foam	Ralf Hauser Sinter Paper for Energy Application
11:40	Konrad Güth Closing the loop for rare earth permanent magnets	Sompong Srimanosaowapak Tailored Porosities of Open Cell Aluminium Foams Using Different Tap Volumes of Water Soluble Templates	Yixiang Wang A self-controlling thermal medium
12:00	Thomas Studnitzky Sinter-based Additive Manufacturing of Highly Efficient Electric Sheets		Linyuan Zhang Proton Exchange Membrane Fuel Cells without Bipolar Plates
12:30	Lunch		
13:30	PLENARY Matthias Zeier (GKN Hydrogen) Decentralised energy supply and hydrogen storage in metal hydride		
	EMATec PM Advanced Materials and Technologies (II) Session Chair: Eduard Hryha	Metfoam Manufacturing Session Chair: Afsaneh Rabiei	Metfoam Applications Session Chair: Sonia Fidler-Woudberg
14:00	Cristina Berges Boosting SOEC industrialization by advanced manufacturing technologies in metallic interconnectors	Georgy Kurian Kaladimadathil Optimisation of aluminium alloy composition for foaming using magnesium blowing agent	Heeman Choe "Microscale" Metal Foams for Energy Applications: Emerging Opportunities and Challenges
14:20	Tim Küsters Heat treatment challenges for direct and indirect AM methods	Mark Atwater Porous Metals via Oxide Reduction: Simple Processing and Diverse Applications	Hartmut Göhler Development of energy efficient particle foam production tools by application of porous metals
14:40	André Schlott Thermal Management of Power Electronics	Jörg Weise Production of nanoporous metal structures by means of gas phase dealloying	
15:00	Thomas Hutsch Metal Carbon Composites for Energy and Structural Applications	Willy Kunz Metal foams and cellular structures – the step from research to industrial scale	
15:20	Coffee Break		
16:00 - 18:00	Guided tour Fraunhofer Institute Center Dresden (bus transfer)		
	Break		
19:00	Conference Dinner		

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Friday, 7 July 2023

	EMATec Hydrogen Technology Session Chair: Niels Herter	Metfoam Characterisation Session Chair: Jörg Weise	Metfoam Applications Session Chair: Viviana Marcela Posada Perez
09:00	Jannik Brumm Evaluation of different steels for additive manufacturing of metal hydride based hydrogen storage tanks	Paul Kamm Predicting 3D Volumetric Properties of Metal Foams from 2D X-Ray Radiographs using a CNN-based Computer Model	Nathan Nesbitt Battolyser Systems – Commercializing the Ni/Fe Hydrogen Battery
09:20	Marius Lau Hydride graphite composite materials for thermo-chemical compression of hydrogen	Esmari Maré Analytical determination of the geometrical properties of metal foams under compression	Afsaneh Rabiei (extended lecture) Steel-Steel Composite Metal Foam Under Extreme Environment of Heat and Puncture Along With Their Welding
09:40	Claudio Pistidda Recycling as the key for developing sustainable hydrogen storage materials	Francisco Garcia-Moreno The foaming of metals unveiled by X-ray tomography	
10:00	Peter Hannappel CALPHAD modeling and experimental assessment of interstitial metal hydrides for hydrogen storage applications	Ulrike Jehring Compression test on cellular metallic materials - Revision of DIN 50134	Nadine Eißmann Powder metallurgical modified metal foam for catalysis applications
10:20	Coffee Break		
	EMATec Energy Harvesting Session Chair: André Schlott	Metfoam Manufacturing Session Chair: Olaf Andersen	Metfoam Properties Session Chair: Ulrike Jehring
10:50	David Dunand Combining direct ink writing with reactive melt infiltration to create architected thermoelectric legs	Yoon Chang Jeong Shellular reinforced by diamond-like-carbon	Nejc Novak Hybrid Triply Periodical Minimal Surface (TPMS) metamaterials with enhanced mechanical properties
11:10	Sabine Mönch Waste heat-based air conditioning of fuel cell railcars to increase minimum range	Claudia Drebenstedt Custom design to the application of open-cellular metal structures	Mahiro Sawada Optimization of pore arrangement to prevent the formation of deformation bands in porous metals with unidirectional pores
11:30	Christina Beltner PM shaping methods enabling efficient magnetocaloric technologies		
11:50	Vicente Pacheco Energy harvesting from waste heat: powder metallurgical synthesis of thermoelectric materials		
12:10	Closing		
12:30	Lunch		
End: 13:30			