

MDA2024

5TH INTERNATIONAL CONFERENCE ON MATERIALS DESIGN AND APPLICATIONS

4-5 JULY 2024

FACULTY OF ENGINEERING - UNIVERSITY OF PORTO
PORTO - PORTUGAL

PROGRAMME

FE.UP.PT/MDA2024

PROGRAMME OF MDA2024

Author underlined → presenting author

* Plenary lecture

Thursday 4 July 2024			
8:40	MDA 2024 Opening (Room A101, also called 'Auditorium')		
9:00*	No risk no progress - a quick tour focusing on materials and structures (MDA24_76) <u>PT de Castro</u> (University of Porto, Portugal)		
	Session 1A – Composites I (Chair: LFM da Silva, AJM Ferreira)	Session 1B – Metals I (Chair: A Rodríguez-Prieto, EAS Marques)	Session 1C – Design I (Chair: SB Leen, PT de Castro)
	Room A101 (Auditorium)	Room B032	Room B035
9:40	Characterisation of composite laminates produced via material extrusion additive manufacturing (MDA24_135) <u>F Haile</u> (Northumbria University, UK), AC Igwe, J Wambua, F Mwema, ET Akinlabi	Machine learning assisted design of metal material extrusion for 2D mechanical metamaterials (MDA24_125) <u>D Gatões</u> (University of Coimbra, Portugal), PF Rodrigues, D Neto, MT Vieira	Global to local representative modelling for fretting wear-fatigue in submarine power cables for floating offshore wind (MDA24_113) C Poon, RB Barrett, <u>SB Leen</u> (University of Galway, UK)
10:00	Effect of temperature on the strength hybrid composite joints (MDA24_24) F Ramezani, <u>RCJ Carbas</u> (INEGI, Portugal), EAS Marques, LFM da Silva	Development and optimization of high temperature creep and oxidation resistant Fe-Al-Cr-based ODS nanocomposite (MDA24_33) <u>P Dymáček</u> (Institute of Physics of Materials CAS, Czech Republic), M Jarý, N Luptáková, D Bártková, Š Gamanov, L Kunčická, R Kocich, B Mašek, J Svoboda	Experimental and numerical determination of strain and displacement fields on Brazilian disc (MDA24_109) <u>JE Ribeiro</u> (Instituto Politécnico de Bragança, Portugal), J Rocha
10:20	Integrated lattice structures in additive manufacturing: Design, optimization, and experimental validation of compliant robotic grippers (MDA24_136) <u>O Ulerich</u> (National University of Science and Technology Politehnica Bucharest, Romania), DA Prisecaru, S Cananau, M Stoica	Development of reverse-bend testing for identification of sheet metal material hardening parameters using recurrent neural networks (MDA24_103) <u>DJ Cruz</u> (INEGI, Portugal), MR Barbosa, AD Santos, RL Amaral, J Cesar de Sa	Sustainable design of vehicle structures through tailored material and design (MDA24_87) <u>EAS Marques</u> (University of Porto, Portugal), S Jalali, RJC Carbas, LFM da Silva
10:40-11:00	COFFEE BREAK		
	Session 2A – Joining I (Chair: A Barroso, A Akhavan-Safar)	Session 2B – Design II (Chair: D Castagnetti, JL Alves)	Session 2C – Additive Manufacturing I (Chair: FM Mwema, ZC Silveira)
	Room A101 (Auditorium)	Room B032	Room B035
11:00	Hybrid composite with natural and synthetic fibers in the rehabilitation of reinforced concrete structures (MDA24_4) <u>I Ivanova</u> (University of Reims Champagne Ardennes, France), J Assih, C Diagana, I Titeux-Peth	Analysis of the displacement field along a surface crack with Moiré interferometry (MDA24_110) <u>JE Ribeiro</u> (Instituto Politécnico de Bragança, Portugal), J Rocha	Conceptual and preliminary design of a print head based on single micro-screw unit for polymeric powder feedstock (MDA24_47) DML Silva, GK Gushiken, A Grandó, <u>ZC Silveira</u> (University of São Paulo, Brazil)
11:20	Microstructural characterisation of friction stirred Al/Ni-Fe hybrid in-situ composites (MDA24_10) L Magondo, MB Shongwe, ET Akinlabi, OT Johnson, SA Akinlabi, H Dong, KF Carter, T-C Jen, <u>RM Mahamood</u> (Northumbria University, UK)	Soft robotics based on thermal actuation (MDA24_45) S Wu, SJ Lee, <u>Y Zhu</u> (North Carolina State University, USA)	Thermal fluctuations on the corrosion behaviour of 17-4PH stainless steel alloys fabricated via material extrusion additive manufacturing technique (MDA24_114) <u>FM Mwema</u> (Northumbria University, UK), JM Wambua, MO Bodunrin, SA Akinlabi, ET Akinlabi, TC Jen

11:40	<p>Ensuring reliability: The crucial role of adhesive characterization in bonded assemblies (MDA24_13)</p> <p><u>A Akhavan-Safar</u> (INEGI, Portugal), EAS Marques, RJC Carbas, LFM da Silva</p>	<p>Design and conceptual solutions for industrial storage systems (MDA24_63)</p> <p><u>A Bernardino</u> (University of Minho, Portugal), N Peixinho</p>	<p>Influence of design parameters on the compression characteristics of four-star metamaterial fabricated via fused filament fabrication (MDA24_115)</p> <p><u>FM Mwema</u> (Northumbria University, UK), JM Wambua, SA Akinlabi, ET Akinlabi, TC Jen</p>
12:00	<p>Investigation on the geometric and material properties effects on the fatigue behaviour of single lap joints (MDA24_43)</p> <p><u>FC Sousa</u> (University of Porto, Portugal), A Akhavan-Safar, RJC Carbas, EAS Marques, R Goyal, J Jennings, LFM da Silva</p>	<p>Material challenges in ND inspection of nuclear spent fuel sealed containers (MDA24_91)</p> <p><u>D Agudo</u> (University of Vigo, Spain), E Casarejos, P García-Gil, S Suarez, JG Baldonedo</p>	<p>Nickel-titanium shape memory alloys parts produced by laser powder bed fusion – Applications, advantages and challenges (MDA24_96)</p> <p><u>J Vieira</u> (University of Porto, Portugal), A Nogueira, JL Alves</p>
12:20	<p>Influence of strain rate on performance of curved CFRP joints with non-uniform adhesive thickness (MDA24_23)</p> <p><u>RJC Carbas</u> (INEGI, Portugal), VDC Pires, EAS Marques, LFM da Silva</p>	<p>Development of a new testing system for mechanical characterization of weak snow layers (MDA24_120)</p> <p><u>EAS Marques</u> (University of Porto, Portugal), RJC Carbas, CM da Silva, AM Lopes, LFM da Silva</p>	<p>Development of an in-line monitoring system for measuring melt pressure and temperature in a 3D printer hot-end (MDA24_118)</p> <p><u>DML Silva</u> (University of Sao Paulo, Brazil), ZC Silveira, JL Alves</p>
12:40	<p>Improving performance of riveted joints using non-circular hole geometries (MDA24_27)</p> <p><u>A Barroso</u> (University of Seville, Spain), S Sánchez-Carmona</p>	<p>Experimental investigation of the use of nanoparticles as an additive in distilled water for improvement in tribological performance (MDA24_124)</p> <p><u>M Anand</u> (Bournemouth University, UK), A Saeed, Z Khan</p>	<p>An innovative approach to optimize the 4th generation of stents (MDA24_119)</p> <p><u>AM Sousa</u> (University of Coimbra, Portugal), AM Amaro, AP Piedade</p>
13:00-14:00	<p>LUNCH BREAK</p> <p>Room A101 (Auditorium)</p>		
14:00*	<p>Additive manufacturing of cellular materials (MDA24_69)</p> <p><u>ME Vaz</u> (University of Lisbon, Portugal)</p>		
	<p>Session 3A – Metals II</p> <p>(Chair: SB Leen, PT de Castro)</p> <p>Room A101 (Auditorium)</p>	<p>Session 3B – Polymers</p> <p>(Chair: AJ Brunner, RJC Carbas)</p> <p>Room B032</p>	<p>Session 3C – Composites II</p> <p>(Chair: AM Ferreira, EAS Marques)</p> <p>Room B035</p>
14:40	<p>Mechanical properties and joinability of the near-eutectic aluminium casting alloy AlSi12 (MDA24_73)</p> <p><u>M Neuser</u> (Paderborn University, Germany), P-K Holtkamp, K-P Hoyer, F Kappe, M Bobbert, G Meschut, M Schaper</p>	<p>An experimental and statistical analysis of the creep failure mechanisms in an acrylic pressure-sensitive adhesive (MDA24_16)</p> <p><u>BD Simões</u> (INEGI, Portugal), EAS Marques, RJC Carbas, S Maul, P Stihler, P Weißgraeber, LFM da Silva</p>	<p>Fracture investigation in the anisotropic structure of natural bamboo by considering the experimental analysis of the interlaminar shrinkage behaviour and the numerical method (MDA24_122)</p> <p><u>R Ramful</u> (University of Mauritius, Réduit, Mauritius)</p>
15:00	<p>Material extrusion: From powder to innovation (MDA24_126)</p> <p>C Batista, PF Rodrigues, <u>D Gatões</u> (University of Coimbra, Portugal), G Oliveira, B Alves, MT Vieira</p>	<p>Characterization of mechanical properties of commercial adhesives applied in the equestrian sector (MDA24_18)</p> <p><u>CMC Ferreira</u> (INEGI, Portugal), VCMB Rodrigues, BD Simões, EAS Marques, RJC Carbas, LFM da Silva</p>	<p>Cyclo-olefin polymer multi-material adhesive - Mechanical characterization, joint testing and numerical modelling (MDA24_77)</p> <p><u>VC Rodrigues</u> (INEGI, Portugal), RJC Carbas, EAS Marques, K Ejiri, A Klein, B Nelson, LFM da Silva</p>
15:20	<p>Insights into project InDrutec-E: Lightweight die casting for e-mobility (MDA24_80)</p> <p><u>G Piazza</u> (German Aerospace Center, Germany), M Rohrer, E Beeh</p>	<p>Exploring the influence of strain rate, loading mode, and temperature on the fracture energy of polyurethane adhesives (MDA24_129)</p> <p><u>M Ribas</u> (INEGI, Portugal), A Akhavan-Safar, RJC Carbas, EAS Marques, S Wenig, LFM da Silva</p>	<p>Design of solid-state joints for high voltage battery application (MDA24_86)</p> <p><u>EAS Marques</u> (University of Porto, Portugal), F Moreira, L Peixoto, R Beygi, RJC Carbas, LFM da Silva</p>
15:40	<p>High pressure tube torsion back-extrusion for producing UFG thin-walled tubes (MDA24_85)</p> <p><u>A Babaei</u> (Technical and Vocational University, Iran), H. Mazloumbashiri</p>	<p>Mechanical characterization of innovative recyclable monomaterial films and laminates for food packaging (MDA24_48)</p> <p><u>F Leccese</u> (University of Parma, Italy), A Pirondi, F Moroni, R Guadagno, F Rimediotti, L Sullo</p>	<p>Hybrid functional materials by atomic and molecular layer deposition - Chemistry and selected applications (MDA24_123)</p> <p><u>R Yerushalmi</u> (The Hebrew University of Jerusalem, Israel)</p>
16:00-16:20	<p>COFFEE BREAK</p>		

Session 4A – Joining II (Chair: A Spaggiari, E Dragoni)		Session 4B – Composites III (Chair: F Musiari, RJC Carbas)		Session 4C – Surfaces and Coatings (Chair: A Piedade, A Rodríguez-Prieto)	
Room A101 (Auditorium)		Room B032		Room B035	
16:20	Investigation of local heat treatment strategies for a multi-range capable rivet and the influence on joint formation and load-bearing capacity (MDA24_39) <u>P Holtkamp</u> (Paderborn University, Germany), F Kappe, M Bobbert, G Meschut	From nature to engineering: enhancing adhesive joint toughness with bio-inspired adherends under static four-point loading (MDA24_29) <u>H Malekinejad</u> (INEGI, Portugal), RCJ Carbas, EAS Marques, LFM da Silva		Investigation of tribological behavior of 3D printed PLA surfaces (MDA24_54) <u>F Elwasli</u> (University of Monastir, Tunisia), S Mzali, S Mezlini	
16:40	Towards the development of a unified fatigue life prediction methodology (MDA24_42) <u>FC Sousa</u> (University of Porto, Portugal), A Akhavan-Safar, LFM da Silva	Study of hybrid composite joints with thin-ply-reinforced adherends under different loading condition (MDA24_121) <u>F Ramezani</u> (INEGI, Portugal), RJC Carbas, EAS Marques, LFM da Silva		Study of the surface roughness of microhybrid composite resins as a function of the immersion conditions (MDA24_51) <u>K Belhaj Salah</u> (University of Monastir, Tunisia), S Jaafoura, F Elwasli, S Belhaj Salah, S Mezlini, S Boudegga	
17:00	Adhesive bonding technology in automotive battery pack manufacturing and dismantling: An overview (MDA24_49) <u>VC Rodrigues</u> (INEGI, Portugal), M Kasaei, R Beygi, EAS Marques, RJC Carbas, LFM da Silva	Definition, fabrication and testing of sandwich structures with novel TPMS-based cores (MDA24_59) A Vasile, DM Constantinescu, IC Coropetchi, Şt Soroşan, <u>DA Apostol</u> (National University for Science and Technology POLITEHNICA Bucharest, Romania)		A piezo elastomeric coating for a sensorized wheel (MDA24_35) <u>LN Nicolini</u> (University of Modena and Reggio Emilia, Italy), DC Castagnetti	
17:20	Mechanical strength of adhesively bonded joint between additive manufactured and standard polymeric parts (MDA24_50) <u>A Spaggiari</u> (University of Modena and Reggio Emilia, Italy), S Orlandini	Altering the optical appearance of carbon reinforced polymers on an intrinsic level (MDA24_64) <u>L Haiden</u> (Montanuniversitaet Leoben, Austria), M Feuchter, AJ Brunner, M Barbezat, G Pinter		Structure and selected properties of coatings deposited by arc spraying under inert atmosphere containing in-situ fabricated Fe-Al intermetallic phases (MDA24_127) <u>P Kolodziejczak</u> (Warsaw University of Technology, Poland), M Mober, T Chmielewski	
17:40	Characterization of bio-based polyurethane adhesives in zero-thickness bonds (MDA24_25) <u>Sh Jalali</u> (INEGI, Portugal), EAS Marques, RJC Carbas, LFM da Silva	The failure response of bio-inspired composites laminates subjected to compression after impact (MDA24_61) <u>NP Patel</u> (Pandit Deendayal Energy University, India)		Evolution of TiAlSi thin film coatings under varying target power in DC magnetron sputtering (MDA24_128) <u>JM Wambua</u> (Northumbria University, UK), FM Mwema, G Zoppi, WL Woo, ET Akinlabi	
19:00	Poster session and RECEPTION				
Metals					
Poster 1	The theoretical and experimental analysis of nanobainite formation in a medium-Mn steel by the use of double-step heat treatment (MDA24_106)		<u>M Morawiec</u> (Silesian University of Technology, Poland), A Grajcar		
Poster 2	Integrating artificial neural networks for analysis and predictive modeling of chip geometry in dry machining of aeronautical light alloys (MDA24_60)		<u>FJ Trujillo</u> (Universidad de Málaga, Spain), F Bañón, S Martín-Béjar, M Herrera, L Sevilla		
Poster 3	Enhancing final hole quality through optimisation of orbital drilling parameters on UNS A92024 alloy (MDA24_79)		<u>F Bañón</u> (Universidad de Málaga, Spain), S Martín-Béjar, FJ Trujillo, C Bermudo, M Herrera, L Sevilla		
Poster 4	Determination of steels tensile strength by instrumented indentation (MDA24_137)		<u>RV Kravchuk</u> (GS Pisarenko Institute for Problems of Strength of the NAS of Ukraine, Ukraine)		
Poster 5	Fracture behaviour of 4140 steel submitted to annealed, normalized, quench and tempering heat treatments with in-situ hydrogen charging (MDA24_141)		<u>MU Raza</u> (HITEC University, Taxila Cantt, Pakistan), MA Niaz, K Imdad		
Ceramics					
Poster 6	Experimental investigation of the mechanical properties and performance enhancement of polyvinyl alcohol fiber-reinforced cementitious mortar: A Comprehensive investigation (MDA24_12)		<u>J Udebunu</u> (Wroclaw University of Science and Technology, Poland), H Abdolpour, Ł Sadowski		
Polymers					
Poster 7	Self-repairing polyurethanes: evolution and industrial applications (MDA24_66)		<u>C Solek</u> (UAM, Spain), A Rodríguez-Prieto		
Poster 8	Static and cyclic creep response of PSAs: from characterization to prediction using an analytical approach (MDA24_17)		<u>BD Simões</u> (INEGI, Portugal), EMD Fernandes, EAS Marques, RJC Carbas, S Maul, P Stihler, P Weißgraeber, LFM da Silva		

Poster 9	Methacrylic acid-methyl methacrylate copolymer (1:1) in preformulation studies of drotaverine hydrochloride (MDA24_139)	A Stasiłowicz-Krzemień, S Sip, N Rosiak, P Zalewski, J Cielecka-Piontek (Poznan University of Medical Sciences, Poland)
Composites		
Poster 10	Improving the properties of cutting blades through apply of WC+5Co+TaC-NbC nanocrystalline composite material (MDA24_37)	MJ Kupczyk (Poznan University of Technology, Poland)
Poster 11	The use of the addition of Cr3C2 in nanocrystalline sintered carbides to create a composite tool material with better operational properties (MDA24_38)	MJ Kupczyk (Poznan University of Technology, Poland)
Poster 12	Microstructure characterization of Ag–Cu and Ag–W metastable metal matrix composites prepared by bottom-up way (MDA24_40)	A Strakosova (Czech Academy of Sciences, Czech Republic), F Průša, P Lejček
Poster 13	Quercetin-loaded gelatin and chitosan electrospun fibers for skin reinnervation in chronic wounds (MDA24_71)	C Correia, AF Afonso, C Henriques, JC Silva, T Vieira (Nova University of Lisbon, Portugal)
Poster 14	Studying the high performance and sustainability of vitrimers and their composites intended to advanced engineering applications (MDA24_78)	C Solek (UAM, Spain), A Rodríguez-Prieto, J Rodríguez-Hernández, AM Camacho
Poster 15	Impact compressive properties of polyurethane foams with 3D continuous fibre reinforcement (MDA24_89)	K Schäfer (Chemnitz University of Technology, Germany), D Nestler, L Kroll
Poster 16	Vibration and buckling of composite structures using oscillatory radial basis functions (MDA24_3)	AMA Neves, AJM Ferreira (University of Porto, Portugal)
Poster 17	Composites from Tururi (Manicaria saccifera Gaertn.) fibrous material: Effect of structural parameters on the tensile properties, and applications (MDA24_104)	AS Monteiro, D Dantas, T Yojo (University of Sao Paulo, Brazil)
Additive manufacturing		
Poster 18	Kevlar/glass fiber reinforced nylon structures printed in 3D with various fiber introductions exhibit mechanical properties under different temperatures (MDA24_2)	MA Albadrani (Qassim University, Saudi Arabia)
Poster 19	Sustainable design of a component for the aerospace industry combining Additive Manufacturing and Topology Optimization (MDA24_36)	J Crespo-Sánchez (UNED, Spain), S Fuentes, A Rodríguez-Prieto, AM Camacho
Poster 20	Cementitious mortar formulation for extrusion-based additive manufacturing using mussel shells and pozzolanic materials to develop artificial reefs and enhance marine ecosystem (MDA24_98)	IV Matus (University of Porto, Portugal), J Góis, P Vaz-Pires, JL Alves
Poster 21	Investigating the energy absorption properties of TPU auxetic structures produced by additive manufacturing (MDA24_100)	S Fuentes del Toro (UC3M, Spain), J Crespo-Sánchez, A Rodríguez-Prieto, AM Camacho
Poster 22	3D printed bigel: A novel delivery system for cannabidiol-rich hemp extract (MDA24_134)	A Gościński (Poznan University of Medical Sciences, Poland), F Kocaj, M Szymański, J Cielecka-Piontek
Poster 23	Influence of SLM parameters on accuracy, mechanical performance and microstructure of 316L porous biomedical structures: A Study on bone scaffolds (MDA24_138)	P Lopes (University of Porto, Portugal), L Oliveira, J Lino Alves
Poster 24	Bending properties of additively manufactured lattice structures for bone implants (MDA24_94)	P Nogueira, B Rodrigues, P Lopes, L Oliveira, JL Alves, J Magrinho, MB Silva, MF Vaz (University of Lisbon, Portugal), AM Deus
Surfaces and Coatings		
Poster 25	Effect of structure ordering on the abrasive wear of Fe-Al (B2) type intermetallic coatings after D-gun spraying and high-temperature annealing (MDA24_132)	C Senderowski (Warsaw University of Technology, Poland), N Vigilianska, O Burlachenko, D Zasada
Joining		
Poster 26	Adhesives in veterinary medicine: a review (MDA24_19)	CMC Ferreira (INEGI, Portugal), BD Simões, EAS Marques, RJC Carbas, LFM da Silva
Poster 27	Analyzing adhesive squeezing flow in manufacturing hybrid bolted/bonded joints (MDA24_14)	F Ricca, A Akhavan-Safar (INEGI, Portugal), RJC Carbas, EAS Marques, LFM da Silva
Poster 28	Comprehensive review of fatigue behaviour on highly deformable adhesives (MDA24_130)	M Ribas (INEGI, Portugal), A Akhavan-Safar, RJC Carbas, EAS Marques, LFM da Silva

Room B032

8:40* Mechanical metamaterials for biomedical engineering (**MDA24_75**)
D Castagnetti (University of Modena and Reggio Emilia, Italy)

Session 5A – Composites IV

(Chair: LFM da Silva, D Castagnetti)

Room B032

9:20 A tetrahedral mechanical metamaterial with negative Poisson's ratio behavior (**MDA24_30**)
A Sorrentino (University of Modena and Reggio Emilia, Italy),
D Castagnetti

9:40 A compact quasi-zero stiffness metamaterial (**MDA24_53**)
D Castagnetti (University of Modena and Reggio Emilia, Italy), N Bellini,
A Sorrentino, L Nicolini

10:00 Organic integration of 3D shell structures and TPMS lattices for lightweighting (**MDA24_82**)
M Giacalone (University of Modena and Reggio-Emilia, Italy), F Puglisi,
S Mantovani

10:20 Buckling and post-buckling analysis of auxetic cellular structures (**MDA24_107**)
M Belhadj Amor (University of Monastir, Tunisia), M Ben Bettaieb,
S Mezlini, F Abed-Meraim

Session 5B – Additive Manufacturing II

(Chair: PAF Martins, MF Vaz)

Room B035

Study of the influence of the printing platform position on dimensional and geometrical quality of parts manufactured in alumina by Stereolithography (SLA) (**MDA24_108**)

S Peláez-Peláez (University of León, Spain), S Giganto, AI Fernández-Abia,
MA Castro-Sastre, J Barreiro, S Martínez-Pellitero

Macro-scale finite element simulation of wire-arc additive manufacturing (**MDA24_65**)
JPM Pragana, RFV Sampaio, IMF Bragança, CMA Silva, CV Nielsen,
PAF Martins (University of Porto, Portugal)

Additive manufacturing in spine surgery for an innovative lumbar vertebral prosthesis with lattice structures topology (**MDA24_67**)
H Bennaceur, H Ameddah (University of Batna 2, Algeria)

Challenges in additive manufacturing of tensegrity-inspired metamaterials
 – From theory to practice (**MDA24_101**)

A Al Sabouni-Zawadzka (Warsaw University of Technology, Poland),
W Gilewski, A Zawadzki

10:40-11:00 **COFFEE BREAK**

Session 6A – Composites V

(Chair: E Casarejos, A Akhavan-Safar)

Room B032

11:00 Some aspects of plastic deformation of metastable Cu-Ag metal-matrix composites (**MDA24_41**)
P Lejček (Czech Academy of Sciences, Czech Republic), A Strakosova,
F Průša, V Paidar, J Svoboda

11:20 Fabrication and hydrogen separation performance of Pd-MXene composite membranes (**MDA24_58**)
Z Wang (Tomsk Polytechnic University, Tomsk, Russia), DG Krotkevich,
EB Kashkarov

11:40 Acoustic flat lens based on chiral microstructures for elastic wave focusing and collimating (**MDA24_62**)
JY Sun (KU Leuven, Belgium), D Chronopoulos

12:00 Stab resistance of single and double phase STF-impregnated Kevlar® fabrics under unconfined test configuration (**MDA24_31**)
S Laifa (Polytechnic Military School BP17, Algeria), DE Tria

12:20 The role of crosslinked freeze-dried natural scaffolds in macrophage polarization towards an anti-inflammatory phenotype (**MDA24_72**)
AF Afonso, C Correia, C Henriques, JC Silva, T Vieira (Nova University of Lisbon, Portugal)

12:40 Comparative analysis of direct search methods for composite material design optimization (**MDA24_68**)
IC Coropețchi, DM Constantinescu, A Vasile, Șt Sorohan, DA Apostol
 (National University for Science and Technology POLITEHNICA Bucharest, Romania)

Session 6B – Joining III

(Chair: RD Adams, C Sato)

Room B035

Finite element modelling of cyclic plasticity and fatigue for welded offshore wind turbine support structures (**MDA24_84**)
H Badakhshian (University of Galway, Ireland), RA Barrett, SB Leen

Influence of filler material on microstructure, mechanical and ballistic properties of hybrid plasma-MAG welded joints of Ramor 500 steel (**MDA24_133**)
B Skowrońska, B Szulc, A Senator, K Makowski, TM Chmielewski (Warsaw University of Technology, Poland)

A new approach for solid-state welding of UFG copper by means of friction heat impulse (**MDA24_93**)
Ł Morawiński (Warsaw University of Technology, Poland), C Jasiński,
J Goliński, TM Chmielewski

Finite element modeling of joints with laser ablated serrated patterns of interlocking features (**MDA24_99**)
F Musiari (University of Parma, Italy), F Moroni, M Gulino

Properties of wedge wire bonded connection between a composite copper core aluminum shell wire and an 18650 cylindrical lithium-ion battery cell (**MDA24_102**)
K Bielszczuk (Warsaw University of Technology, Poland), T Chmielewski

Cavitation in a soft adhesive generated by thermal stress (**MDA24_112**)
C Sato (Tokyo Institute of Technology, Japan)

13:00-14:00 **LUNCH BREAK**

Room B032	
14:00*	Quantification of delamination resistance data of FRP composites and its limits (MDA24_70) <u>AJ Brunner</u> (Retired scientist, Switzerland)
<div> <div> Session 7A – Additive Manufacturing III (Chair: EAS Marques, A Rodríguez-Prieto) </div> <div> Session 7B – Composites VI (Chair: D Chronopoulos, AJ Brunner) </div> </div>	
<div> <div>Room B032</div> <div>Room B035</div> </div>	
14:40	<div> Development and implementation of continuous trajectories for 3D printing by variation of width filling of the extruded beads (MDA24_46) RH Dias, DMS Couto, HT Idogava, <u>ZC Silveira</u> (University of São Paulo, Brazil) </div> <div> Mechanical performance of Portland cement mortars added with rigid polyurethane foam waste (MDA24_44) IL Rodríguez, JED Rosero, <u>JT Agredo</u> (Universidad Nacional de Colombia, Colombia) </div>
15:00	<div> Teaching design for AM to science materials engineering graduate students: Hands-on approach (MDA24_34) <u>JM Costa</u> (University of Porto, Portugal), MF Vieira </div> <div> Formulation and characterization of a natural bifiber-reinforced mortar in construction materials (MDA24_74) <u>S Pons Ribera</u> (CESI Ecole d'Ingénieurs, France), S de Barros, R Hamzaoui, J Colin </div>
15:20	<div> A novel approach for modifying aluminium powder EN AW-7075 with nanoparticles for additive manufacturing (MDA24_92) <u>M Dreyer</u> (Paderborn University, Germany), F Hengsbach, K-P Hoyer, M Schaper </div> <div> Development and testing of timber-metal-hybrid materials for the side sill reinforcement of a battery electric vehicle (MDA24_83) F Feser, <u>D Heyner</u> (German Aerospace Center, Germany), M Schulze </div>
15:40	<div> Effects of process parameters on the interlayer bond quality of multimaterial-TPU parts built by extrusion-based 3D printing (MDA24_95) LMA Lopes, L Santana, GMO Barra, <u>JL Alves</u> (University of Porto, Portugal) </div> <div> A novel approach to reinforce wooden substrates with bio-adhesive for single lap joints (MDA24_26) <u>Sh Jalali</u> (INEGI, Portugal), EAS Marques, RJC Carbas, LFM da Silva </div>
16:00-16:20 COFFEE BREAK	
<div> <div> Session 8A – Additive Manufacturing IV (Chair: JL Alves, PAF Martins) </div> <div> Session 8B – Composites VII (Chair: E Casarejos, A Barroso) </div> </div>	
<div> <div>Room B032</div> <div>Room B035</div> </div>	
16:20	<div> Analysis of the limitations of organic powder for high temperature reprocessing of printed PLA parts (MDA24_1) J Machado, L Santana, <u>JL Alves</u> (University of Porto, Portugal) </div> <div> Numerical and experimental stiffness evaluation of CFRP transverse leaf and coil springs (MDA24_81) <u>M Giacalone</u> (University of Modena and Reggio-Emilia, Italy), A Messina, F Puglisi, M Carello, S Mantovani </div>
16:40	<div> A comparison of weldability and mechanical properties of additive manufactured and bulk Ti6Al4V alloy (MDA24_6) <u>ET Akinlabi</u> (Northumbria University, Newcastle, UK), PO Omoniye, RM Mahamood, N Arthur, S Pityana, S Skhosane, Y Okamoto, T Shinonaga, MR Maina, SA Akinlabi, TC Jen </div> <div> Impact penetration response of fibre metal laminates padded with 3D continuous fibre-reinforced polyurethane foam (MDA24_88) <u>J Winhard</u> (Chemnitz University of Technology, Germany), K Schäfer, D Nestler, L Kroll </div>
17:00	<div> Investigation of the effect of alkaline environment on mechanical properties of additively manufactured 17-4 PH stainless steel parts produced using recycled metal powder (MDA24_11) <u>HAI Hadidi</u> (Military Technological College, Oman), M Anand, S Simandjuntak </div> <div> So you think carbon fibre composites is the answer to lightweighting? (MDA24_111) <u>RD Adams</u> (University of Bristol, UK) </div>
17:20	<div> Characterisation of additive manufactured Ti6Al4V-W-Ni composite (MDA24_32) <u>RM Mahamood</u> (Northumbria University, UK), S Akinlabi, T-C Jen, S Pityana, PO Omoniye, ET Akinlabi </div> <div> CFRP structures for fiber tracking detectors in the R3B-FAIR experiment (MDA24_90) <u>P García-Gil</u> (Universidade de Vigo, Spain), E Casarejos, D Agudo, JA López-Campos, S Suarez </div>
17:40	<div> Assessing the suitability of additive manufacturing technologies for spare part production (MDA24_140) <u>BT Ferreira</u> (University of Lisbon, Portugal), G Cardeal, A Gonçalves, J Fernando, I Ribeiro, M Leite </div> <div> Effect of the distribution of fibers on the transverse elastic properties of unidirectional glass-fiber composites (MDA24_105) <u>S Tarasovs</u> (University of Latvia, Latvia), J Modniks, J Andersons </div>
18:00	<div> Material characterization by homogenization of 3D printed polymers with infill structures (MDA24_97) <u>M Abolfathi</u> (University of Parma, Italy), F Moroni, A Pirondi, E Bedogni </div> <div> Bending behaviour evaluation in tough bio-inspired helicoidal composites (MDA24_28) <u>H Malekinejad</u> (INEGI, Portugal), RCJ Carbas, EAS Marques, LFM da Silva </div>
20:00	MDA2024 BANQUET (Casa da Música)