

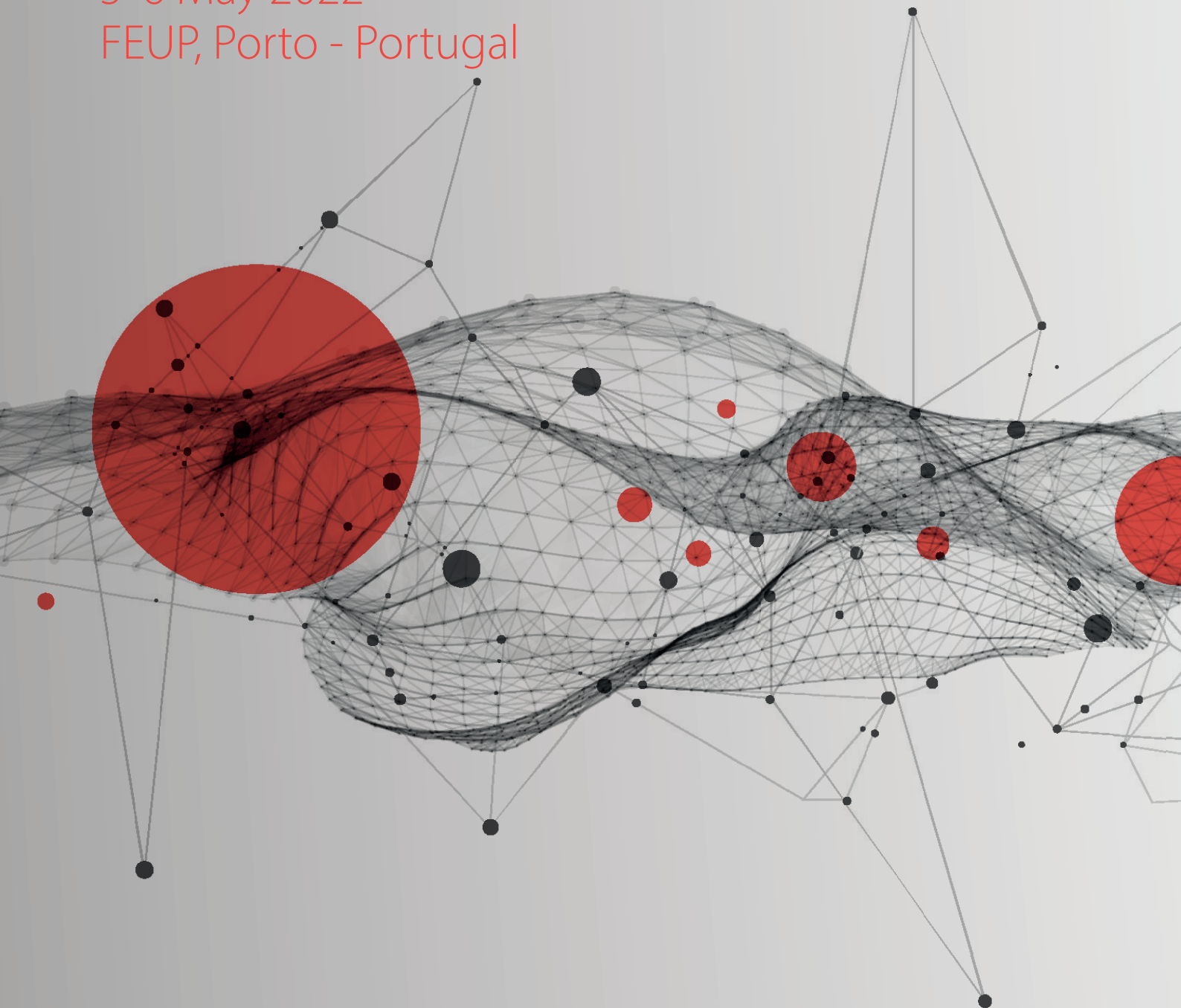
EM2022

1ST INTERNATIONAL CONFERENCE
ON ENGINEERING MANUFACTURE

PROGRAMME

5-6 May 2022

FEUP, Porto - Portugal



PROGRAMME OF EM2022

Author underlined → presenting author

Thursday 5 May 2022

8:40		EM 2022 Opening (Room B001)	
		Session 1A – Additive manufacturing I (Chair: MF Vaz and JL Alves)	Session 1B – Manufacturing equipment and maintenance (Chair: RDSG Campilho and FJG Silva)
		Room B001	Room B002
9:00	Parametric calibration study of FFF printing with large diameter nozzle (EM22_1) DV Silva, L Santana, <u>JL Alves</u> (University of Porto, Portugal), A Magalhães	Design of a spiral double-cutting machine for an automotive bowden cable assembly line (EM22_31) AFG Barbosa, <u>RDSG Campilho</u> (ISEP, Portugal), FJG Silva, IJ Sánchez-Arce	
9:20	Effects of printing parameters on the quality of FFF printed parts with red PLA filaments from different suppliers (EM22_2) <u>JP Ramalho</u> (University of Porto, Portugal), L Santana, HT Idogava, JL Alves	Improving the efficiency of the bowden cable terminal injection process for the automotive industry (EM22_32) JLTA Pereira, <u>RDSG Campilho</u> (ISEP, Portugal), FJG Silva, IJ Sánchez-Arce	
9:40	Feasibility analysis of robot-assisted processes for automated tolerance compensation by using additive manufacturing (EM22_7) <u>M Fiedler</u> (Volkswagen Aktiengesellschaft, Germany), H Meyer, F Fischer, K Droeder	Optimum design of life-capability qualified sampling plans based on accelerated Weibull-life testing data with failure censoring in modern manufacturing industry (EM22_34) <u>TC Wang</u> (Republic of China Air Force Academy, Taiwan), MH Shu	
10:00	Evaluation of cellular structures with triply periodic minimal surfaces fabricated by additive manufacturing (EM22_18) A Oliveira, LG Reis, M Leite, F Alves, AM de Deus, M Sardinha, <u>MF Vaz</u> (University of Lisbon, Portugal)	Manufacturing and engineering of epoxy composites containing waste materials sourced from modernization of buildings: current state of knowledge and future perspectives (EM22_49) <u>S Czarnecki</u> (Wroclaw University of Science and Technology, Poland), J Nowak, L Sadowski	
10:20	Additive manufacturing of a novel multi-material WC-Co/316 steel cutting tool (EM22_30) <u>B Guimarães</u> (University of Minho, Portugal), CM Fernandes, D Figueiredo, FS Silva, G Miranda	SMED applied to tire calibration procedures (EM22_26) V Santos, VFC Sousa, <u>FJG Silva</u> (ISEP, Portugal), JCO Matias, RDFS Costa, AG Pinto, RDSG Campilho	
10:40-11:00		COFFEE BREAK	
		Session 2A – Forming I (Chair: PAF Martins and D Ravi Kumar)	Session 2B – Additive manufacturing II (Chair: F Walther and G Nicoletto)
		Room B001	Room B002
11:00	Analysis of the evolution of the Lankford coefficient in uniaxial tensile tests and validation with grain structure analysis (EM22_3) <u>M Lenzen</u> (Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany), M Merklein	Role of residual stresses in the fatigue assessment of additively manufactured aluminum components (EM22_39) <u>G Nicoletto</u> (University of Parma, Italy), F Uriati, E Riva	
11:20	Effect of elevated tool temperatures on the properties of high-strength aluminum alloys during tailored quench forming (TQF) (EM22_5) <u>N Rigas</u> (Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany), M Merklein	Enhanced assessment of the fatigue behavior and damage tolerance of additively manufactured metals and components (EM22_40) M Awd, D Kotzem, F Stern, J Tenkamp, <u>F Walther</u> (TU Dortmund University, Germany)	
11:40	Residual effects of ultrasonic assistance in metal forming (EM22_6) <u>M Jäckisch</u> (Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany), M Merklein	Influence of fabrication equipment on surface quality, mechanical properties, and fatigue performance of L-PBF Inconel 718 (EM22_41) <u>F Uriati</u> (University of Parma, Italy), G Nicoletto, L Trombi	
12:00	Improvement of material flow in tube hydroforming by advanced sealing methods (EM22_10) <u>MM Kasaei</u> (INEGI, Portugal), H Moslemi Naeini, B Abbaszadeh, SJ Hashemi, LFM da Silva	Design management and advanced technologies in the development and production of modern recreational crafts (EM22_42) <u>V Carneiro</u> (University of Porto, Portugal), F Cálão, JL Alves, A Barata da Rocha	

12:20	<p>Groove stiffening of sheets by single point incremental forming: Experimental and numerical investigation (EM22_14)</p> <p>VAM Cristino, JPM Pragana, IMF Bragança, CMA Silva, <u>PAF Martins</u> (University of Lisbon, Portugal)</p>	<p>Residual stress and distortion control in wire-arc additive manufacturing process through novel modular substrate (EM22_43)</p> <p><u>N Vishwanath</u> (Indian Institute of Technology Hyderabad, India), S Suryakumar</p>
12:40	<p>Numerical simulation of sheet metal forming of an Al-Mg alloy incorporating plane strain properties in the yield criterion (EM22_28)</p> <p>V Prakash, <u>D Ravi Kumar</u> (Indian Institute of Technology Delhi, India), M Lenzen, H Hagenah, M Merklein</p>	<p>Data driven algorithms on the optimization of additive manufacturing processes (EM22_75)</p> <p><u>A Baraati</u> (INEGI, Portugal), DJ Cruz, MR Barbosa, AD Santos</p>
13:00-14:00	LUNCH BREAK	
	Session 3A – Joining I (Chair: RJC Carbas and R Beygi)	Session 3B – Machining I (Chair: AMP de Jesus and JF Chatelain)
	Room B001	Room B002
14:00	<p>Shear-clinching of the high-strength aluminum alloy AA7075 with a laser-assisted short-term heat treatment (EM22_4)</p> <p><u>S Wiesenmayer</u> (Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany), M Merklein</p>	<p>Grinding wheel with on-line grinding force collecting (EM22_73)</p> <p><u>L Hu</u> (Xi'an Jiaotong University, PR China), J Zha, Y Chen</p>
14:20	<p>Welding of high-strength steels in the automotive industry (EM22_76)</p> <p><u>T Węgrzyn</u> (Silesian University of Technology, Poland), B Szczucka - Lasota, T Szymczak, B Łazarz, P Cybulko, A Jurek</p>	<p>Improving the cut surface quality by optimizing parameters in the fibre laser cutting process (EM22_27)</p> <p>I Amaral, VFC Sousa, RDFS Costa, <u>FJG Silva</u> (ISEP, Portugal), RDSG Campilho, AG Pinto</p>
14:40	<p>Techniques to reduce the delamination of composite adhesive joints (EM22_8)</p> <p><u>RJC Carbas</u> (INEGI, Portugal), F Malbizar, EAS Marques, LFM da Silva</p>	<p>Assessment of laser cutting parameters and heat affected zone on microstructure and fatigue behavior of carbon fiber-reinforced epoxy (EM22_81)</p> <p><u>S Mrzljak</u> (TU Dortmund University, Germany), L Gerdes, J Keunte, V Wippo, P Jaeschke, F Walther</p>
15:00	<p>Solid state friction welding of tungsten and mild steel (EM22_79)</p> <p>B Skowrońska, M Bober, P Kołodziejczak, M Baranowski, <u>T Chmielewski</u> (Warsaw University of Technology, Poland)</p>	<p>Experimental study on drilling of fibre metal laminates and delamination modelling through fracture mechanics (EM22_58)</p> <p>FC Marques, <u>FGA Silva</u> (INEGI, Portugal), TEF Silva, PAR Rosa, AT Marques, AMP Jesus</p>
15:20	<p>Strength and fatigue life assessment of different joining techniques in a real structure: A comparative study of welding and adhesive bonding (EM22_13)</p> <p><u>A Akhavan-Safar</u> (INEGI, Portugal), J Antelo, RJC Carbas, EAS Marques, LFM da Silva, R Goyal, N Cuvillier, I Maus, Y Takahashi, J Sherwood</p>	<p>A comparison of specific cutting pressures estimation of various metallic alloys through experimental orthogonal cutting tests and turning (EM22_59)</p> <p><u>TEF Silva</u> (INEGI, Portugal), FGA Silva, AMP Jesus</p>
15:40	<p>Evaluation of different routes for manufacturing of micro process devices (EM22_20)</p> <p><u>T Gietzelt</u> (Karlsruher Institut für Technologie, Germany), T Wunsch</p>	<p>Effect of milling parameters on the surface quality of a flax fiber reinforced polymer composite (EM22_64)</p> <p>H Chafai, <u>JF Chatelain</u> (Ecole de Technologie Supérieure, Canada)</p>
16:00-16:20	COFFEE BREAK	
	Session 4A – Forming II (Chair: MM Kasaei and MB Silva)	Session 4B – Additive manufacturing III and Machining II (Chair: EAS Marques and J Outeiro)
	Room B001	Room B002
16:20	<p>Investigation of deformation length in flexible roll forming (EM22_15)</p> <p>H Badparva, H Moslemi Naeini, <u>MM Kasaei</u> (INEGI, Portugal), Y Dadgar Asl, B Abbaszadeh, LFM da Silva</p>	<p>Mechanical assessment of PBF-EB manufactured IN718 lattice structures (EM22_78)</p> <p><u>D Kotzem</u> (TU Dortmund University, Germany), F Walther</p>
16:40	<p>Process and parameters for laser assisted localized heat treatment in metal forming applications (EM22_77)</p> <p><u>R Pereira</u> (Universidade do Minho, Portugal), N Peixinho, V Carneiro, S Costa, S Cortez, V Blanco</p>	<p>Functionally graded cellular cores of sandwich panels fabricated by additive manufacturing (EM22_19)</p> <p>BG Silva, F Alves, M Sardinha, LG Reis, M Leite, AM de Deus, <u>MF Vaz</u> (University of Lisbon, Portugal)</p>

17:00	A novel robotic manipulator concept for managing the winding and extraction of wire coils (EM22_23) RDFS Costa, VFC Sousa, <u>FJG Silva</u> (ISEP, Portugal), RDSG Campilho, AG Pinto, RPC Soares	3D multi-material-selective-laser-melting: Technology, fabrication and prototypes (EM22_71) <u>F Bartolomeu</u> (University of Minho, Portugal), J Pires, A Marques, A Cunha, O Carvalho, M Gasik, FS Silva
17:20	Thin-walled tube material properties customization by local heat treatment (EM22_63) <u>JPG Magrinho</u> (University of Lisbon, Portugal), A Piccininni, MB Silva, G Palumbo	Integration of self-joining capabilities on additively manufactured components (EM22_12) <u>EAS Marques</u> (INEGI, Portugal), M Frascio, RJC Carbas, LFM da Silva
17:40	Formability limits by local buckling in thin-walled metal tubes (EM22_62) <u>JPG Magrinho</u> (University of Lisbon, Portugal), MB Silva, G Centeno, PAF Martins	Machinability assessment of grade 300 AMed maraging steel through instrumented milling tests (EM22_60) TEF Silva, <u>M Duro</u> (INEGI, Portugal), A Gregório, FGA Silva, PAR Rosa, AMP Jesus
18:00	Deep-drawing of multilayer steel/polymer laminate for automotive lightweight design (EM22_70) <u>J Domitner</u> (Graz University of Technology, Austria), E Hodžić, P Auer, Z Silvayeh, C Sommitsch, M Kićin	Modelling and optimisation of machining of Ti6Al4V titanium alloy using Machine Learning and DoE methods (EM22_72) <u>J Outeiro</u> (University Burgundy Franche-Comté, France), W Cheng, F Chinesta, A Ammar
19:00	RECEPTION (Coffee lounge)	

Friday 6 May 2022

Session 5 – Molding and Casting

(Chair: H Puga and D Ravi Kumar)

Room B001

9:00	Increasing the sustainability of manufacturing processes in plastic injection: recovering out-of-service robots to eliminate manual assembly operations (EM22_24) RDFS Costa, VFC Sousa, <u>FJG Silva</u> (ISEP, Portugal), RDSG Campilho, AG Pinto, JPF Pereira	
9:20	An innovative moulding method for anti-slipping shoe-soles (EM22_46) <u>V Richhariya</u> (University of Minho, Portugal), O Carvalho, A Tripathy, FS Silva	
9:40	Engineering and manufacturing of cementitious mortars with low capillary suction for applications in historical buildings (EM22_82) N Szemiot, Ł Sadowski, <u>S Czarnecki</u> (Wroclaw University of Science and Technology, Poland)	
10:00	Effect of different amounts of secondary phases on the duplex stainless steel in the fatigue life of casting components (EM22_54) <u>AP Costa</u> (University of Porto, Portugal), E Azinpour, AD Santos, AP Jesus, MRR Seabra, J Cesar Sá, LMM Ribeiro	
10:20	Ultrasonic tool development for aluminium alloy treatment in die-casting process (EM22_65) H Puga (University of Minho, Portugal), D Soares, JC Teixeira, P Plão, F Santos	

10:40-11:00 COFFEE BREAK

Session 6 – Joining II

(Chair: MM Kasaei and LFM da Silva)

Room B001

11:00	Water absorption in adhesive joints: effect of the interface in joints with metallic and composite substrates (EM22_25) <u>CSP Borges</u> (INEGI, Portugal), A Akhavan-Safar, EAS Marques, RJC Carbas, C Ueffing, P Weissgraeber, LFM da Silva	
11:20	Optimisation of an induction cure process for the manufacturing of adhesively bonded milling tools (EM22_29) <u>PN Gomes</u> (INEGI, Portugal), DS Correia, EAS Marques, RJC Carbas, PJC das Neves, LFM da Silva	
11:40	Buttering of steel before friction stir welding for improving the joint strength of aluminium-steel joints: Fracture behaviour and interface characterization (EM22_33) <u>R Beygi</u> (INEGI, Portugal), RJC Carbas, A Queiros, EAS Marques, LFM da Silva	

12:00	Analysis of joints between thin dissimilar sheets produced by FSW and subsequent rolling (EM22_68) R Beygi (INEGI, Portugal), A Sonboli, A Nouri, LFM da Silva
12:20	Laser welding process of polymeric materials: State of the art (EM22_67) E Delzendehrooy (INEGI, Portugal), EAS Marques, RJC Carbas, LRR da Silva, LFM da Silva
12:40	Microstructures and mechanical properties of laser welded tailored blanks of Al-Si coated 22MnB5 press hardening steel (EM22_53) Q He (Tongji University, China), Z Hou, J Kong, L Deng, X Ma, J Min
13:00-14:00	LUNCH BREAK
	Session 7 – Additive manufacturing IV (Chair: MF Vaz and JL Alves)
	Room B001
14:00	Influence of build direction on surface quality, microstructure and fatigue of additively manufactured AlSi10Mg (EM22_51) R Konecna, T Varmus (University of Zilina, Slovak Republic), G Nicoletto, F Uriati
14:20	Coupled optical and thermal monitoring of thick-walled cylindrical components fabricated by Laser Metal Deposition (EM22_52) M Mazzarisi (Politecnico di Bari, Italy), F Palano, V Errico, A Angelastro, M Dassisti, SL Campanelli
14:40	A new methodology to manufacture biodegradable magnesium stents (EM22_55) V Lopes (University of Minho, Portugal), VH Carneiro, H Puga
15:00	Powder reusability in metal binder jetting process (EM22_56) P Bidare (University of Birmingham, UK), R Abdullah, A Jiménez, K Essa
15:20	Numerical analysis of the influence of solid-state phase transformations on the mechanical behavior of the Ti-6Al-4V alloy (EM22_57) CM Andrade (University of Coimbra, Portugal), DM Neto, MC Oliveira, JC Sá
15:40	High-cycle and ultra-high cycle behaviour of directed energy deposition Inconel 625 super alloy (EM22_61) FK Fiorentin, FG Silva, AMP de Jesus (University of Porto, Portugal)
16:00-16:20	COFFEE BREAK
	Session 8 – Forming III (Chair: AD Santos and PAF Martins)
	Room B001
16:20	Quantification of electro-plastic effect in electric pulse aided uniaxial tensile of Ti-6Al-4V (EM22_35) S Adabala, P Konka (Indian Institute of Technology Hyderabad, India), N Venkata Reddy
16:40	Component specific elastic cushion design to enhance accuracy with use of reconfigurable tools in stretch forming (EM22_36) S Cherukupally, P Konka (Indian Institute of Technology Hyderabad, India), N Venkata Reddy
17:00	Mechanical characterization and fracture assessment of advanced steels processed with sheet metal forming through experimental and numerical protocols (EM22_45) E Azinpour (University of Porto, Portugal), M Jimenez Abarca, A Costa, A Santos, JC de Sá
17:20	Fracture forming limit determination of third generation advanced high strength steels applied in sheet metal forming (EM22_47) M Jimenez Abarca (INEGI, Portugal), R Amaral, AD Santos, D Cruz, JC de Sá
17:40	Modelling the work hardening behavior of metallic sheets submitted to tension-compression or simple shear reverse loadings (EM22_66) DJ Cruz (INEGI, Portugal), AFG Pereira, VM Simões, RL Amaral, AD Santos, MC Oliveira
18:00	Ductile fracture prediction of SS304 foil in micro-roll forming (EM22_16) M Karimi Firouzjaei, H Mostlemi Naeini, MM Kasaei (INEGI, Portugal), MJ Mirnia, LFM da Silva
20:00	EM2022 BANQUET (RESTAURANT BLINI)