PROGRAMME

AJP 2023

3RD INTERNATIONAL CONFERENCE ON ADVANCED JOINING PROCESSES

19-20 October 2023 - Braga, Portugal

5th In-situ workshop 2023

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*** Plenary lecture**

Thursday 19 October 2023

8:40	**AJP 2023 Opening (Room Minho)**		
	Room Minho		
9:00*	**Adjusting intensity distribution in laser beam welding – a solution for all problems? (AJP23_131)** JP Bergmann (Technische Universität Ilmenau, Germany)		
	Session 1A – Joining by forming I (Chair: PAF Martins and MM Kasaei)	**Session 1B – Laser welding I** (Chair: K Dilger and U Reisgen)	**Session 1C – 5th In-situ workshop I** (Chair: T Kannengießer and A Kromm)
	Room Minho	***Room Braga I***	***Room Braga II***
9:40	Influence of the process time on a self-piercing riveting process with tumbling kinematic **(AJP23_24)** S Wituschek (Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany), L Elbel, M Lechner	Laser beam welding under vacuum of galvanized thick plate constructional steel **(AJP23_4)** C Frey (RWTH Aachen University, Germany), O Stocks, S Olschok, R Kühne, M Feldmann, U Reisgen	Investigations to improve the tool life during thermomechanical and incremental forming of steel auxiliary joining elements **(AJP23_1)** T Borgert (Paderborn University, Germany), AB Nordieker, W Homberg
10:00	Investigation of the influence of material property changes on the clinching process and the load-bearing capacity of the clinched joint **(AJP23_25)** C Steinfelder (Technische Universität Dresden, Germany), D Rempel, A Brosius	Comparison of the mechanical-technological properties of Ni 99.6 thin sheets welded by different arc and laser welding processes **(AJP23_32)** M Gamerdinger, A Biber, M Olesch (RWTH Aachen University, Germany), R Sanei, R Sharma, S Olschok, U Reisgen	Investigation of the local strain behavior by digital image correlation and transverse tensile tests on welded differently micro-alloyed high-strength structural steel **(AJP23_143)** N Schroeder (Bundesanstalt für Materialforschung und -prüfung (BAM), Germany), M Rhode, T Kannengiesser
10:20	Investigation of the influence of the rivet geometry on joint formation for a versatile self-piercing riveting process **(AJP23_30)** F Kappe (Paderborn University, Germany), M Bobbert, G Meschut	Increasing the robustness of laser beam submerged arc hybrid welding in the presence of joint gaps and offsets **(AJP23_46)** M Clemens, S Olschok (RWTH Aachen University, Germany), U Reisgen	Influence of residual stresses on stress relief cracking of thick-walled creep-resistant steel welds **(AJP23_21)** M Rhode, A Kromm (Bundesanstalt für Materialforschung und -prüfung (BAM), Germany), RC Wimpory, S Gook, D Schroepfer, T Kannengiesser
10:40-11:00	***COFFEE BREAK***		
	Session 2A – Advanced joining processes I (Chair: U Reisgen and A Brosius)	**Session 2B – Adhesive bonding I** (Chair: C Sato and LFM da Silva)	**Session 2C – 5th In-situ workshop II** (Chair: T Kannengießer and A Kromm)
	Room Minho	***Room Braga I***	***Room Braga II***
11:00	Optimization of weldability and joint strength of Al-Mg-Si cladded aluminum alloys based on a design of experiments investigation **(AJP23_5)** P Bamberg (RWTH University, Germany), A Schiebahn, A Marzzona, M Christ, U Reisgen	Digital twin development for heat transfer and curing kinetics of thick adhesive bond lines in 3D-printed moulds **(AJP23_160)** L Domenech, M Ibañez, V García, A Sakalytė, JA García, F Sánchez (University CEU Cardenal Herrera, Spain)	Joining technologies for hydrogen components: current need and future perspectives **(AJP23_20)** M Rhode (Bundesanstalt für Materialforschung und -prüfung (BAM), Germany), T Kannengiesser
11:20	Influence of workpiece geometry and natural frequencies on Ultrasonic-Metal-Welding **(AJP23_22)** FW Müller (RWTH Aachen University, Germany), J Liu, A Schiebahn, U Reisgen	Lamb waves for the detection of degradation of adhesive-adherend interlayers **(AJP23_159)** SA Kumar (Anil Neerukonda Institute of Technology and Sciences, India), G Sudheer	In-situ CT – Analysis of the failure mechanisms of thermomechanically manufactured joints with auxiliary joining elemento **(AJP23_29)** T Borgert (Paderborn University, Germany), D Köhler, R Kupfer, J Troschitz, W Homberg, M Gude

11:40	Selected properties of aluminium ultrasonic wire bonded joints with nickel-plated steel substrate for 18650 cylindrical cells **(AJP23_35)** K Bieliszczuk (Warsaw University of Technology, Poland), J Zręda, TM Chmielewski	New challenges of e-mobility for adhesive bonding **(AJP23_16)** H Fricke (Fraunhofer IFAM, Germany), M Ruetters	Neutron Bragg edge imaging for in situ mapping of crystallographic phase transformations and of temperature distributions during GTAW of supermartensitic stainless steel **(AJP23_31)** A Griesche (Federal Institute for Materials Research and Testing, Germany), T Mente, H Markötter, Ala'A M. Al-Falahat, N Kardjilov
12:00	Diffusion bonding and brazing Al-6%Mg alloy to stainless steel **(AJP23_43)** AA Shirzadi (The Open University, UK), MZ Mughal	Investigating mode I fracture behavior and fatigue crack growth in bi-material interfaces to enhance the semiconductor reliability **(AJP23_17)** A Akhavan-Safar (INEGI, Portugal), P Morais, RJC Carbas, EAS Marques, B Karunamurthy, LFM da Silva	Residual stress formation in DED-arc manufactured high strength steel components **(AJP23_55)** K Wandtke, D Schröpfer, A Kromm (Bundesanstalt für Materialforschung und -prüfung, Germany), R Scharf-Wildenhain, A Hälsig, T Kannengießer, J Hensel
12:20	Characterisation of wire-arc directed energy deposited stiffening structures in AA2024 profiles **(AJP23_49)** M Silmbroth (AIT Austrian Institute of Technology, Austria), N Enzinger, C Schneider-Bröskamp, T Klein	Effect of different interfaces on the water uptake of Zn coated high strength steel/ epoxy adhesive joints **(AJP23_33)** CSP Borges (INEGI, Portugal), JDP Sousa, EAS Marques, RJC Carbas, D Chaleix, F Gilbert, J Pirat, F Laffineur, L Rachiele, LFM da Silva	Influence of the test velocity on the friction coefficient in high-strength bolted connections under cyclic load **(AJP23_56)** J Mantik (Fraunhofer IGP, Germany), M Leicher, C Denkert, K Treutler, M Dörre, K-M Henkel, V Wesling
12:40	Challenges in contacting metal-polymer current collectors in pouch cells **(AJP23_50)** H Gruhn (TU Braunschweig, Germany), T Krüger, M Mund, MW Kandula, K Dilger	In situ detection of contaminants during laser surface preparation of metal surfaces **(AJP23_82)** S Kirchner (IRT Saint Exupéry, France), J Lecomte, L Ferres, T Balutch, C Debras, M Péron, N Cuvillier	In-situ computed tomography damage analysis of thermoplastic composites with embedded metal inserts **(AJP23_57)** J Troschitz (Technische Universität Dresden, Germany), R Füßel, M Gude
13:00-14:00	***LUNCH BREAK***		
	Room Minho		
14:00*	**Joining by forming of busbars for electrical applications (AJP23_81)** JPM Pragana, RFV Sampaio, IMF Bragança, CMA Silva, PAF Martins (University of Porto, Portugal)		
	Session 3A – Friction stir welding I (Chair: R Beygi and K Dilger)	**Session 3B – Additive manufacturing I** (Chair: R Nunes and EAS Marques)	**Session 3C – 5th In-situ workshop III** (Chair: T Kannengießer and A Kromm)
	Room Minho	***Room Braga I***	***Room Braga II***
14:40	Modification of Al-Fe intermetallic structure with Cr and Ni and a tremendous enhancement of the joint strength: A comprehensive characterization **(AJP23_10)** R Beygi (INEGI, Portugal), RJC Carbas, EAS Marques, AQ Barbosa, LFM da Silva	Effect of heat treatment on the mechanical properties of parts manufactured by WAAM **(AJP23_36)** M Mouhdi, A Mathieu, M Simon, R Bolot (University of Burgundy, France)	In-Situ control of weld pool size and mechanical properties in Wire Arc Additive Manufacturing **(AJP23_75)** K Treutler (Clausthal University of Technology, Germany), T Gehling, M Scheck, A Richter, C Bohn, R Ehlers, C Rembe, V Wesling
15:00	High speed friction stir welding of Al alloy in lightweight battery trays for EV industry **(AJP23_164)** V Patel (University West, Sweden), J De Backer, M Igestrand, J Andersson	Characterization of intrinsic interfaces between fibre composites and additively manufactured metal for designing hybrid structures **(AJP23_53)** R Grothe (Technische Universität Dresden, Germany), M Pohl, J Troschitz, Ch Weiderman, K-P Weiß, M Gude	Analyzing the impact of individual alloying elements on weld microstructure: In situ chemical composition measurement during TIG welding and image analysis of Duplex Stainless Steels microstructure **(AJP23_59)** L Quackatz (Federal Institute for Materials Research and Testing, Germany), A Griesche, T Kannengiesser, K Treutler, V Wesling
15:20	Volumetric defect detection in friction stir welding through Convolutional Neural Networks generalized across multiple Al-alloys and sheet thicknesses **(AJP23_47)** P Rabe (RWTH Aachen University, Germany), A Schiebahn, U Reisgen	Plasma powder transferred arc additive manufacturing of ((Fe,Ni)-Al) intermetallic alloy and resulting properties **(AJP23_74)** K Treutler (Clausthal University of Technology, Germany)	In-situ synchrotron investigations of beam diameter influence on vapor capillary formation during laser beam welding of copper with a 450 nm laser beam source **(AJP23_27)** C Spurk (RWTH Aachen University, Germany), M Hummel, A Gillner, F Beckmann, J Moosmann, C Häfner
15:40	Dissimilar probeless-friction stir spot welding of aluminum alloy and USIBOR®1500 steel thin plates **(AJP23_79)** M Rashkovets (Polytechnic University of Bari, Italy), ME Palmieri, N Contuzzi, L Tricarico, G Casalino	The influence of the filler metal quality in the MIG welding of AlSi10Mg parts additively manufactured by L-PBF process **(AJP23_92)** R Nunes (Belgian Welding Institute, Belgium), K Faes, W Verlinde, W De Waele, W Sneyers, A Simar, M Lezaack	Process parameter optimization for Refill Friction Stir Spot Welding (Refill FSSW) of dissimilar AA5754 and electro galvanized DP600 joints **(AJP23_26)** GL Ghiraldelli, AH Plaine (State University of Santa Catarina, Brazil), UFH Suhuddin, NG Alcântara

16:00-16:20	***COFFEE BREAK***		
	Session 4A – Joining by forming II (Chair: M Merklein and PAF Martins)	**Session 4B – Laser welding II** (Chair: J-M Jouvard and S Olschok)	**Session 4C – Friction stir welding II** (Chair: R Beygi and K Dilger)
	Room Minho	***Room Braga II***	***Room Braga II***
16:20	Multi-planar injection lap riveting **(AJP23_42)** M Sapage, JPM Pragana, RFV Sampaio, IMF Bragança, CMA Silva, PAF Martins (University of Lisbon, Portugal)	In-process determination of the local hardness during laser beam welding of steel **(AJP23_62)** D Traunecker (University of Stuttgart, Germany), M Jarwitz, A Michalowski, T Graf	Models for torque and forces in friction stir welding **(AJP23_80)** KJ Quintana (Universidade Federal do Rio de Janeiro, Brazil), JL Silveira
16:40	Experimental und numerical investigation of the influence of rolling-induced sheet metal deformation on clinched joints **(AJP23_51)** M Böhnke (Paderborn University, Germany), CR Bielak, M Bobbert, G Meschut	The investigation of laser beam interaction with aluminum/titanium overlap joint **(AJP23_52)** MR Kumar, I Tomashchuk, J-M Jouvard (Université de Bourgogne, France), M Duband	Failure mechanisms of FSW tools related to process control and tool geometry **(AJP23_86)** M Hasieber (Technische Universität Ilmenau, Germany), P Rudel, M Sennewald, T Löhn, JP Bergmann
17:00	Data-driven analysis and optimization of the pin joining process **(AJP23_63)** D Römisch (Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany), C Zirngibl, S Goetz, S Wartzack, M Merklein	In situ EDXRD measurement of dissimilar laser beam welded stainless steel **(AJP23_84)** F Akyel (RWTH Aachen University Germany), M Gamerdinger, K Mäde, KR Krishna Murthy, S Olschok, R Sharma, U Reisgen, G Abreu-Faria, G Dovzhenko	A novel lap-butt joint design for FSW of aluminum to steel in tee- configuration: Joining mechanism, intermetallic formation, and fracture behaviour **(AJP23_9)** R Beygi (INEGI, Portugal), AA Talkhabi, MZ Mehrizi, EAS Marques, RJC Carbas, LFM da Silva
17:20	Use of eddy currents for enhanced process monitoring and property prediction of clinched joints **(AJP23_48)** J Kalich, HC Schmale (TU Dresden, Germany), A Schilmann	Investigation of the influence of pulse parameters on the resulting weld seam quality in pulsed electron beam welding of AW-6061 **(AJP23_88)** M Troise (RWTH-Aachen University, Germany), S Olschok, U Reisgen	Effects of part fit-up and mating variations on the weld quality in friction stir welding **(AJP23_109)** F Vieltorf (Technical University of Munich, Germany), M E Sigl, M F Zaeh
17:40	Influence of manufacturing tolerances on the failure and deformation behavior of mechanical joints subjected to the crash loads **(AJP23_37)** V Olfert (Paderborn University, Germany), G Meschut, D Hein, S Sommer, P Rochel, P Bähr	Hybrid model for the threshold of deep-penetration laser welding **(AJP23_95)** M Jarwitz (University of Stuttgart, Germany), A Michalowski	Application of friction stir welding to ultrafine-grained aluminium plates **(AJP23_166)** M Lipińska (Military University of Technology, Poland), F Pixner, A Hütter, N Enzinger, M Lewandowska
18:00	Study on formability of similar and dissimilar FSW joints of AA2024 and AA7075 aluminum sheets during biaxial tension **(AJP23_44)** M Fallahi, M Jabbari, R Beygi (INEGI, Portugal), LFM da Silva	Development of an in situ alloying method for high-performance welding processes to achieve an LTT effect by local modification of the alloy content **(AJP23_69)** M Gamerdinger (RWTH Aachen University, Germany), M Clemens, S Olschok, U Reisgen	Dissimilar metal joints of multiple-principal element alloys friction stir welded to conventional austenitic steel 304 **(AJP23_140)** M Rhode, K Erxleben, T Richter, D Schroepfer (Bundesanstalt für Materialforschung und -prüfung (BAM), Germany), T Kannengiesser
19:00	***Poster session and RECEPTION***		

Laser welding

Poster 1	Laser beam welding under vacuum of galvanized thick plate constructional steel **(AJP23_4)**	C Frey (RWTH Aachen University, Germany), O Stocks, S Olschok, R Kühne, M Feldmann, U Reisgen
Poster 2	Dissimilar welding between Cu-6Al-2Ni alloy and stainless steel 316L using continuous Ytterbium YAG laser **(AJP23_58)**	N Haglon (Université de Bourgogne, France), R Bolot, I Tomashchuk, A Mathieu, S Lafaye
Poster 3	Investigating the phase fractions of stainless steel with LTT effect using dilatometer in laser beam welding **(AJP23_78)**	KR Krishna Murthy, F Akyel (RWTH Aachen University, Germany), U Reisgen, S Olschok
Poster 4	Laser welding of UNS S32750 duplex steel with addition of Ni and Co **(AJP23_125)**	BB Seloto, EJ Cruz Jr, A Zambon, I Calliari, VA Ventrella (São Paulo State University, Brazil)
Poster 5	Synchrotron EDXRD strain-temperature measurement during laser welding **(AJP23_141)**	K Mäde (RWTH Aachen University, Germany), U Reisgen, R Sharma, F Akyel, S Olschok, M Gamerdinger, T Evers, K Krishna-Murthy, G Abreu Faria, G Dovzhenko
Poster 6	A general analytical solution for two-dimensional columnar crystal growth during laser beam welding of thin steel sheets **(AJP23_146)**	A Artinov (Germany)
Poster 7	Numerical and experimental study of the variation of keyhole depth in an aluminum alloy **(AJP23_147)**	A Meena (Technical University of Denmark, Denmark), A Lassila, D Lonn, K Salmonsson, W Wang, CV Nielsen, M Bayat

Poster 8	Evaluation of hydrogen diffusion and trapping in AHSS and effects of laser-welding **(AJP23_150)**	A Hopf (Mercedes-Benz AG, Germany), S Jüttner
Poster 9	Filler wire laser welding of Al-Si coated press-hardened steel sheet **(AJP23_152)**	CY Lee (Hyundai Steel, South Korea), SH Park, JS Kim, SG Jang, W Yook, JS Hyun
Friction stir welding		
Poster 10	The effect of preheating temperature on joint improvement in friction drilling of dissimilar sheet metals (AA6061/AISI304L) **(AJP23_45)**	M Azizi, A Jabbari, E Soury, S Dehghan, R Beygi (INEGI, Portugal), LFM da Silva
Additive manufacturing		
Poster 11	Comparative study in 316LSi stainless steel elaborated by Welding Arc Additive Manufacturing (WAAM) modes: Microstructural and mechanical properties characterisation **(AJP23_3)**	SA Aberkane, BR Mehdi (University of Science and Technology Houari Boumediene, Algeria), RI Badji
Poster 12	Damage process of additively manufactured stainless steel 316L under tensile loading in the presence of process-induced defects **(AJP23_136)**	JN Dastgerdi (Amirkabir University of Technology, Iran), ML Yasouri, H Remes
Poster 13	On numerical modelling of distortions and residual stresses in parts produced by Fused Deposition Modelling (FDM) **(AJP23_138)**	A Morvayova (Polytechnic University of Bari, Italy), N Contuzzi, G Casalino
Poster 14	Stretchable Kirigami bio-inspired heterojunctions **(AJP23_157)**	A Burr, SAE Boyer (Mines Paris PSL, France)
Adhesive bonding		
Poster 15	Exploring mixed mode fatigue and fracture of polyurethane adhesives: Strain rate and temperature effects **(AJP23_18)**	A Akhavan-Safar (INEGI, Portugal), M Ribas, RJC Carbas, EAS Marques, S Wenig, LFM da Silva
Poster 16	Indirect curing of epoxy adhesives between thin metal foils by means of inductive heating **(AJP23_28)**	V Ginster, MK Heym, CJA Beier, A Schiebahn, M Epperlein (RWTH Aachen University, Germany), U Reisgen
Poster 17	The role of adhesive bonding in the sustainable design of vehicle structures **(AJP23_61)**	EAS Marques (University of Porto, Portugal), LPF Garrido, CSP Borges, S Jalali, RJC Carbas, LFM da Silva
Poster 18	Designing a cyclic creep testing machine – An apparatus customized to pressure sensitive adhesives **(AJP23_122)**	EMD Fernandes, BD Simões (INEGI, Portugal), EAS Marques, RJC Carbas, S Maul, P Stihler, P Weißgraeber, LFM da Silva
Poster 19	The performance of composite adhesive joints reinforced with thin-ply **(AJP23_14)**	RCJ Carbas (INEGI, Portugal), F Ramezani, EAS Marques, LFM da Silva
Poster 20	Development of a unified specimen for adhesive characterisation: Numerical and experimental study on the mode I and II fracture components **(AJP23_7)**	DS Correia (INEGI, Portugal), EAS Marques, RJC Carbas, LFM da Silva
Poster 21	A novel adhesive bonding process for the next generation of wood milling tools **(AJP23_8)**	RJF de Sousa, PN Gomes, DS Correia (INEGI, Portugal), EAS Marques, RJC Carbas, PJC das Neves, WP Afonso, LFM da Silva
Poster 22	Testing method to determine the strength and fracture toughness of adhesives in a single continuous test **(AJP23_34)**	CSP Borges (INEGI, Portugal), EAS Marques, RJC Carbas, A Akhavan-Safar, C Ueffing, P Weissgraeber, LFM da Silva
Poster 23	The performance of adhesive joints with bent composite adherends **(AJP23_15)**	RCJ Carbas (INEGI, Portugal), VDC Pires, BD Simões, EAS Marques, LFM da Silva
Poster 24	Cure parameters' effect on adhesive glass transition temperature and strength of autoclaved epoxy sheet film adhesive joints **(AJP23_161)**	SA Nassar (Oakland University, USA), A Smail, S Jagatap
Poster 25	Effect of cure parameters on film adhesive glass transition temperature and strength of autoclaved GFRP joints **(AJP23_163)**	SA Nassar (Oakland University, USA), A Smail, S Jagatap, N Lemmons
Advanced joining processes		
Poster 26	Electrical quantification of welded joints for electrical applications **(AJP23_23)**	M Müller, FW Müller (RWTH Aachen University, Germany), A Schiebahn, U Reisgen
Poster 27	Emissions during ultrasonic metal welding of stranded-wire to terminal applications and conclusions for occupational health and safety **(AJP23_77)**	E Helfers (RWTH Aachen University, Germany), M Möller, F Müller, A Schiebahn, U Reisgen, T Kraus
Poster 28	Resistance welding of multi-layered components for PEM electrolyser **(AJP23_99)**	M Epperlein (RWTH Aachen University, Germany), A Schiebahn, U Reisgen

Poster 29	Numerical study of the Cold Metal Transfer (CMT) welding of thin austenitic steel plates with an equivalent heat source approach **(AJP23_117)**	H Aberbache, A Mathieu, N Haglon (Université de Bourgogne Franche-Comté, France), R Bolot, L Bleurvacq, A Corolleur, F Laurent
Poster 30	Storage of non-alloy steel flux-cored welding wires in simulated conditions **(AJP23_142)**	A Świerczyńska (Gdańsk University of Technology, Poland), M Landowski, D Fydrych
Poster 31	Component test for the assessment of hydrogen assisted cracking susceptibility of thick-walled submerged arc welded offshore steels **(AJP23_19)**	M Rhode (Bundesanstalt für Materialforschung und -prüfung (BAM), Germany), A Kromm, T Mente, D Czeskleba, D Brackrock, T Kannengiesser
Poster 32	Microstructure and mechanical properties of TiBw/TA15 composite argon arc welding joint **(AJP23_153)**	L Geng (Harbin Institute of Technology, China), L Yang, J Zhang, LJ Hunag
Poster 33	Microstructure, mechanical property and bonding mechanism of SiC ceramic joint using a novel Y2Si2O7/Mullite glass-ceramic interlayer alloy **(AJP23_156)**	J Zhang (Harbin Institute of Technology, China), L Sun, D Wang
Poster 34	Adaptation of flowdrill technology for mechanical joining of dissimilar thin sheets **(AJP23_158)**	A Guzanová (Technical University of Kosice, Slovakia), J Brezinová, N Veligotskyi
5th In-situ workshop		
Poster 35	Biaxial tensile test and in-situ observation for hot cracking study **(AJP23_54)**	A Azzam, A Mathieu, L Bleurvacq, R Bolot (UMR 6303 CNRS / UB, France)
Joining by forming		
Poster 36	A new design for improving the joinability of magnesium and aluminum sheets in hole hemming **(AJP23_13)**	MM Kasaei (INEGI, Portugal), RJC Carbas, EAS Marques, LFM da Silva

Friday 20 October 2023

	Room Minho		
9:00*	**Structural adhesive joints for high performance applications - A design and testing approach (AJP23_60)** EAS Marques (University of Porto, Portugal), CSP Borges, PDP Nunes, BD Simões, A Akhavan-Safar, RJC Carbas, LFM da Silva		
	Session 5A – Fatigue of joints (Chair: H Remes and A Akhavan-Safar)	**Session 5B – Hybrid joining** (Chair: H Fricke and RJC Carbas)	**Session 5C – Joining by forming III** (Chair: A Brosius and CMA Silva)
	Room Minho	***Room Braga I***	***Room Braga II***
9:40	Fatigue strength assessment of HFMI treated welded joints according to the peak stress method **(AJP23_6)** G Meneghetti, A Campagnolo (University of Padova, Italy), G Sacchet	A novel hybrid bonded-hole hemming process for joining lightweight materials **(AJP23_11)** MM Kasaei (INEGI, Portugal), A Haran-Nogueira, A Akhavan-Safar, RJC Carbas, EAS Marques, LFM da Silva	Joining of hybrid busbars for e-mobility: an economic and environmental study **(AJP23_41)** JPM Pragana, M Sapage, RFV Sampaio, IMF Bragança, I Ribeiro, CMA Silva (University of Lisbon, Portugal), PAF Martins
10:00	Influence of residual stress and material surface imperfection on fatigue behavior of HFMI-treated welded joints **(AJP23_120)** Y Ono (Aalto University, Finland), H Remes, K Kinoshita, HC Yildirim, A Nussbaumer	Mechanical investigation of recyclability for sustainable use of laser-based metal-polymer joints **(AJP23_119)** C Wortmann (Fraunhofer ILT, Germany), M Brosda	Investigation on the load-bearing capacity of hybrid functional components joined by orbital forming **(AJP23_71)** A Hetzel (Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany), S Wituschek, D Römisch, F Sippel, M Lechner, M Merklein
10:20	Fatigue resistance of components in bearing type connections with blind rivets under the influence of notch effect and the material strength **(AJP23_127)** F Kalkowsky (Fraunhofer Institute for Large Structures in Production Engineering IGP, Germany), R Glienke, K-M Henkel	Fundamental investigations on the repairability of hybrid joints **(AJP23_124)** C Gundlach (Technische Universität Braunschweig, Germany), K Dilger, S Hartwig	Investigation of different process routes for joining thermoplastic composite/steel joints via the embedding of cold formed metallic pin structures **(AJP23_85)** J Popp (Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany), D Drummer
10:40-11:00	***COFFEE BREAK***		
	Session 6A – Advanced joining processes II (Chair: S Zhang and J Hensel)	**Session 6B – Knowbond project and Adhesive bonding II** (Chair: AQ Barbosa and E Meiß)	**Session 6C – Laser welding II** (Chair: JP Bergmann and TM Chmielewski)
	Room Minho	***Room Braga I***	***Room Braga II***
11:00	Evaluation of the load-bearing behaviour of screws, bolts and lockbolt systems under combined axial and shear loading **(AJP23_64)** A Holch (Fraunhofer IGP, Germany), R Glienke, M Dörre, K-M Henkel	Building up the knowledge of the adhesive bonding personnel - Knowbond project **(AJP23_38)** AQ Barbosa (INEGI, Portugal), E Meiß, A Almeida, T Avelino, F Mañas, A Toledo, M Uran, M Tonnhofer, EAS Marques, RJC Carbas, LFM da Silva	Data-driven analysis of surface roughness influence on weld quality and defect formation in laser welding of Cu-Al alloys **(AJP23_101)** M Norouzian, MA Elahi, RM Zaeem (University of Luxembourg, Luxembourg), P Plapper (University of Luxembourg, Luxembourg)
11:20	A study of nano-SnAgCu solder paste connection performance using microwave hybrid heating **(AJP23_66)** S Zhang (Harbin Institute of Technology, China), P He	Update of the European Adhesive Bonder Curricula - Knowbond project **(AJP23_39)** E Meiß (Fraunhofer IFAM, Germany), A Almeida, AQ Barbosa, T Avelino, F Mañas, A Toledo, M Uran, M Tonnhofer, EAS Marques, RJC Carbas, LFM da Silva	Time-dependent characteristics of keyhole and melt pool in laser beam welding of aluminum-copper joints by means of high-speed synchrotron X-ray imaging **(AJP23_104)** K Schricker (Technische Universität Ilmenau, Germany), M Seibold, L Schmidt, H Friedmann, C Diegel, F Fröhlich, S Eichler, A Rack, H Requardt, Y Chen, JP Bergmann
11:40	Hole hemming for joining metal and polymer sheets **(AJP23_12)** MM Kasaei (INEGI, Portugal), RJC Carbas, EAS Marques, LFM da Silva	Learning in updated European Adhesive Bonder curricula – Tools for flexible learning **(AJP23_40)** T Avelino, AQ Barbosa (INEGI, Portugal), A Almeida, E Meiß, F Mañas, A Toledo, M Uran, M Tonnhofer, EAS Marques, RJC Carbas, LFM da Silva	Temporal and spatial determination of solidification rate during pulsed laser beam welding of hot-crack susceptible aluminum alloys by means of high-speed synchrotron X-ray imaging **(AJP23_105)** M Seibold (Technische Universität Ilmenau, Germany), K Schricker, L Schmidt, H Friedmann, C Diegel, P Hellwig, F Fröhlich, F Nagel, P Kallage, A Rack, H Requardt, Y Chen, JP Bergmann

12:00	Process optimisation for realisation of crack-free Ni-based wear protection coatings and assessment of machinability by subsequent milling processes to produce defined surfaces **(AJP23_108)** M Gräbner (Institute of Welding and Machining (ISAF), Germany), M Giese, K Treutler, S Lorenz, D Schröpfer, V Wesling, T Kannengiesser	The mechanical and fracture properties of PSAs: An experimental study to understand different influencing parameters **(AJP23_121)** BD Simões (INEGI, Portugal), EAS Marques, RJC Carbas, S Maul, P Stihler, P Weißgraeber, LFM da Silva	Keyhole behavior in full penetration laser beam welding affected by a local gas flow by means of high-speed synchrotron x-ray imaging **(AJP23_106)** C Diegel (Technische Universität Ilmenau, Germany), K Schricker, L Schmidt, M Seibold, H Friedmann, P Hellwig, F Fröhlich, P Kallage, F Nagel, H Requardt, A Rack, Y Chen, JP Bergmann
12:20	Influence of high heat input on structural integrity of a welded joint **(AJP23_111)** M Vukovojac (Faculty of Mechanical Engineering and Naval Architecture, Croatia), B Jalušić, T Lesičar, M Perić, I Skozrit, Z Tonković	Investigating and analyzing the stress distribution in flexible adherend for peel-loaded adhesive joints **(AJP23_144)** R Al-Sabur (University of Basrah, Iraq), HI Khalaf, A Kubit	Optimization of Ti-GFRP laser joining process to achieve superior mechanical performance for overlap configuration **(AJP23_137)** MA Elahi (University of Luxembourg, Luxembourg), M Norouzian
12:40	Thick-wire-GMAW for fusion welding of high-strength steels **(AJP23_65)** M Neumann, A Hälsig, K Hoefer, J Hensel (Chemnitz University of Technology, Germany)	Static and impact strength of hat-beam specimens bonded adhesively **(AJP23_129)** K Ikeda (Tokyo Institute of Technology, Japan), K Shimamoto, T Yamazaki, Y Sekiguchi, C Sato	Experimental analysis and numerical simulation of laser welding of thin austenitic stainless-steel sheets using two models: Bilinear isotropic strain hardening model and Johnson-Cook model **(AJP23_116)** H Aberbache, A Mathieu, R Bolot (Université de Bourgogne Franche-Comté, France), L Bleurvacq, A Corolleur, F Laurent
13:00-14:00	***LUNCH BREAK***		
	Room Minho		
14:00*	**Welding of high performance thermoplastics and composites: from material properties to mechanical strength of assemblies (AJP23_90)** C Garnier (University of Toulouse, France), F Chabert (University of Toulouse, France), A Levy		
	Session 7A – Adhesive bonding III (Chair: LFM da Silva and A Akhavan-Safar)	**Session 7B – Advanced joining processes III** (Chair: TM Chmielewski and M Gude)	**Session 7C – Additive manufacturing II** (Chair: EAS Marques and R Bolot)
	Room Minho	***Room Braga I***	***Room Braga II***
14:40	Interface modeling of hybrid FRP steel components for an improved design in crash simulation **(AJP23_87)** N Günther (Gesellschaft für Numerische Simulation, Germany), M Griese, E Ince, E Stammen, J Krost, K Dilger	Determination and validation of preload losses on coated parts in rail vehicles **(AJP23_73)** F Wegener (Fraunhofer Institute for Large Structures in Production Engineering, Germany), C Denkert, M Dörre, K-M Henkel	Development of an indirect measurement method for the Contact Tube to Workpiece Distance (CTDW) in the Direct Energy Deposition – Arc (DED-ARC) process for different arc types **(AJP23_107)** M Rohe (Technische Universität Ilmenau, Germany), M Knester, J Hildebrand, JP Bergmann
15:00	Low molecular weights intumescent flame-retardant additives for temperature-controlled debonding of bonded aluminium substrates **(AJP23_103)** O Kachouri (Luxembourg Institute of Science and Technology (LIST), Luxembourg), J Bardon, D Ruch, A Laachachi	Influence of surface condition of copper and aluminum sheets on ultrasonic metal welding **(AJP23_76)** E Helfers (RWTH Aachen University, Germany), F Müller, A Schiebahn, U Reisgen	Weldability of additively manufactured aluminium parts produced by Wire Arc Additive Manufacturing (WAAM) by MIG welding process: Influence of heat input and laser cleaning prior to welding **(AJP23_93)** R Nunes (Belgian Welding Institute, Belgium), K Faes, W Verlinde, W De Waele, W Sneyers, A Simar, M Lezaack
15:20	Semi-automated material modeling to determine potentials of SMC reinforcements for crash applications **(AJP23_112)** J Krost (Gesellschaft für Numerische Simulation, Germany), E Ince, N Guenther, R Thomas	Microstructure homogenization by adapting the melting behavior of flux cored wires in GMAW **(AJP23_83)** K Hoefer (Chemnitz University of Technology, Germany), F Fritzsche, J Hensel	Innovative design strategies for AM heat pipes **(AJP23_97)** S Reich (RWTH Aachen University, Germany), B Pinto, M Fátima Vaz, JH Schleifenbaum
15:40	Production related effects on the adhesive bondline performance of structural adhesives joining dissimilar materials **(AJP23_118)** M Griese (Technische Universität Braunschweig, Germany), N Günther, E Stammen, K Dilger	Calculation method of thread-forming screw connections **(AJP23_89)** A Lamm, T Binder, V Johne, M Klein, HC Schmale (TU Dresden, Germany), M Oechsner	Mechanical properties of lattice structures produced with WAAM and stud welding **(AJP23_110)** F Riegger (Technical University of Munich, Germany), MF Zaeh
16:00-16:20	***COFFEE BREAK***		

	Session 8A – Advanced joining processes IV (Chair: TM Chmielewski and S Simões)	Session 8B – Joining by forming IV (Chair: PAF Martins and MM Kasaei)	Session 8C – Polymer joining (Chair: F Chabert and C Garnier)
	Room Minho	***Room Braga I***	***Room Braga II***
16:20	Investigation of generatively manufactured components in a sealed welding chamber using the tungsten inert gas hot wire process **(AJP23_91)** S Imrich (Clausthal University of Technology, Germany), K Treutler, V Wesling	Self-Piercing Riveting (SPR) of aluminum and magnesium high pressure die casting **(AJP23_154)** Y Tabatabaei (Meridian Lightweight Technologies, Canada), G Wang, J Weiler	Numerical investigations on fibre orientation mechanisms of continuous fiber reinforced thermoplastics by joining with metallic pins **(AJP23_68)** B Gröger (Technische Universität Dresden, Germany), A Hornig, M Gude
16:40	Development of interlayers films for Ti6Al4V to Al2O3 brazing **(AJP23_98)** B Monteiro, S Simões (University of Porto, Portugal)	In-situ computed tomography and transient dynamic analysis – Failure analysis of a single-lap tensile shear test with clinch joints **(AJP23_102)** G Reschke, D Köhler, R Kupfer, J Troschitz, A Brosius (Technische Universität Dresden, Germany)	Thermal diffusion and joint quality according to different energy director thicknesses during ultrasonic welding of CF/PEEK composites **(AJP23_70)** A Korycki (University of Toulouse, France), F Carassus, C Garnier, F Chabert, T Djilali
17:00	Joining aluminium die castings and wrought aluminium by resistance spot welding **(AJP23_100)** M Epperlein (RWTH Aachen University, Germany), A Schiebahn, U Reisgen	Uncertainty quantification for the effects of hard-to-measure material parameters on clinching joint geometries: A finite element method simulation approach **(AJP23_114)** HT Nguyen (Thu Dau Mot University, Vietnam), DV Nguyen, P-Cn Lin, MC Nguye, Y-J Wu, XV Tran	Ultrasonic welding of thermoplastic composites using multimode control **(AJP23_72)** F Carassus (University of Toulouse, France), A Korycki, F Chabert, C Garnier, T Djilali
17:20	Mixed meshless local Petrov-Galerkin collocation method for modeling heat transfer during welding process **(AJP23_123)** B Jalušić (Faculty of Mechanical Engineering and Naval Architecture, Croatia), T Jarak, M Vukovojac, J Sorić, Z Tonković	Numerical and experimental investigation of the Influence of the surrounding sheet geometry on a clinched joint **(AJP23_96)** S Martin (Paderborn University, Germany), C Steinfelder, A Brosius, T Tröster	On the influence of process control on temperature uniformity and bondline characteristics in electrical resistance welding of carbon fiber-reinforced polyphenylene sulfide **(AJP23_115)** M Endrass (German Aerospace Center, Germany), S Jarka, M Löbbecke, J Freund, S Bauer, M Kupke
17:40	Selected properties of X120Mn12 steel welded joints by means of the PTA-MAG hybrid method **(AJP23_126)** B Skowrońska, B Szulc, J Szulc, M Baranowski, TM Chmielewski (Warsaw University of Technology, Poland)	Influence of process variations on clinch joint characteristics **(AJP23_132)** C Zirngibl, S Goetz (Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany), S Wartzack	Joining high-performance thermoplastic parts by LTW: relationship between material properties, process parameters and weld quality **(AJP23_130)** M Matus Aguirre (LGP-ENIT-INPT, France), C Garnier, R Gilblas, B Cosson, A Asseko, F Schmidt, F Chabert
18:00	Correlation between electrodes surface state and dynamic resistance during resistance spot welding of 5182 aluminum alloy **(AJP23_155)** A Evdokimov (Brandenburg University of Technology Cottbus, Germany)	Experimental study on optimal design of high-strength rivet for hot press forming steel with aluminum material **(AJP23_151)** JH Park (Hyundai Steel, South Korea), WR Lee, W Yook, JS Hyun	Metal threaded inserts in thermoplastic Fused-Layer Modelling (FLM) components – Investigation of the pull-out behaviour **(AJP23_135)** C Vogel (Technische Universität Dresden, Germany), J Troschitz, T Kastner, I Heuzeroth, N Modler, M Gude
20:00	***AJP2023 BANQUET Colunata Eventos***		