

Programme

IAA2024

3RD INTERNATIONAL CONFERENCE ON INDUSTRIAL APPLICATIONS OF ADHESIVES 2024

Cascais - Portugal
7-8 March 2024

fe.up.pt/iaa2024

PROGRAMME OF IAA2024

Author underlined → presenting author

* Plenary lecture

Thursday 7 March 2024																																									
8:40	IAA 2024 Opening (Plenária XII+XIII)																																								
9:00*	Before anything else, preparation is the key to success – An overview of surface treatment for effective adhesive bonding (IAA24_57) <u>E Kellar</u> (TWI, UK), H Caglar																																								
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12:20	Influence of water uptake on Zn coated high strength steel/ epoxy adhesive joints (IAA24_52) <u>F Gilbert</u> (ArcelorMittal, France), CSP Borges, JDP Sousa, EAS Marques, RJC Carbas, D Chaleix, J Pirat, F Laffineur, L Rachiele, F Laffineur, LFM da Silva	A new two component acrylate adhesive for oiled metal bonding (IAA24_55) D Storrer, <u>J Qu</u> (Sika Technology AG, Switzerland)
12:40	Application of femtosecond laser pre-treatment on nickel for adhesive bonding (IAA24_60) <u>CJA Beier</u> (RWTH Aachen, Germany), MK Heym, V Ginster, A Schiebahn, U Reisgen	Reversible polyurethane adhesives based on Diels-Alder chemistry (IAA24_68) MA Moyano, MP Carbonell-Blasco, C Hernández, FJ Sierra-Molero, IM Pastor, DA Alonso, E Orgilés-Calpena, <u>F Arán-Aís</u> (INESCOP Footwear Technology Center, Spain)
13:00-14:00	LUNCH BREAK	
14:00*	From the laboratory to industry: Adhesive characterization for practice (IAA24_63) <u>A Akhavan-Safar</u> (INEGI, Portugal), EAS Marques, RJC Carbas, LFM da Silva	
	Session 3A – Adhesion and surface treatments III (Chair: EAS Marques and S Howe)	Session 3B – Adhesive properties I (Chair: F Gilbert and K Kamiyama)
	Room Plenária XII+XIII	Room Breakout XV
14:40	Why low molar ratio UF resins show poor adhesion and how do we improve it? (IAA24_49) <u>BD Park</u> (Kyungpook National University, Republic of Korea), ES Wibowo	Exploring sustainability: Geraniol as a green alternative for waterborne acrylic pressure-sensitive adhesives without chemical modification (IAA24_69) <u>L Di Lorenzo</u> (University of Chemistry, Italy), VG Brunella
15:00	Theoretical modeling for the mixed-mode delamination in functionally graded coatings (IAA24_64) R Dimitri, M Trullo, <u>M Rinaldi</u> (University of Salento, Italy), C Fai, F Tornabene	Effects of adhesive thickness and polyethylene particles in SGA joints (IAA24_19) <u>K Kamiyama</u> (Mitsubishi Electric Corporation, Japan), M Mikuni, T Matsumoto, S Matsuda, H Kishi
15:20	Adhesion improvement by surface patterning: on the role of interface crack deflection (IAA24_65) <u>O van der Sluis</u> (Eindhoven University of Technology, Netherlands), JJC Remmers	Mode II-fracture of structural adhesive film via an end notched flexure test (IAA24_35) <u>K Naito</u> (National Institute for Materials Science, Japan), M Kusano, M Watanabe, K Hasegawa, K Takagi, K Arai, H Katoh, E Hara, Y Ishida, T Morimoto
15:40	Though wood single lap joints using a zero-thickness bio-adhesive (IAA24_13) <u>RJC Carbas</u> (INEGI, Portugal), Sh Jalali, EAS Marques, LFM da Silva	Cavitation caused by applied stress in soft adhesives (IAA24_48) <u>J Park</u> (Nissan Motor Co., Ltd., Japan), Y Sekiguchi, C Sato
16:00-16:20	COFFEE BREAK	
	Session 4A – Joint design (Chair: H Fricke and RDSG Campilho)	Session 4B – Durability (Chair: A Akhavan-Safar and RD Adams)
	Room Plenária XII+XIII	Room Breakout XV
16:20	Mechanical performance and fracture behavior of adhesive-bonded aluminum- wood components (IAA24_9) <u>E Graf</u> (Graz University of Technology, Austria), P Auer, MA Ocerin, T Krenke, C Sommitsch, J Domitner	Is durability simple or complex; what are the main causes of failure? (IAA24_54) <u>RD Adams</u> (University of Bristol, UK)
16:40	Assembly modelling using interface constitutive laws: application to hybrid thermoplastic/metal welding (IAA24_75) <u>T Fkyerat</u> (ENSTA Bretagne, France), F Le Poulain, R Créac'hcadec	Understanding the creep response of an acrylic pressure-sensitive adhesive: An experimental and statistical approach (IAA24_28) <u>BD Simões</u> (INEGI, Portugal), EAS Marques, RJC Carbas, S Maul, P Stihler, P Weißgraeber, LFM da Silva
17:00	Models analyzing the response of the adhesive joint between FRP and concrete: comparative analysis (IAA24_74) <u>T Zhelyazov</u> (Reykjavik University, Iceland)	Development of a unified specimen for direct generation of cohesive zone law data of adhesives (IAA24_31) <u>DS Correia</u> (INEGI, Portugal), EAS Marques, RJC Carbas, LFM da Silva
17:20	Statistical analysis of rod-tube adhesive joints under tensile stress for structural applications (IAA24_23) AJA Vieira, RDSG Campilho (ISEP, Portugal)	Effect of saltwater immersion on the bond durability and degradation mechanism (IAA24_38) <u>H Oguma</u> (National Institute for Materials Science, Japan), K Naito, S Kawasaki

17:40	Inductive curing of epoxy adhesives in foil to foil specimens (IAA24_59) <u>V Ginstler</u> (RWTH Aachen University, Germany), MK Heym, CJA Beier, A Schiebahn, U Reisgen	Influence of saline environment exposure on the fatigue behavior of adhesive joints in carbon-epoxy composites for mode I and II fracture (IAA24_51) P Vigón (University of Oviedo, Spain), A Argüelles, M Lozano, JA Viña
18:00	Joint design and mechanical characterization processes for high performance bonded structures (IAA24_10) <u>EAS Marques</u> (University of Porto, Portugal), A Akhavan-Safar, RJC Carbas, BD Simões, F Ramezani, FC Sousa, AF Tenreiro, AM Lopes, LFM da Silva	Fatigue crack propagation in structural tough adhesive joints: influence of mode mixity and thermal conditions (IAA24_7) <u>M Ribas</u> (INEGI, Portugal), A Akhavan-Safar, RJC Carbas, EAS Marques, S Wenig, LFM da Silva
19:00	Poster session and RECEPTION (Room Oceanos)	
Adhesive formulation		
Poster 1	SPECSIL – Silicone pressure-sensitive adhesives for special applications - Summary of the project (IAA24_33)	<u>AK Antosik</u> (West Pomeranian University of Technology, Poland), K Mozelewska, K Gziut, M Weisbrodt, A Kowalczyk, K Wilpiszewska, M Kucharska, M Musik, A Kraśkiewicz, M Zdanowicz, P Miądlicki
Poster 2	Influence of diatomite on the self-adhesive properties of silicone pressure-sensitive adhesives (IAA24_34)	<u>AK Antosik</u> (West Pomeranian University of Technology, Poland), M Bartkowiak
Poster 3	Influence of kaolin on the self-adhesive properties of silicone pressure-sensitive adhesives (IAA24_46)	<u>AK Antosik</u> , <u>K Mozelewska</u> (West Pomeranian University of Technology, Poland), A Kraśkiewicz, M Bartkowiak
Poster 4	Influence of citrine on the self-adhesive properties of silicone pressure-sensitive adhesives (IAA24_47)	<u>AK Antosik</u> , <u>K Mozelewska</u> (West Pomeranian University of Technology, Poland), K Wilpiszewska
Poster 5	Use of different structures of expandable graphite for controllable debonding temperature (IAA24_70)	O Kachouri, J Bardon, <u>D Ruch</u> (Luxembourg Institute of Science and Technology (LIST), Luxembourg), A Laachachi
Poster 6	Synthesis and characterization of PUR hot melt adhesives with sustainable hard segments from biomass and mass balance approach (IAA24_77)	<u>A Moyano</u> (INESCOP Footwear Technology Center, Spain), MP Carbonell Blasco, C Hernández, F Arán-Aís, E Orgilés-Calpena
Adhesion and surface treatments		
Poster 7	Improving adhesion properties of Teflon-like materials (IAA24_3)	<u>A Vesel</u> (Jozef Stefan Institute, Slovenia), D Lojen, R Zaplotnik
Adhesive properties		
Poster 8	Determining the fracture properties of a structural adhesive using the direct method (IAA24_27)	<u>BD Simões</u> (INEGI, Portugal), D Correia, EAS Marques, RJC Carbas, LFM da Silva
Poster 9	Development and study of a new silane based polyurethane hybrid flexible adhesive - Mechanical characterization, joint testing and numerical modelling (IAA24_18)	<u>VC Rodrigues</u> (INEGI, Portugal), EAS Marques, RJC Carbas, M Youngberg, A Dussaud, R Beygi, LFM da Silva
Poster 10	Effects of loading conditions and strain rates on the mechanical properties of polyurethane adhesives in cold environments (IAA24_8)	<u>M Ribas</u> (INEGI, Portugal), A Akhavan-Safar, RJC Carbas, EAS Marques, S Wenig, LFM da Silva
Joint design		
Poster 11	Bio-inspired structures and biomaterials: A path for the design of more sustainable bonded joints (IAA24_11)	<u>EAS Marques</u> (University of Porto, Portugal), LPF Garrido, S Jalali, AQ Barbosa, RJC Carbas, LFM da Silva
Poster 12	Structural behaviour of adhesive bonds in 3D printed adherends (IAA24_24)	TFR Ribeiro, <u>RDSG Campilho</u> (ISEP, Portugal), RFR Pinto, RJB Rocha
Poster 13	Approaches to prevent delamination in CFRP adhesive joints (IAA24_12)	<u>RJC Carbas</u> (INEGI, Portugal), VDC Pires, BD Simões, EAS Marques, LFM da Silva
Durability		
Poster 15	Development of vibration sensing technology for mechanical strength evaluation of bonded polymer materials (IAA24_36)	<u>Y Sakata</u> (National Institute of Advanced Industrial Science and Technology (AIST), Japan), N Terasaki
Poster 15	Influence of water on the adhesion on polyamide 6 for reliable joining processes (IAA24_61)	<u>CJA Beier</u> (RWTH Aachen, Germany), MK Heym, A Schiebahn, U Reisgen
Poster 16	Investigating the combined effects of geometrical and material properties on fatigue performance and failure mechanisms of composite-steel adhesive joints (IAA24_5)	FC Sousa, <u>A Akhavan-Safar</u> (INEGI, Portugal), RJC Carbas, EAS Marques, R Goyal, J Jennings, LFM da Silva

Various industries

Poster 17	The use of adhesive bonding technology in the conservation and restoration of a faience basin (IAA24_26)	<u>BD Simões</u> (INEGI, Portugal), ARM Simões, LFM da Silva
Poster 18	A novel adhesive bonding process for the next generation of wood milling tools (IAA24_32)	RJF de Sousa, PN Gomes, <u>DS Correia</u> (INEGI, Portugal), EAS Marques, RJC Carbas, PJC das Neves, WP Afonso, LFM da Silva

Automotive industry

Poster 19	Hybrid joints for EV batteries: from lap shear bars to large structures (IAA24_30)	J Hrachova, <u>H Leenders</u> (Sabic, Netherlands)
Poster 20	Adhesive bonding technology in automotive battery pack manufacturing and dismantling: A comprehensive review (IAA24_17)	<u>VC Rodrigues</u> (INEGI, Portugal), M Kasaei, R Beygi, EAS Marques, RJC Carbas, LFM da Silva

Aerospace industry

Poster 21	Study of thermal stresses on a joint for aerospace applications (IAA24_66)	<u>EAS Marques</u> (University of Porto, Portugal), P Nunes, RJC Carbas, C da Silva, LFM da Silva
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8:40* Adhesive bonding technology for the production of energy storage systems for electric vehicles **(IAA24_6)**

H Fricke (Fraunhofer IFAM, Germany)

Session 5 – Automotive industry I

(Chair: C Sato and J Hrachova)

Plenária XII+XIII

9:20 Bonding of bipolar-plates and MEA-frame with focus on debonding for recycling **(IAA24_1)**

H Kordy (Fraunhofer IFAM, Germany), P Bußkamp

9:40 Thermal interface materials for an efficient thermal management in automotive battery applications **(IAA24_71)**

S Grunder (DuPont, Switzerland), S Schmatloch, A Lutz

10:00 Hybrid joints for EV batteries: from lap shear bars to large structures **(IAA24_30)**

J Hrachova (Sabic, Netherlands), H Leenders

10:20 Behaviour analysis of a new mechanical-bonded joint using DSSPR **(IAA24_73)**

M Verdade (University of Lisbon, Portugal), L Reis, H Silva, R Silva, J Silva, L Alves

10:40-11:00 COFFEE BREAK

Session 6 – Various industries

(Chair: S Böhm and JPh Court)

Plenária XII+XIII

11:00 Debonding on command in industrial applications: A pilot-scale study **(IAA24_45)**

E Gambera (Flanders Make, Belgium), J Jordens, I Van de Weyenberg, S De Smet, E Pals, A Smeets (VITO, Belgium), W Van Opstal, I Vanderreyd

11:20 Bonding performance of MUF and PUR adhesives in GLULAM **(IAA24_14)**

M Šernek (University of Ljubljana, Slovenia)

11:40 Impregnation and bonding of hybrid wood-based materials in automotive body shell construction **(IAA24_76)**

M Burnett (Fraunhofer Institute for Wood Research, Germany), N Ritter, D Berthold, J Heise, N Ratsch, M Kahlmeyer, S Böhm

12:00 Evaluation of the adhesive bonding of the industrial ceramic claddings in the facades of residential buildings **(IAA24_44)**

S Zzarnecki (Wroclaw University of Science and Technology, Poland), J Hola, L Sadowski

12:20 Bonded mechanical fasteners in wind turbines industry for steel and rare earth savings **(IAA24_56)**

JPh Court (Cold Pad, France), S Paboeuf (Bureau Veritas, France)

12:40 Exploring canola protein as a promising solution for bio-based adhesives in the wood industry **(IAA24_72)**

B Fazliu (University of Kassel, Germany), A Winkel, M Kahlmeyer, M Burnett, JL Tene Tayo, M Euring, S Böhm

13:00-14:00 LUNCH BREAK

14:00* Use of adhesives in aeronautical applications **(IAA24_67)**

N Cuvillier (Safran, France)

Session 7 – Aeronautical industry

(Chair: S Kreling and N Cuvillier)

Plenária XII+XIII

14:40 Fuseply (TM) - A new approach for reliable bonded composite parts by creation of chemical bonds **(IAA24_15)**

H Wehlan (Airbus Helicopters, Germany), C Thum

15:00 Progressive damage modeling on the impact and CAI behavior of curved composite aerospace **(IAA24_16)**

B Derias (Capgemini Engineering, France), A Maziz, TV Birro, B Gely

15:20 Automated gap filling with thermoplastic adhesives on aircraft fuselage shells **(IAA24_43)**

F Pavel (Fraunhofer IFAM, Germany), L Brieskorn

15:40	A novel technique to join electron beam perforated metallic sheets to core structures in the design of HLFC suction panels (IAA24_76) <i>MA Athar</i> (Technische Universität Braunschweig, Germany), K Dilger, S Hartwig
16:00-16:20	COFFEE BREAK
	Session 8 – Question time (Chair: LFM da Silva, RD Adams, C Sato and K Dilger)
	Plenária XII+XIII
16:20-18:00	Session where the audience can ask questions about any topic related to industrial applications of adhesives. The scientific committee and the speakers will try to answer all the points raised.
20:00	IAA2024 BANQUET at hotel Cascais Miragem