

Programme

IAA2020

1ST INTERNATIONAL CONFERENCE ON INDUSTRIAL APPLICATIONS OF ADHESIVES 2020

Funchal, Madeira – Portugal
5-6 March 2020

PROGRAMME OF IAA2020

Author underlined → presenting author

Thursday 5 March 2020		
8:40	IAA 2020 Opening (Auditorium SUNRISE)	
	Session 1A – Automotive industry I (Chair: F Fischer and G Anderson)	Session 1B – Industrial adhesives developments I (Chair: A Lutz and J Que)
	Room LAGOON I	Room LAGOON II
9:00	Fracture envelope of automotive adhesives under impact (IAA20_3) <u>CSP Borges</u> (INEGI, Portugal), PDP Nunes, A Akhavan-Safar, EAS Marques, RJC Carbas, L Alfonso, LFM da Silva	Industrial applications of 2C structural adhesives with curing-by-design technology for composites and mixed material bonding (IAA20_15) <u>C Di Fratta</u> (Sika, Switzerland), M Zivaljic, F Choffat, B Bosshard
9:20	Mode I fracture toughness of a polyurethane adhesive (IAA20_11) <u>K Naito</u> (National Institute for Materials Science, Japan), Y Ogawa, H Oguma	Impact of condensation degree of Melamine-Formaldehyde resins on their curing behaviour and on final properties of HPL (IAA20_83) <u>J Santos</u> , <u>J Pereira</u> , <u>N Paiva</u> , <u>J Ferra</u> , <u>FD Magalhães</u> , <u>JM Martins</u> , <u>LH de Carvalho</u> (Instituto Politécnico de Viseu, Portugal)
9:40	Evaluation of kinetic studies and mechanical properties of lignin-epoxy adhesives in structural wood applications for automotive components (IAA20_13) <u>A Aniol</u> (Volkswagen, Germany), T Grosse, F Fischer, S Böhm	Environmentally-friendly bioadhesives from renewable resources (IAA20_84) <u>M Šernek</u> (University of Ljubljana, Slovenia), <u>J Saražin</u> , <u>S Amirou</u> , <u>A Pizzi</u> , <u>M-P Laborie</u> , <u>D Schmiedl</u> , <u>TA Lú Chau</u> , <u>MT Moreira</u>
10:00	Silane-based pre-treatment of aluminium alloy for durable adhesive joining (IAA20_22) <u>Y Takahashi</u> (Kobe Steel, Japan), S Yamamoto, D Katsuno	Structural adhesives used for renewable energy industry - Structural applications relative to wind blades manufacturing and solar concentration panels (IAA20_43) <u>A Sastre</u> (Sika, Spain)
10:20	Design for manufacturing of bonded aluminium alloy spaceframes for buses body in white: a case study (IAA20_37) <u>AA Fernandes</u> (University of Porto, Portugal)	Some industrial examples of accelerated curing using Curie-particles (IAA20_81) <u>I Van de Weyenberg</u> (Flanders Make, Belgium), <u>A Elmahdy</u> , <u>P Cosemans</u> , <u>M Adam</u> , <u>S Heinrichs</u> , <u>T Vallée</u>
10:40-11:00	COFFEE BREAK	
	Session 2A – EU Qualify project (Chair: JM Varas)	Session 2B – Industrial adhesives developments II (Chair: M Olive and E Marques)
	Room LAGOON I	Room LAGOON II
11:00	The QUALIFY project: an overview (IAA20_30) <u>J Mediavilla Varas</u> (M2i, Netherlands)	Sustainable adhesives and adhesion processes for the footwear industry (IAA20_91) <u>F Arán Ais</u> (INESCOP, Spain)
11:20	The QUALIFY project: A shipbuilder's view to adhesive bonding (IAA20_28) <u>CPRJ Verhaeghe</u> (Damen Schelde Naval Shipbuilding, Netherlands), A Ruitenberg	Mechanical characterization of graded single lap joints using magnetised cork microparticles (IAA20_5) <u>CI da Silva</u> (INEGI, Portugal), <u>AQ Barbosa</u> , <u>JB Marques</u> , <u>RJC Carbas</u> , <u>EAS Marques</u> , <u>J Abenojar</u> , <u>LFM da Silva</u>
11:40	The QUALIFY project: FE simulations of adhesively bonded structures for shipbuilding industry (IAA20_29) <u>A Krairi</u> (M2i, Netherlands), <u>J Mediavilla Varas</u>	Design principles for structural bonding with hyperelastic adhesives (IAA20_65) <u>PL Rosendahl</u> (TU Darmstadt, Germany), <u>M Drass</u> , <u>M Kraus</u> , <u>P Weißgraeber</u>
12:00	The QUALIFY project: Damage characterization of a full-scale steel/composite adhesive joint for naval application (IAA20_31) <u>PR Jaiswal</u> (Ghent University, Belgium), <u>R Iyer Kumar</u> , <u>M Saeedifar</u> , <u>MN Saleh</u> , <u>J Windels</u> , <u>W De Waele</u>	Debonding on demand of structural assemblies: Context and example of industrial projects (IAA20_61) <u>M Olive</u> (Rescoll, France), <u>T Bergara</u>

12:20	The QUALIFY Project: Using infrared thermography and block loading schemes to evaluate the fatigue damage mechanisms and accumulation in hybrid adhesive joints (IAA20_32) <u>R Iyer Kumar</u> (Ghent University, Belgium), PR Jaiswal, W De Waele	Debonding of adhesive joints by means of microwave and induction heating processes (IAA20_57) R Ciardiello, F Litterio, G Belingardi, <u>V Brunella</u> (University of Torino, Italy)
12:40	The QUALIFY project: Towards safe hybrid joints qualifications (IAA20_27) <u>L Mouton</u> (Bureau Veritas Marine & Offshore, France), S Paboef, L Starink	Influence of dyes on MUF curing kinetics for the production of coloured MDF (IAA20_82) M Almeida, C Coelho, S Monteiro, A Gomes, C Serralheiro, A Gouveia, LH de Carvalho, <u>JM Martins</u> (Instituto Politécnico de Viseu, Portugal)
13:00-14:00	LUNCH BREAK	
	Session 3A – Aeronautic industry (Chair: N Cuvillier and J Kosmann)	Session 3B – Studies applicable to various industries I (Chair: F Arán Ais and S-W Kim)
	Room LAGOON I	Room LAGOON II
14:00	Current challenges for adhesive bonding processes in space applications (IAA20_69) <u>P Janik</u> (European Space Agency, Netherlands), M Olive, M Holynska, S Rodrigez, R Rampini	Interface solicitation of a bonded joint by thick adherend shear testing (IAA20_53) <u>C Perderiset</u> (MINES ParisTech, France), F Georgi, JL Bouvard, P Montmitonnet, A Grunenwald, F Rasselet
14:20	Mechanoluminescent study of local destruction mode on aircraft CFRP-epoxy adhesive sheet assembly (IAA20_23) <u>N Terasaki</u> (AIST, Japan), K Takagi	Development of an elasto-plastic meshless technique to analyse bonded structures (IAA20_67) <u>JJ Sánchez-Arce</u> (INEGI, Portugal), LDC Ramalho, RDSG Campilho, J Belinha
14:40	Towards the local measurement of the adhesion performance of structural bonding by laser shock (IAA20_24) <u>N Cuvillier</u> (Safran, France), M Ducouso, MS Bertrand, T Bergara, L Videau, L Berthe	Joint strength improvement using toughened transverse composite adherends (IAA20_7) <u>RJC Carbas</u> (INEGI, Portugal), MAMS Pereira, EAS Marques, LFM da Silva
15:00	Surface pre-treatment for painting and bonding in the aerospace industry (IAA20_33) <u>S Kreling</u> (Airbus, Germany), B Langer	Fatigue behaviour of different industrial adhesives (IAA20_2) <u>A Akhavan-Safar</u> (INEGI, Portugal), EAS Marques, R Carbas, J Monteiro, LFM da Silva, M El-Zein, N Cuvillier, I Maus, Y Takahashi, J Sherwood
15:20	Surface toughening – An industrial approach to increase the robustness of pure adhesive joints with film adhesives (IAA20_46) <u>MJ Schollerer</u> (German Aerospace Center, Germany), J Kosmann, D Holzhüter, C Bello-Larroche, C Hühne	Bonding of components manufactured by selective laser melting (IAA20_70) C Koch, M Kahlmeyer, J Richter, M Vollmer, <u>S Böhm</u> (University of Kassel, Germany), T Niendorf
15:40	Thick adherend shear test specimen - A comparison of DIC and extensometer measurement techniques (IAA20_47) <u>J Kosmann</u> (German Aerospace Center, Germany), O Völkerink, MJ Schollerer, D Holzhüter, C Hühne	Thermal deformation of adhesively bonded joints of different materials combined with mechanical fasteners (IAA20_75) N Okada, Y Sekiguchi, <u>C Sato</u> (Tokyo Institute of Technology, Japan)
16:00-16:20	COFFEE BREAK	
	Session 4A – Surface treatments and Aeronautics (Chair: E Dragoni and EJC Kellar)	Session 4B – Automotive industry II (Chair: C Sato and K Kamiyama)
	Room LAGOON I	Room LAGOON II
16:20	Individualized laser beam pre-treatment process for adhesive bonding of a polyamide 6 injection molded fiber-reinforced plastic component under the boundary conditions of automotive industry (IAA20_39) <u>J Weiland</u> (RWTH Aachen University, Germany), H Dittmar, D Liedtke, A Birkenstock, B Marx, A Schiebahn, P Jaeschke, L Overmeyer, U Reisgen	Dynamic failure of crash adhesives in an industrial context (IAA20_41) B Bourel, <u>F Lauro</u> (University Polytechnique Hauts de France, France), G Haugou, N Leconte
16:40	Effect of surface treatments on adhesive bonding of polyamide and carbon-fiber reinforced thermoplastic (CFRTP) (IAA20_48) <u>S Horiuchi</u> (AIST, Japan), H Akiyama, N Terasaki, M Itabashi	Glass adhesive applications and its future developments in FCA (IAA20_79) <u>G Ciaccio</u> (Fiat Chrysler Automobiles, Italy), B Martorana

17:00	Ageing effects and influencing factors at boundary surfaces of aluminum adherents in small scale (IAA20_71) <u>S Golob</u> (WIWeB, Germany), J Holtmannspötter, A Lion, M Johlitz, M Frauenhofer	Investigation of additive manufacturing structures with the focus on strength and adhesive properties by varying process parameter (IAA20_40) <u>A Richter</u> (Volkswagen Group Innovation, Germany), F Fischer, H Meyer, K Dilger
17:20	Laser cleaning and surface preparation in automotive and aeronautics applications – the sustainable way to prepare metal surfaces for adhesive bonding (IAA20_74) <u>E Büchter</u> (cleanLASER, Germany)	Adhesives for increasing the bonding strength of in situ manufactured metal-composite joints (IAA20_66) <u>R Thomas</u> (Volkswagen, Germany), F Fischer, M Gude
17:40	Semi-curing concept applied to composite bonded parts (IAA20_87) <u>A Amate Illescas</u> (Airbus, Spain), JS Gómez	Thermoplastic composite - metal adhesive joining: Static and dynamic behaviours (IAA20_58) <u>R Menini</u> (NRC, Canada), S Noormohammed, A Gariépy, D Trudel-Boucher, N Legros
18:00	Structural health monitoring (SHM) of an adhesively bonded CFRP aircraft fuselage by ultrasonic lamb waves (IAA20_97) <u>J Weiland</u> (RWTH Aachen University, Germany), DF Hesser, A Schiebahn, B. Markert, U Reisgen	Structural bonding of a tuning mass on an automotive brake caliper: a feasibility study (IAA20_86) <u>D Castagnetti</u> (University of Modena and Reggio Emilia, Italy), A Spaggiari, E Dragoni, R Cornolti
19:00	Poster session and RECEPTION	

Aeronautical and Aerospace industry

Poster 1	Stiffness calculation scheme for degraded single lap joints in the space sector- Numerical and analytical investigation (IAA20_93)	J Zimmermann, <u>J Weiland</u> (RWTH Aachen University, Germany), MZ Sadeghi, A Schiebahn, U Reisgen, KU Schröder
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Automotive industry

Poster 2	Hard X-ray photoelectron spectroscopy (HAXPES) analysis of the interface bonding between aluminium alloy and epoxy adhesive (IAA20_90)	<u>S Yamamoto</u> (Kobe Steel, Japan), Y Takahashi, A Kitahara, M Yokomizo
Poster 3	High damping weld bond adhesive for automotive applications (IAA20_94)	T Nishida, <u>SE Howe</u> (Sunstar Engineering Americas, USA), K Himuro, S Yamaki

Civil construction

Poster 4	Investigation of relation between bond failure energy and bond strength of adhesive joints with steel and composite substrates (IAA20_38)	<u>B Nečasová</u> (Brno University of Technology, Czech Republic), P Liška, J Šlanhof
Poster 5	RMS-based damage identification in adhesive joint between concrete beam and steel plate using ultrasonic guided waves (IAA20_88)	<u>E Wojtczak</u> (Gdańsk University of Technology, Poland), M Rucka, M Knak

Electronics

Poster 6	Effect of ageing and contamination on the interfacial strength of adhesive joints: An overview (IAA20_4)	<u>CSP Borges</u> (INEGI, Portugal), A Akhavan-Safar, EAS Marques, RJC Carbas, P Weissgraeber, C Ueffing, LFM da Silva
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Rail industry

Poster 7	A new cohesive element to model environmental degradation of adhesive joints in the rail industry (IAA20_10)	G Viana, <u>RJC Carbas</u> (INEGI, Portugal), M Costa, MD Banea, LFM da Silva
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Studies applicable to various industries

Poster 8	Effect of residual strains on static strength of dissimilar single lap adhesive joints: an industrial point of view (IAA20_1)	<u>A Akhavan-Safar</u> (INEGI, Portugal), S Safaei, M Moazzami, MR Ayatollahi, LFM da Silva
Poster 9	Tensile fatigue life prediction of adhesively bonded structures based on CZM technique combined with a modified degradation approach (IAA20_18)	<u>A Akhavan-Safar</u> (INEGI, Portugal), J Monteiro, R Carbas, E Marques, R Goyal, M El-zein, LFM da Silva
Poster 10	Study of the influence of microparticles of cork on the fracture type in single lap joints (IAA20_12)	<u>CI da Silva</u> (INEGI, Portugal), AQ Barbosa, RJC Carbas, EAS Marques, A Akhavan-Safar, LFM da Silva
Poster 11	Shear characterization of structural adhesives under different torsional load rates (IAA20_6)	<u>RJC Carbas</u> (INEGI, Portugal), EAS Marques, LFM da Silva

Poster 12	Functionally graded adhesive joints under impact loads (IAA20_76)	MQ dos Reis, RJC Carbas (INEGI, Portugal), EAS Marques, LFM da Silva
Poster 13	Material and adhesive effect in adhesively-bonded composite step joints (IAA20_68)	RFN Brito, RDSG Campilho, RDF Moreira, IJ Sánchez-Arce (INEGI, Portugal)
Poster 14	Numerical modelling of functionally graded adherends (IAA20_77)	MQ dos Reis, RJC Carbas, EAS Marques (INEGI, Portugal), LFM da Silva
Poster 15	Determination of the mode I and mode II fracture toughness of structural adhesives loaded at constant strain rates (IAA20_9)	EAS Marques (INEGI, Portugal), PDP Nunes, A Akhavan, RJC Carbas, LFM da Silva
Poster 16	Use of radiation-curing adhesive systems on non-transparent joining parts by using polymer optical fibres (IAA20_92)	R Seewald, J Weiland (RWTH Aachen University, Germany), J Kallweit, A Schiebahn, T Gries, U Reisgen
Poster 17	Development of structural adhesive for multi-material using Silyl Terminated Polyether (STP) adhesive (IAA20_96)	H Hashimukai (CEMEDINE, Japan), S Yano, Y Tokita

Friday 6 March 2020

Session 5 – Studies applicable to various industries II

(Chair: K Dilger and S Böhm)

Auditorium SUNRISE

8:40	Aging condition determination of bonded joints by terahertz spectroscopy (IAA20_17)	A Winkel, J Taiber, M Kahlmeyer, E-M Stübling, S Sommer, M Koch, S Böhm (University of Kassel, Germany)
9:00	Automated removal of CFRP layers for the repair by adhesive bonding (IAA20_36)	L Brieskorn (Fraunhofer IFAM, Germany), W Hintze
9:20	Effect of adhesive thickness on fatigue properties for single lap bonded joint with different types of acrylic adhesives (IAA20_45)	Y Ogawa (National Institute for Materials Science, Japan), H Oguma, K Naito
9:40	Is it best to use the Single Lap Joint or the Thick Adherend Shear Test for adhesive shear properties? (IAA20_63)	RD Adams (University of Oxford, UK)
10:00	How to pretreat CFRP adherends in different scales for structural adhesive bonding (IAA20_55)	J Holtmannspötter (WIWeB, Germany), F Zimmer, E Arikan, H-J Gudladt
10:20	Verification of a crack growth mechanism on SGA adhesive joints with detailed observation and acoustic emission measurement (IAA20_16)	K Kamiyama (Mitsubishi Electric Corporation, Japan), M Mikuni, T Matsumoto, S Matsuda, H Kishi
10:40-11:00	COFFEE BREAK	

Session 6 – Marine industry

(Chair: H Kordy and RD Adams)

Auditorium SUNRISE

11:00	Adhesively bonded fastener for the shipbuilding industry (IAA20_34)	H Kordy (Fraunhofer IFAM, Germany), H Fricke
11:20	Adhesively bonding under water (IAA20_35)	A Knape (Fraunhofer IFAM, Germany), S Myslicki, M Adam, T Vallée, H Fricke
11:40	Improvement of the bonding strength for metal-nanocomposite adhesive joints based on epoxy resin and carbon nanotubes (CNT) (IAA20_98)	EM Sampaio, RLRM da Silva (University of Rio de Janeiro State, Brazil), NR Rohem, ALS Assis, VG de Castro, FL Abreu, MFP Fonseca, GG.Silva
12:00	Subsequent bonding of brackets to coated surfaces (IAA20_44)	L Fröck (Fraunhofer IGP, Germany), T Marquardt
12:20	Development of pipe repairs with bonded plate in metallic pipes to low risk services (IAA20_54)	EM Sampaio, RH da Silva, RM Carneiro (Federal University of Rio de Janeiro, Brazil) Neto, NR Rohem, VA Perrut
12:40	Alternatives to standardized composite repair qualification for the oil industry (IAA20_64)	JML Reis (Universidade Federal Fluminense, Brazil), JF Satler, EAS Marques, RJC Carbas, LFM da Silva, H da Costa Mattos

13:00-14:00	LUNCH BREAK
	Session 7 – Various industries (Chair: Y Takahashi and J Holtmannspötter)
	Auditorium SUNRISE
14:00	Application of adhesives in wood industry (IAA20_50) <u>M Šernek</u> (University of Ljubljana, Slovenia)
14:20	UV resin bonding for biomedical applications: Experimental and finite element thermo-mechanical analyses (IAA20_26) <u>A Spaggiari</u> (University of Modena and Reggio Emilia, Italy), D Castagnetti, E Dragoni
14:40	Printed ultrathin paper sensors in technical applications (IAA20_25) <u>U Müller</u> (Wood K plus, Austria), M Hübner, M Kaltenbruner, W Lang, A Mahendran, F Padinger, M Steiner, T Stockinger
15:00	Radio frequency characteristics of silver nanowire embedded within polyimide substrate for transparent and flexible antenna (IAA20_51) <u>S-W Kim</u> (Sungkyunkwan University, Korea), K-Y Kim, JH Han, WS Nah, JW Kim, S-B Jung
15:20	Application of adhesive joints for launcher structures (IAA20_80) <u>P Pérès</u> (ArianeGroup, France), M Leroy
15:40	Indirect determination of adhesive bond properties – an industrial review (IAA20_60) <u>EJC Kellar</u> (TWI, UK)
16:00-16:20	COFFEE BREAK
	Session 8 – Automotive industry III (Chair: P Weißgraeber and S Kreling)
	Auditorium SUNRISE
16:20	Development of a numerical thermochemical model to describe the behavior of an expandable adhesive for industrial application in a multi-material assembly (IAA20_49) <u>LM da Silva</u> (ENSTA Bretagne, France), C Cellard, D Debelley, L Sohier, P Colin, R Créac'hcadec
16:40	Adhesive solutions for automotive lightweight design (IAA20_62) <u>J Que</u> (Sika, Switzerland), M Gutsell
17:00	On the strength of joints of metal-plastic composites of hot-formed steel with an AlSi coating and a thermosetting fibre reinforced compression material (IAA20_52) <u>S Wehler</u> (Volkswagen, Germany), P Moritz, F Fischer, M Gude
17:20	Ambient and low-temperature impact performance of bonded joints with different adhesive chemistries (IAA20_59) <u>R Menini</u> (NRC, Canada), A Gariépy, S Noormohammed, D Backman, R Desnoyers
17:40	Adhesives and thermal interface materials for automotive battery applications (IAA20_56) <u>S Grunder</u> , A Lutz, F Koch, <u>N Hillesheim</u> (DuPont, Switzerland)
18:00	Techniques for the mechanical characterization and numerical modelling of the bonded automotive structures under impact loads (IAA20_8) <u>EAS Marques</u> (INEGI, Portugal), PDP Nunes, A Akhavan, CSP Borges, RJC Carbas, LFM da Silva
20:00	IAA2020 BANQUET – Madeira Wine Company