

AB 2021

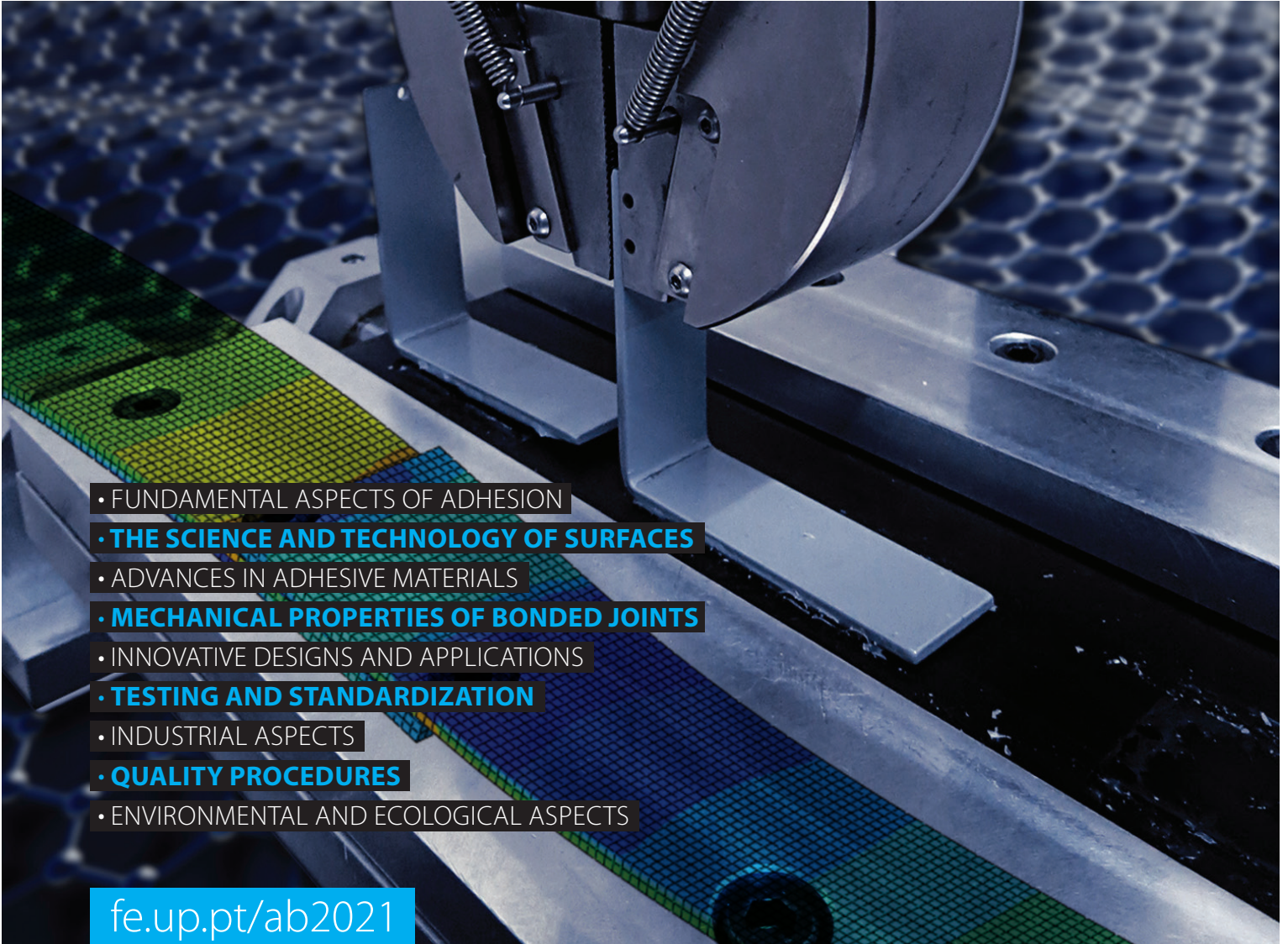
6th International Conference on Structural Adhesive Bonding

Programme

8 | 9 July, 2021

Faculty of Engineering - University of Porto
Porto, Portugal

U. PORTO
FEUP FACULDADE DE ENGENHARIA
UNIVERSIDADE DO PORTO

- 
- FUNDAMENTAL ASPECTS OF ADHESION
 - **THE SCIENCE AND TECHNOLOGY OF SURFACES**
 - ADVANCES IN ADHESIVE MATERIALS
 - **MECHANICAL PROPERTIES OF BONDED JOINTS**
 - INNOVATIVE DESIGNS AND APPLICATIONS
 - **TESTING AND STANDARDIZATION**
 - INDUSTRIAL ASPECTS
 - **QUALITY PROCEDURES**
 - ENVIRONMENTAL AND ECOLOGICAL ASPECTS

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THURSDAY 8 JULY 2021

8:40	AB 2021 Opening (Room A101, also called 'Auditorium')		
	Session 1A – Modelling (Chair: RA Sauer and G Olmi)	Session 1B – Adhesion and surface treatments I (Chair: H Poulis and J Holtmannspötter)	Session 1C – Adhesives development I (Chair: A Lutz and F Aran-Ais)
	Room A101 (Auditorium)	Room B032	Room B035
9:00	On the contact modeling of coupled adhesion and friction (AB21_133) <u>RA Sauer</u> (Gdansk University of Technology, Poland)	Development of new surface pre-treatments for the adhesive bonding of aluminum surfaces (AB21_29) <u>J Layec</u> (CIRIMAT, France), F Ansart, S Duluard, V Turq, MP Labeau	Microstructural and adhesive properties of epoxy resin-based primers modified using natural fibers (AB21_24) <u>Ł Kampa</u> (Wrocław University of Science and Technology, Poland), A Chowanec, A Królicka, Ł Sadowski
9:20	Theoretical approach to cavity expansion in soft adhesives (AB21_82) H Anahara, Y Sekiguchi, G Matsuo, <u>C Sato</u> (Tokyo Institute of Technology, Japan)	A combined experimental and numerical approach to evaluate the rain erosion performance of a GFRP/polymeric coating interface (AB21_30) <u>I Katsivalis</u> (University of Limerick, Ireland), A O'Carroll, W Finnegan, M Hardiman, TM Young	Mechanical and adhesive properties of cement-lime plasters modified with waste granite powder (AB21_27) <u>M Rudner</u> (Wrocław University of Science and Technology, Poland), Ł Sadowski
9:40	Confined mechanical metamaterials under fracture loading (AB21_151) <u>MK Budzik</u> (Aarhus University, Denmark), AF Athanasiadis, MA Dias	The effect of the modification of cementitious overlays using granite powder on its adhesion to the substrate (AB21_42) <u>A Chajec</u> (Wrocław University of Science and Technology, Poland), M Moj, Ł Sadowski	Influence of biobased polyol type on the properties of polyurethane hotmelt adhesives for footwear joints (AB21_36) <u>MP Carbonell-Blasco</u> (INESCOP, Spain), MA Pérez-Limiñana, F Arán-Ais, E Orgilés-Calpena
10:00	An imperfect soft interface model for the cyclic behaviour of GFRP adhesive connections (AB21_73) <u>M Lambert</u> (University of Aix-Marseille, France), A Maurel-Pantel, F Lebon, F Ascione	Fractal dimensions as a measure for the adhesion of pressure-sensitive adhesives to differently blast-cleaned steel substrates (AB21_57) <u>T Marquardt</u> (Muehlhan AG, Germany), A Momber	Self-healing capability of novel eco-epoxy adhesives based on the modified tannic acid on Al adherends tested in a single lap joint (AB21_54) <u>NZ Tomić</u> (Faculty of Technology and Metallurgy Ltd, Serbia), MN Saleh, M Saeedifar, D Zarouchas, A Marinković, ST de Freitas
10:20	Numerical modelling of curie-supported accelerated curing by means of inductive heating (AB21_49) <u>M Kaufmann</u> (Fraunhofer IFAM, Germany), M Voß, T Vallée	Structural bonding of thin-walled magnesium die cast components (AB21_101) <u>C Koch</u> (University of Kassel, Germany), H Sharabi, M Kahlmeyer, A Fros, S Boehm, M Fehlbier	Effect of hydrolysis and cross-linking of different plant proteins on wood bonding performance (AB21_72) <u>E Averina</u> (Wood K Plus, Austria), J Konnerth, HWG van Herwijnen
10:40-11:00 COFFEE BREAK (Room under the Auditorium)			
	Session 2A – Joint design I (Chair: RDSG Campilho and N Carrere)	Session 2B – Adhesive properties I (Chair: D Castagnetti and RJC Carbas)	Session 2C – Adhesion and surface treatments II (Chair: R Créac'hcadec and J Holtmannspötter)
	Room A101 (Auditorium)	Room B032	Room B035
11:00	Glued-in multiple steel rod connections in cross-laminated timber (AB21_96) GS Ayansola, T Tannert, <u>T Vallée</u> (Fraunhofer IFAM, Germany)	Influence of plasticity on the fracture properties of structural adhesives (AB21_3) <u>G Stamoulis</u> (Université de Bretagne Occidentale, France), N Carrere	Use of scanning electron microscopy and energy Dispersive X-ray Analysis for ion beam cross sections at low beam energy – new analytical methods for a better understanding of adhesive bonding in small scale (AB21_163) <u>J Holtmannspötter</u> (WiWeB, Germany), R Welker

11:20	Validation and numerical studies of Curie-supported accelerated curing by means of inductive heating (AB21_80) <u>M Voß</u> (Fraunhofer IFAM, Germany), M Kaufmann, T Vallée	Recent developments in composite bonding techniques (AB21_20) <u>F Ramezani</u> (University of Porto, Portugal), RJ Carbas, EAS Marques, LFM da Silva	Robotized atmospheric plasma treatment to improve the adhesion of vulcanized and thermoplastic rubber materials for a more sustainable footwear (AB21_35) <u>C Ruzafa-Silvestre</u> (INESCOP, Spain), MA Pérez-Limiñana, F Arán-Ais, E Orgilés-Calpena						
11:40	Load capacity prediction of bonded G-FRP tube connections (AB21_95) <u>T Vallée</u> (Fraunhofer IFAM, Germany), M Voß, M Kaufmann, H Fricke, M Albiez	A cost effective approach to describe edge effect on adhesively bonded structure (AB21_21) <u>A Benali</u> (ENSTA Bretagne, France), R Créac'hcadec, C Cellard, L Sohler, A Moretti	Effect of surface mechanical treatments on strength of lightweight structural bonded joints for marine applications (AB21_77) T Alderucci, C Borsellino, <u>G Di Bella</u> (Università degli Studi di Messina, Italy)						
12:00	Mode I toughening of adhesively-bonded CFRP joints with 3D-printed thermoplastic inserts (AB21_47) <u>A Yudhanto</u> (King Abdullah University of Science and Technology KAUST, Saudi Arabia), G Lubineau	Fracture mechanical testing of adhesive joints in mode III at elevated loading rate (AB21_22) <u>P Schrader</u> (Technische Hochschule Mittelhessen, Germany), S Marzi	In-situ TEM investigation of failure process in metal-plastic joint interfaces (AB21_91) Y Liu, Y Shigemoto, T Hanada, K Shimamoto, <u>S Horiuchi</u> (National Institute of Advanced Industrial Science and Technology, Japan)						
12:20	Different strategies for measuring the volume displacement field of an epoxy adhesive (AB21_51) <u>M Bunea</u> (ENSTA Bretagne, France), M Diakhaté, C Badulescu	Fracture behaviors in scarf joints with second generation acrylic adhesives (AB21_26) <u>K Kamiyama</u> (Mitsubishi Electric Corporation, Japan), M Mikuni, T Matsumoto, S Matsuda, H Kishi	Manufactured kissing bonds by plasma fluorination for increased delamination fracture resistance in composite structures (AB21_93) <u>DJ Hottentot Cederlof</u> (Technical University of Denmark, Denmark), BF Sørensen, Y Kusano						
12:40	Hoop channels to enhance the effectiveness of LOCTITE 648 anaerobic adhesive under high interference (AB21_1) D Crococo, M De Agostinis, S Fini, <u>G Olmi</u> (University of Bologna, Italy), L Paiardini, F Robusto	Fracture toughness of epoxy adhesives with material inhomogeneity (AB21_37) <u>DV Srinivasan</u> (Ecole Polytechnique Fédérale de Lausanne EPFL, Switzerland), AP Vassilopoulos	Effect of different alternative surface treatments on the adhesion of hyperelastic adhesives on different substrates (AB21_98) <u>O Cuadrado</u> (Universidad Miguel Hernández, Spain), FJ Simón, C Ruzafa, E Orgiles, F Arán, LFM da Silva, M Sánchez						
13:00-14:00 LUNCH BREAK (Room under the Auditorium)									
<table><tr><td>Session 3A – Adhesive properties II (Chair: D Castagnetti and EAS Marques)</td><td>Session 3B – Joint design II (Chair: C Sato and G Stamoulis)</td><td>Session 3C – Adhesion and surface treatments III (Chair: A Bernasconi and M Alfano)</td></tr><tr><td>Room A101 (Auditorium)</td><td>Room B032</td><td>Room B035</td></tr></table>				Session 3A – Adhesive properties II (Chair: D Castagnetti and EAS Marques)	Session 3B – Joint design II (Chair: C Sato and G Stamoulis)	Session 3C – Adhesion and surface treatments III (Chair: A Bernasconi and M Alfano)	Room A101 (Auditorium)	Room B032	Room B035
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Room A101 (Auditorium)	Room B032	Room B035							
14:00	Mixed-mode fracture behavior of epoxy-based impact adhesives (AB21_138) <u>E Sancaktar</u> (University of Akron, USA), GS Baş	Enhancing the performance of glued-in rods at elevated temperatures (AB21_144) N Ratsch, <u>S Böhm</u> (University of Kassel, Germany), M Voß, T Vallée, T Tannert	Effect of mechanical pre-treatments on damage mechanisms and fracture toughness in CFRP/epoxy joints (AB21_107) <u>C Morano</u> (University of Calabria, Italy), R Tao, M Alfano, G Lubineau						
14:20	Mechanical and physical characterization of natural and synthetic consolidants (AB21_56) <u>JA Poulis</u> (Delft University of Technology, The Netherlands), Y Mosleh, E Cansell, D Cimino, R Ploeger, ER De La Rie, CW McGlinchey, T Poli, O Chiantore, K Seymour	Full-scale investigation of bonded and hybrid joined UHSS hat sections in three-point bend loading (AB21_71) <u>A Ibrahim</u> (University of Waterloo, Canada), B Liu, M Worswick, K Nielsen, F Brandys, W Bernert, D Papalazarou, S Malcolm, A Smith, D Cronin	Delamination assessment of a composite laminate interleaved with electrospun TPU nanofibers under mode-I and mode-II loading (AB21_109) <u>MB Rossini</u> (RWTH Aachen University, Germany), MZ Sadeghi, T Quadflieg, TA Schneiders, T Gries, KU Schroeder						
14:40	Mode-I fracture behavior of random and aligned carbon nanofiber reinforced epoxy adhesive joints (AB21_70) <u>A Chanda</u> (Indian Institute of Technology Delhi, India), SK Sinha, NV Datla	An alternative method for estimating wood failure percentage in shear-failed adhesive joints (AB21_2) <u>AA Alade</u> (Stellenbosch University, South Africa), Z Naghizadeh, CB Wessels	The adhesion potential of particulate matters to as-cast concrete surfaces prepared using different formworks (AB21_117) <u>S Czarnecki</u> (Wroclaw University of Science and Technology, Poland)						
15:00	Investigation on the failure behaviour of adhesively bonded composite joints by using the Arcan test (AB21_74) A Benelli, R Ciardiello, <u>L Goglio</u> (Politecnico di Torino, Italy)	Experimental study of surface and bonding properties of abrasive water jet machined composites (AB21_84) <u>A Jaillon</u> (Bayab Industries, France), F Cénac	Material extrusion on enameled steel surfaces (AB21_127) <u>H Schneider</u> (Technische Universität Braunschweig, Germany), K Dilger, S Hartwig						

15:20	Results on the static shear strength of anaerobic adhesives in finite thickness under high pressure (AB21_76) P Corigliano, C Barone, <u>D Castagnetti</u> (University of Modena and Reggio Emilia, Italy), V Crupi, E Dragoni, E Guglielmino	Experimental study on aluminium to WC/PCD adhesive bonding for milling tools (AB21_128) <u>DS Correia</u> (INEGI, Portugal), RJC Carbas, EAS Marques, PJC das Neves, LFM da Silva	Triggering adhesive ligament as the crack arrest feature within CFRP joints (AB21_39) <u>R Tao</u> (King Abdullah University of Science and Technology, Saudi Arabia), X Li, A Yudhanto, M Alfano, G Lubineau
15:40	Influences of Curie-susceptors induced accelerated curing on thermo-mechanical performance of 2K structural adhesives (AB21_81) <u>M Voß</u> (Fraunhofer IFAM, Germany), M Kaufmann, T Vallée	Comparison of static performance between welding and adhesive joints in a real structural component (AB21_7) J Antelo, <u>A Akhavan-Safar</u> (INEGI, Portugal), RJC Carbas, EAS Marques, LFM da Silva, R Goyal, N Cuvillier, I Maus, Y Takahashi, J Sherwood	Effects of plasma treatments of polypropylene adhesive joints used in the automotive industries (AB21_145) <u>R Ciardiello</u> (Politecnico di Torino, Italy), D Paolino, G Belingardi, D D'Angelo, E Aimoboot
16:00-16:20 COFFEE BREAK (Room under the Auditorium)			
	Session 4A – Durability I – Water (Chair: RD Adams and X Han)	Session 4B – Adhesive properties III (Chair: T Vallée and A Pirondi)	Session 4C – Repair (Chair: A Chiminelli and S Teixeira de Freitas)
	Room A101 (Auditorium)	Room B032	Room B035
16:20	The strength of adhesives under environmental attack (AB21_135) <u>RD Adams</u> (University of Bristol, UK)	New approaches for quantitative determination of opaque adhesives stability through Xray technology and its final mechanical properties evaluation on application using CAT-Technology (Centrifugal Adhesion Testing) (AB21_168) <u>J Jover</u> (JOVER - LUM gmbh, Spain)	Study of different strategies for composites repairing based on bonded and laminated patches (AB21_123) <u>A Chiminelli</u> (Instituto Tecnológico de Aragón, Spain), C Valero, E Duvivier, M Lizaranzu, JM Bielsa
16:40	Effects of moisture ingress on the mesoscale mechanical properties of epoxy adhesives under elevated temperature (AB21_16) Y Zhang, <u>X Han</u> (Dalian University of Technology, China), C Wu	ABES as a tool for evaluation of adhesive cure in coloured MDF for use as structural component (AB21_88) <u>ML Almeida</u> (Instituto Politécnico de Viseu, Portugal), S Monteiro, C Coelho, A Gomes, R Pereira, A Gouveia, JM Martins, LH de Carvalho	Adhesively bonded composite patch repairs: influence of patch dimensions on the flexural performance (AB21_150) <u>M Saleh</u> (Delft University of Technology, Netherlands), IA Elsayed, F Ferreira, PNB Reis, S Teixeira de Freitas
17:00	Understanding of water uptake mechanisms in an epoxy joint characterized by pore-type defects (AB21_31) <u>A Tintatu</u> (ENSTA Bretagne, France), P Bidaud, C Badulescu, P Le Grogneac	Novel approach on rheology and thermomechanical assessment of adhesives (AB21_89) <u>S Rodriguez</u> (European Space Agency, The Netherlands), P Janik, M Holynska, A Suarez Kahan, A Mitchell, G Milassin, R Rampini	Bonded repairs - Effects of hygrothermal ageing and surface treatments on a 3D woven composite material (AB21_85) <u>C Gillet</u> (University of Toulouse, France), V Nassiet, B Hassoune-Rhabbour, F Poncin-Epaillard, T Tchalla
17:20	Effect of water ingress on the properties of adhesive joints with polybutylene terephthalate reinforced with glass fiber substrates and silicone adhesive (AB21_67) <u>CSP Borges</u> (INEGI, Portugal), A Akhavan-Safar, EAS Marques, RJC Carbas, C Ueffing, P Weissgraeber, LFM da Silva	Effect of infill ratio on fracture toughness of Fused Filament Fabrication (FFF) polymeric adhesive joints (AB21_90) <u>A Pirondi</u> (Università di Parma, Italy), F Moroni, D Ambrosini	Lifetime prediction of a bonded structural patch repair for wind turbine pitch bearing strengthening (AB21_94) <u>J Manterola</u> (Ikerlan Technology Research Centre, Spain), I Leciñana, J Zurbitu, H Zabala, I Urresti, M Olave
17:40	Correlation of fracture R-curve and cohesive law of CFRP composite adhesive joints under hygrothermal conditions (AB21_79) <u>M Tauheed</u> (Indian Institute of Technology Delhi, India), NV Datla	Accelerated curing of glued-in rods: Influence of manufacturing defects (AB21_102) <u>N Ratsch</u> (University of Kassel, Germany), S Böhm, M Voß, T Vallée	Healing potential of a thermoplastic reversible adhesive used in the automotive industries (AB21_113) <u>R Ciardiello</u> (Politecnico di Torino, Italy)
18:00	How can I map real influences in a rapid ageing test? A test development (AB21_155) <u>E Stammen</u> (LKT GmbH, Germany)	Characterization of adhesive curing reactions (AB21_154) <u>S Glaser</u> (Technische Universität Braunschweig, Germany), E Stammen, K Dilger	Strengthening of fatigue cracks in steel bridges by means of adhesively bonded steel patches (AB21_156) <u>B Abeln</u> (RWTH Aachen University, Germany), E Stammen, F Ilg, M Feldmann, K Dilger, C Schuler

Adhesion and surface treatments

- Poster 1** The effect of the addition of granite powder to the primer on the pull-off strength of epoxy resin coatings (**AB21_25**) [Ł Kampa](#) (Wrocław University of Science and Technology, Poland), [Ł Sadowski](#)
- Poster 2** Mechanical properties improvement of biocomposites by hybridization of natural and synthetic fibers: review (**AB21_33**) [M Bahrami](#) (University Carlos III de Madrid, Spain), [JA Butenegro García](#), [J Abenojar](#), [MA Martínez](#)
- Poster 3** Recycled carbon and glass fibers as reinforcement in composite materials: importance of fiber-matrix adhesion (**AB21_34**) [JA Butenegro](#) (University Carlos III de Madrid, Spain), [M Bahrami](#), [MÁ Martínez](#), [J Abenojar](#)
- Poster 4** Determination of the recommended value of power density when laser heating a coating based on titanium carbonitride to obtain maximum adhesion (**AB21_40**) [MJ Kupczyk](#) (Poznan University of Technology, Poland), [P Twardowski](#)
- Poster 5** Influence of increase of adhesion strength of super-hard boron nitride coatings to cutting inserts by application of interfacial layer on tool life during turning (**AB21_41**) [MJ Kupczyk](#) (Poznan University of Technology, Poland)
- Poster 6** Investigation of the cleaning effectiveness of laser radiation for improved adhesion on glass fiber reinforced polyamid 6 (**AB21_64**) [CJA Beier](#), [R Seewald](#) (RWTH Aachen University, Germany), [H Dittmar](#), [J Weiland](#), [M Bazilyanski](#), [A Schiebahn](#), [P Jeschke](#), [L Overmeyer](#), [U Reisgen](#)
- Poster 7** Surface pre-treatment of an optical fluoropolymer cladding by low-pressure plasma technique for adhesive bonding (**AB21_100**) [J Weiland](#) (RWTH Aachen University, Germany), [M Luber](#), [M Schaefer](#), [A Schiebahn](#), [R Engelbrecht](#), [U Reisgen](#)
- Poster 8** Adhesive and microstructural properties of coatings made of epoxy resin modified using quartz powders sourced from industrial wastes (**AB21_119**) [A Chowaniec](#) (Wrocław University of Science and Technology, Poland), [S Czarnecki](#), [Ł Sadowski](#)
- Poster 9** The effect of the morphology of concrete surfaces on its wettability and adhesion phenomena of water particles (**AB21_120**) [S Czarnecki](#) (Wrocław University of Science and Technology, Poland), [A Chowaniec](#), [Ł Sadowski](#)

Adhesive development

- Poster 10** Effect of the addition of lignin on thermal properties of an epoxy adhesive (**AB21_44**) [J Abenojar](#) (University Carlos III de Madrid, Spain), [S Lopez de Armentia](#), [MA Martínez](#), [JC del Real](#)
- Poster 11** PI-based adhesives materials for bonding techniques (**AB21_169**) [G Luciano](#), [P Stagnaro](#), [M Pedemonte](#), [S Maggiore](#) (Istituto di Scienze e Tecnologie Chimiche "Giulio Natta", Italy)

Adhesive properties

- Poster 12** Effect of joint geometry on mixed-mode fracture energy of adhesives (**AB21_5**) [A Akhavan-Safar](#) (INEGI, Portugal), [A Ajdani](#), [MR Ayatollahi](#), [LFM da Silva](#)
- Poster 13** Mechanical characterization and comparison of hyperelastic adhesives – Modelling and experimental validation (**AB21_28**) [FJ Simón](#) (Universidad Miguel Hernández, Spain), [EAS Marques](#), [M Sanchez](#), [O Cuadrado](#), [LFM da Silva](#)
- Poster 14** Testing procedure to load DCB specimens at constant strain rates (**AB21_60**) [PDP Nunes](#) (INEGI, Portugal), [EAS Marques](#), [A Akhavan-Safar](#), [RJC Carbas](#), [LFM da Silva](#)
- Poster 15** A mesoscopic analysis of cavities in two components silicone adhesive with element likewise specimens (**AB21_63**) [R Seewald](#) (RWTH Aachen University, Germany), [MA Schnittcher](#), [F Pauly](#), [S Rath](#), [A Schiebahn](#), [U Reisgen](#)
- Poster 16** Experimental investigations on accelerated curing of adhesively bonded G-FRP tube connections (**AB21_97**) [M Voß](#), [M Kaufmann](#), [H Fricke](#), [T Vallée](#) (Fraunhofer IFAM, Germany), [M Albiez](#)
- Poster 17** Effect of the amount of magnetized cork particles on the strength and glass transition temperature of a structural adhesive (**AB21_147**) [R Silva](#), [AQ Barbosa](#) (INEGI, Portugal), [RJC Carbas](#), [LFM da Silva](#), [J Abenojar](#)
- Poster 18** Quasi-static and intermediate test speed validation of SHPB specimens for the determination of mode I, mode II fracture toughness of structural adhesives (**AB21_59**) [PDP Nunes](#) (INEGI, Portugal), [EAS Marques](#), [A Akhavan-Safar](#), [RJC Carbas](#), [LFM da Silva](#)

Joint design

Poster 19	A comprehensive review on bi-adhesive joints (AB21_19)	<u>F Ramezani</u> (University of Porto, Portugal), A Akhavan-Safar, F Delzendehrooy, MR Ayatollahi, LFM da Silva
Poster 20	The strength of hybrid SLJs reinforced with different thicknesses of polymeric laminates (AB21_69)	<u>RJC Carbas</u> (INEGI, Portugal), EAS Marques, LFM da Silva
Poster 21	A novel functionally graded impact attenuator using bonded construction (AB21_125)	<u>MQ dos Reis</u> (INEGI, Portugal), RJC Carbas, EAS Marques, PDP Nunes, LFM da Silva
Poster 22	Functionally graded adhesive joints under impact loads (AB21_124)	<u>MQ dos Reis</u> (INEGI, Portugal), RJC Carbas, EAS Marques, LFM da Silva
Poster 23	The effect of different metallic laminates on the strength of CFRP SLJs using metal laminate adherends (AB21_68)	<u>RJC Carbas</u> (INEGI, Portugal), EAS Marques, LFM da Silva
Poster 24	Maximizing bonded joint performance with the use of additively manufactured adherends and adhesives (AB21_66)	M Frascio, <u>EAS Marques</u> (INEGI, Portugal), RJC Carbas, M Monti, M Avale, LFM da Silva

Non-destructive testing

Poster 25	Mechanoluminescent study for optimization of joint design on cross tension test (AB21_112)	<u>N Terasaki</u> (National Institute of Advanced Industrial Science and Technology, Japan), Y Fujio, S Horiuchi, H Akiyama, M Itabashi
Poster 26	Lamb waves based weak adhesion detection using artificial neural networks (AB21_165)	<u>GMF Ramalho</u> (University of Porto, Portugal) AM Lopes, MRSP Barbosa, LFM da Silva

Durability

Poster 27	Mode-mixity analysis of dissimilar metal/composite DCB adhesive joints subjected to cyclic ageing conditions (AB21_8)	<u>A Akhavan-Safar</u> (INEGI, Portugal), M Moazzami, MR Ayatollahi, ST de Freitas, LFM da Silva
Poster 28	Multiaxial fatigue life assessment of adhesive materials based on critical plane approaches: Strain-based multiaxial fatigue analysis (AB21_9)	<u>OMR Beugre</u> (University of Porto, Portugal), A Akhavan-Safar, LFM da Silva
Poster 29	Multiaxial fatigue life assessment of adhesive materials based on critical plane approaches: Stress-based multiaxial fatigue analysis (AB21_10)	<u>OMR Beugre</u> (University of Porto, Portugal), A Akhavan-Safar, LFM da Silva
Poster 30	Effects of the ageing level on mode I fatigue life of adhesives (AB21_11)	<u>JA da Costa</u> (University of Porto, Portugal), A Akhavan-Safar, RJC Carbas, EAS Marques, LFM da Silva
Poster 31	Effects of cyclic ageing on the tensile performance of adhesive joints (AB21_12)	<u>JA da Costa</u> (University of Porto, Portugal), A Akhavan-Safar, EAS Marques, RJC Carbas, LFM da Silva
Poster 32	Fatigue life estimation of similar and dissimilar single lap adhesive joints using a critical distance approach (AB21_18)	<u>FC Sousa</u> (INEGI, Portugal), A Akhavan-Safar, LFM da Silva
Poster 33	Epoxy adhesives under ionizing radiation: A review (AB21_116)	<u>J Zimmermann</u> (RWTH Aachen University Germany), MZ Sadeghi, KU Schröder
Poster 34	Effect of contamination on the mechanical properties of aluminum-silicone adhesive joints (AB21_114)	<u>CSP Borges</u> (INEGI, Portugal), RR Brandão, A Akhavan-Safar, EAS Marques, RJC Carbas, C Ueffing, P Weissgraeber, LFM da Silva

Applications

Poster 35	A review on the application of adhesive joints in marine structures (AB21_23)	<u>F Delzendehrooy</u> (INEGI, Portugal), A Akhavan-Safar, AQ Barbosa, RJC Carbas, EAS Marques, LFM da Silva
Poster 36	Material selection and testing of adhesives for the realization of a bonded edge seal for fluid-filled facade elements (AB21_48)	<u>A Joachim</u> (Technische Universität Dresden, Germany), M Glogowski, C Kothe, F Nicklisch, B Weller

Session 5A – Durability II – Fatigue

(Chair: L Goglio and A Akhavan-Safar)

Room A101 (Auditorium)**Session 5B – Adhesive properties IV**

(Chair: JC del Real and Ł Sadowski)

Room B032**Session 5C – Joint design III**

(Chair: RDSG Campilho and T Vallée)

Room B035

8:40	Evaluation of mechanical properties and life-cycle analysis of a bio-based structural adhesive (AB21_50) V Tzatzadakis, K Tserpes (University of Patras, Greece)	Experimental analysis of mode I crack propagation in adhesively bonded joints by acoustic emission (AB21_53) RAA Lima (Politecnico di Milano, Italy), A Bernasconi, M Carboni	Fatigue life evaluation of adhesive joints in a real structural component (AB21_6) J Antelo, A Akhavan-Safar (INEGI, Portugal), RJC Carbas, EAS Marques, LFM da Silva, R Goyal, N Cuvillier, I Maus, Y Takahashi, J Sherwood
9:00	The effect of overload on the mode I fatigue crack growth of a ductile adhesive (AB21_17) FC Sousa (INEGI, Portugal), A Akhavan-Safar, LFM da Silva	Effect of adhesive thickness on joint performance during mode I fracture testing (AB21_152) MK Budzik (Aarhus University, Denmark), R Lopes Fernandes, S Teixeira de Freitas, S Heide-Jorgensen, J Jumel	Geometry and adhesive optimization of single-lap adhesive joints under impact (AB21_131) LMC Peres, MFTD Arnaud, AFMV Silva, RDSG Campilho (Instituto Politécnico do Porto, Portugal), JJM Machado, EAS Marques, MQ dos Reis, LFM da Silva
9:20	Mode I fatigue crack monitoring in adhesively bonded joints by distributed fibre optic sensing and comparison with digital image correlation technique (AB21_52) RAA Lima (Politecnico di Milano, Italy), M Carboni, A Bernasconi	The effect of the viscosity and the contact angle on the pull-off adhesion of epoxy resin modified with waste feldspar-quartz powders (AB21_118) A Chowaniec (Wrocław University of Science and Technology, Poland), S Czarnecki, Ł Sadowski	Capacity prediction of pre-tensioned hybrid joints for structural steel applications (AB21_141) T Gerke, C Denkert (Fraunhofer IGP, Germany), R Glienke, M Dörre, M-K Henkel, S Myslicki, H Fricke, M Voß, M Kaufman, T Vallée
9:40	A methodology for detection of crack initiation in adhesively bonded joints under constant and variable amplitude fatigue loading (AB21_32) M Gastens (RWTH Aachen University, Germany), MZ Sadeghi, J Weiland, U Reisinger, KU Schroeder	Factors influencing open-assembly time of polyvinyl acetate (PVAc) adhesives (AB21_121) P Bliem (Wood K plus, Austria), HWG van Herwijnen, W Stadlbauer, R Meissl, J Konnerth	A complete methodology for the characterization and modelling of the impact behaviour of structural adhesive joints (AB21_65) EAS Marques (INEGI, Portugal), CSP Borges, PDP Nunes, A Akhavan-Safar, RJC Carbas, LFM da Silva
10:00	Cyclic behaviour of adhesively-bonded assemblies subjected to tensile-shear-compression loads (AB21_38) C Bernolin (ENSTA Bretagne, France), P Bidaud, G Stamoulis, W Albouy, N Dagorn, D Thévenet	Thermal properties of epoxy resin coatings modified with recycled fine aggregates (AB21_122) K Krzywiński (Wrocław University of Science and Technology, Poland), Ł Sadowski, M Homa	Adhesion performance of composite-to-geopolymer bonded structures (AB21_75) AC Passos, MM Arouche (CEFET/RJ, Brazil), RAA Aguiar, HRM Costa, S de Barros, EM Sampaio
10:20	An innovative methodology for the efficient numerical simulation of adhesive joints subjected to ultrasonic very-high-cycle fatigue tests (AB21_78) D Pederbelli, DS Paolino, A Tridello, L Goglio (Politecnico di Torino, Italy)	Additives as a modification tool for water-based polyvinyl acetate (PVAc) adhesives (AB21_126) P Bliem (Wood K plus, Austria), HWG van Herwijnen, W Stadlbauer, R Meissl, J Konnerth	Numerical analysis of single-lap adhesive joints: peaks reduction method and optimization of stress distribution (AB21_167) F Marchionne (Università Politecnica delle Marche, Italy)

10:40-11:00 COFFEE BREAK (Room under the Auditorium)**Session 6A – Adhesion and surface treatments IV**

(Chair: M Brogly and EAS Marques)

Room A101 (Auditorium)**Session 6B – Joint design IV**

(Chair: K Dilger and M Budzik)

Room B032**Session 6C – Durability III – Temperature**

(Chair: S De Barros and L Goglio)

Room B035

11:00	Looking for perfect adhesion? Turning the holy Grail into reality (AB21_149) M Brogly, S Bistac (Université de Haute-Alsace, France)	A critical look at the current status on the design regulations for structural adhesively bonded joints (AB21_142) T Vallée (Fraunhofer IFAM, Germany), M Albiez, T Tannert	Influence of temperature and aging time on the strength of unmodified and montmorillonite-modified epoxy compounds (AB21_162) A Rudawska (Lublin University of Technology, Poland)
11:20	Inline quality assurance concepts for bonding of glass (AB21_148) T Fladung, PL Geiß, M Noeske, M Schumann, M Wiesing, F Zajonz (University of Kaiserslautern, Germany)	Experimental and cohesive zone modelling study on joining of sheet moulding compound and carbon-epoxy composites (AB21_132) VHP Lopes, RDSG Campilho (Instituto Politécnico do Porto, Portugal), PJRO Nóvoa, RJB Rocha, IJ Sánchez-Arce	An inverse identification method of the creep behaviour of an adhesive from experimental investigations at real scale of a bonded fastener (AB21_55) M Loiseau (ENSTA Bretagne, France), S Chataigner, R Créac'hcadec, MO Quéméré, JP Court

11:40	Multiscale characterization of the interfacial region in flexible rubber composites: initial structure and evolution upon thermal treatment (AB21_157) SK Enganatia, F Addiego, JPC Fernandes, Y Koutsawa, B Zielinski, <u>D Ruch</u> (Luxembourg Institute of Science and Technology, Luxembourg), G Mertz	Mixed-mode fracture of bi-material bonded joints (AB21_106) <u>MM Arouche</u> (CEFET/RJ, Brazil), S Teixeira de Freitas, S de Barros	Ageing of transparent adhesives under solar exposure (AB21_86) <u>C Kothe</u> (Technische Universität Dresden, Germany), J Wünsch, B Weller
12:00	The use of cold atmospheric plasma to enhance adhesive bonding (AB21_159) <u>T Li</u> (TWI, UK), EJC Kellar, GW Critchlow	Experimental investigations on pre-tensioned hybrid joints for structural steel applications (AB21_140) T Gerke, <u>C Denkert</u> (Fraunhofer IGP, Germany), R Glienke, M Dörre, M-K Henkel, S Myslicki, H Fricke, M Voß, M Kaufman, T Vallée	Tertiary creep of adhesive mortars for bonded anchor systems (AB21_87) <u>G Daissé</u> (University of Natural Resources and Life Sciences Vienna, Austria), R Wan-Wendner
12:20	Quantitative detection of concrete-resin interface components as a tool for the analysis of the adhesion mechanism (AB21_160) <u>AN Wiecezorek</u> (Wrocław University of Science and Technology, Poland), A Chowaniec, Ł Sadowski, AM Zak	Numerical and experimental investigations on the mechanical-deformation-behavior of a polymer optical fiber embedded in a structural adhesive under mode I loading (AB21_99) <u>J Weiland</u> (RWTH Aachen University, Germany), W Bartholomee, M Lubert, A Schiebahn, R Engelbrecht, U Reisinger	Long-term resistant bonding between wood and aluminium alloy for hybrid lightweight composites (AB21_103) <u>M Burnett</u> (University of Kassel, Germany), H Nguyen, M Kahlmeyer, S Böhm
12:40	The influence of the type of protective and decorative coatings on the strength of adhesive joints of hot-dip galvanized steel sheets (AB21_161) <u>A Rudawska</u> (Lublin University of Technology, Poland)	Combining adhesive bonding and additive manufacturing to achieve damage-tolerant joints design (AB21_143) C Morano, <u>M Alfano</u> (University of Calabria, Italy)	Effect of the hygrothermal ageing on the mechanical performance of CFRP/AL single-lap joints (AB21_139) <u>W Li</u> (Dalian University of Technology, China), X Shao, L Li, G Zheng
13:00-14:00 LUNCH BREAK (Room under the Auditorium)			
Session 7A – Non-destructive testing (Chair: N Terasaki and AQ Barbosa)		Session 7B – Applications I (Chair: N Tortorella and A Sastre)	
Room A101 (Auditorium)		Room B032	
14:00	Mechanoluminescent study of single lap joint with various adhesive thickness (AB21_111) <u>N Terasaki</u> (National Institute of Advanced Industrial Science and Technology, Japan), Y Fujio, M Shimamoto, H Akiyama	High performance thermal interface materials meet the design challenges of automotive battery applications (AB21_4) <u>S Grunder</u> (DuPont, Switzerland), A Lutz	
14:20	Effect of mechanical properties and geometric dimensions on electromechanical impedance signatures for adhesive joint integrity monitoring (AB21_45) <u>AFG Tenreiro</u> (INEGI, Portugal), AM Lopes, LFM da Silva	Applications of toughened two components structural epoxy adhesives for off-road machineries (AB21_166) <u>J Qu</u> (Sika Technology AG, Switzerland), F Choffat, M Zivaljic	
14:40	Some new developments in kissing bond creation and detection (AB21_158) <u>EJC Kellar</u> (TWI, UK), J Laidler	Gap measurement for the thermoplastic adhesive joining of an aircraft frame (AB21_14) <u>L Brieskorn</u> (Fraunhofer IFAM, Germany), M Vargas	
15:00	Non destructive testing for surface contamination before bonding (AB21_61) <u>S Kirchner</u> (IRT Saint Exupéry, France), C Gestraud, J Lecomte, L Ferres, M Péron, N Cuvillier	Resistance characterization of interface between liner and composite in hydrogen tank (AB21_62) <u>M Dallali</u> (ISAE-ENSMA-Université de Poitiers, France), M Gigliotti, E Lainé, J-C Grandidier, N Henry	

15:20	A review of structural health monitoring of bonded structures using electromechanical impedance spectroscopy (AB21_46) <u>AFG Tenreiro</u> (INEGI, Portugal), AM Lopes, LFM da Silva	Design of a test for thermo-oxidized adhesively bonded joints for aero-engines applications (AB21_83) <u>J Masson</u> (ISAE-ENSMA, France), M Gigliotti, J-C Grandidier, J Delozanne, W Albouy, N Dagorn
15:40	Model assisted probability of detection in adhesive joints (AB21_110) <u>B Yilmaz</u> (Kaunas University of Technology, Lithuania), D Smagulova, E Jasiuniene	Adhesive strength for structural wood applications bonded at low temperature (AB21_92) <u>A Tran</u> (University of Natural Resources and Life Sciences Vienna, Austria), M Mayr, J Konnerth, W Gindl-Altmutter
16:00-16:20 COFFEE BREAK (Room under the Auditorium)		
Session 8A – Applications II (Chair: P Janik and S Böhm)		Session 8B – Durability IV (Chair: E Sancaktar and K Tserpes)
Room A101 (Auditorium)		Room B032
16:20	Subsequent mounting of brackets onto deteriorated coatings in a maritime or offshore environment using adhesives (AB21_58) <u>T Marquardt</u> (Muehlhan AG, Germany), L Fröck, A Momber	Ageing behavior of adhesive CFRP joints (AB21_164) <u>J Holtmannspötter</u> (WIWeB, Germany), B Schneider, E Arikian
16:40	Peeling behavior of adhesive bonded composite/liner joints in hydrogen tanks (AB21_108) <u>F Dicosta</u> (University of Calabria, Italy), C Morano, M Alfano, F Furguele, N Henry	Influence of artificial ageing on structural silicone adhesives (AB21_136) <u>J Giese-Hinz</u> (Technische Universität Dresden, Germany), C Kothe, C Louter, B Weller
17:00	Experimental and numerical deformation analysis of an adhesively bonded multi-material joint for marine applications (AB21_115) <u>PR Jaiswal</u> (Ghent University, Belgium), R Iyer Kumar, A Krairi, T Juwet, G Luyckx, V Cedric, W De Waele	Effects of aging temperature and humidity on the response of medium and high strength threadlockers (AB21_137) <u>D Croccolo</u>, <u>M De Agostinis</u>, <u>S Fini</u>, <u>G Olmi</u>, <u>L Paiardini</u>, <u>F Robusto</u> (University of Bologna, Italy)
17:20	Characterisation, standardisation and obsolescence management of adhesive materials used in European space applications (AB21_129) <u>P Janik</u> (European Space Agency, The Netherlands), S Rodriguez, A Mitchell, M Nikulainen	Lifetime calculation of adhesively bonded joint under multiaxial fatigue loading with varying mean stress and phase shift (AB21_146) <u>PHE Fernandes</u> (Fraunhofer IFAM, Germany), L Poggenburg-Harrach, C Nagel, VC Beber
17:40	Power cure system – The one and two component systems for OEM and reparation (AB21_130) <u>A Sastre</u> (Sika, Spain)	Influence of creep on mode II fracture energy of adhesives (AB21_13) <u>RM Carneiro Neto</u> (Federal University of Rio de Janeiro, Brazil), A Akhavan-Safar, EM Sampaio, JT Assis, LFM da Silva
18:00	Qualification process on the strength of adhesive joint for the use in a helicopter panel baggage compartment component (AB21_153) <u>A Jusuf</u>, <u>MYR Pratama</u>, <u>K Ismiyati</u>, <u>T Mulyanto</u>, <u>A Kuswoyo</u> (Institut Teknologi Bandung, Indonesia), BK Hadi	Water resistance evaluation of a MUF resin with citric acid, by a combined ABES/FTIR-ATR spectroscopic analysis (AB21_134) <u>J Santos</u> (Instituto Politécnico de Viseu, Portugal), J Pereira, N Paiva, J Ferra, FD Magalhães, JM Martins, LH de Carvalho
20:00	AB2021 BANQUET (Yeatman Hotel)	