PROGRAMME

MDA 2020

3rd INTERNATIONAL CONFERENCE ON MATERIALS DESIGN AND APPLICATIONS

5-6 NOVEMBER 2020

FACULTY OF ENGINEERING – UNIVERSITY OF PORTO
PORTO – PORTUGAL
**PROGRAMME OF MDA2020**

**AUTHOR UNDERLINED → PRESENTING AUTHOR**

**Thursday 5 November 2020**

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<td>9:00</td>
<td>Comparison of the shear behaviour in graphite-epoxy composites evaluated by means of biaxial tension-compression tests and off-axis tension tests (MDA20_11)</td>
<td>Influence of processing variables on the microstructure and compressive strength of magnesium alloy foam (MDA20_5)</td>
<td>Thermals shock resistance of cement-based materials (MDA20_142)</td>
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<td>K Krzywiński (University of Science and Technology, Poland), M Maj, Ł Sadowski</td>
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<td>9:20</td>
<td>Slate-cork sandwich bonded with silicone for applications in the habitat (MDA20_15)</td>
<td>Magnesium intensive light weight design for next generation car’s structure (MDA20_8)</td>
<td>The influence of the recycled fine aggregate from construction and demolition wastes on the pull-off strength of the epoxy resin coating (MDA20_143)</td>
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<td>9:40</td>
<td>Is G, an adhesive material property? (An artificial neural network analysis) (MDA20_195)</td>
<td>Comparison of responses of different types of steel alloys under the same loading and environmental conditions (MDA20_19)</td>
<td>Concrete 3D printing for the construction industry: design and printing with alternative materials and experimental analysis (MDA20_110)</td>
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<td>Flexible photosynthetic textile biocomposites: Using laboratory testing and digital fabrication for the development of flexible living building materials (MDA20_43)</td>
<td>Effect of the topology on the mechanical properties of porous iron immersed in body fluids (MDA20_21)</td>
<td>Joining alumina to Ti6Al4V alloy using rolled brazing fillers (MDA20_51)</td>
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<td>The effect of nano- and micron-scale modified epoxy matrix on CFRP-insulator component behavior (MDA20_49)</td>
<td>Prediction of creep degradation for materials intended to manufacture components in the petrochemical industry (MDA20_29)</td>
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<td>COFFEE BREAK (Room under the Auditorium)</td>
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<td>11:00</td>
<td>Residual stress and deformation of joints bonded adhesively (MDA20_150)</td>
<td>Study and analysis of a seating rail system of an automobile load lifter device – Learning outcomes (MDA20_1)</td>
<td>Study of the CNTs influence on the strengthening and deformation of aluminum and nickel nanocomposites (MDA20_138)</td>
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<td>Session 3B – Polymers</td>
<td>Session 3C – Additive Manufacturing I</td>
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<td>11:20</td>
<td>Effects of particulate reinforcements on the hardness, impact and tensile strengths of AA 6061-T6 friction stir weldments (MDA20_10)</td>
<td>The use of modern material technologies in bionic architecture (MDA20_173)</td>
<td>Machinability study of polymeric parts fabricated by additive manufacturing under a dry milling process (MDA20_83)</td>
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<td>11:40</td>
<td>Adhesively bonded, layer based bipolar plates for fuel cells (MDA20_170)</td>
<td>Innovative concepts for the usage of veneer based hybrid materials in vehicle structures (MDA20_73)</td>
<td>Investigations on sliding wear performance of aluminium 6061-Red mud composite under various operating parameters (MDA20_41)</td>
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<td>The use of carbon nanotube doped adhesive films as flexible strain sensors (MDA20_156)</td>
<td>Methodology to simulate veneer based structural components for static and crash load cases (MDA20_72)</td>
<td>Icophobic coating for overhead power lines: from in-lab analysis to out-door testing (MDA20_92)</td>
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<td>12:20</td>
<td>Cyclic fatigue testing: Assessment of polyurethane adhesive joints’ durability for bus structures’ aluminium assembly (MDA20_147)</td>
<td>Mechanical performance of 3D printed sandwich composite with a high-flexible core (MDA20_174)</td>
<td>Wear behaviour of austenitic stainless steel parts locally reinforced with WC-Fe composites (MDA20_139)</td>
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<td>Joint strength of toughened transverse composites under different loading rates (MDA20_31)</td>
<td>Modelling of fretting-fatigue for submarine power cables in renewable energy: finite element simulation and EASY-FRET analytical fretting wear-fatigue design tool (MDA20_197)</td>
<td>From waste to resource: Proposal for sustainable footwear (MDA20_9)</td>
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<td>13:00-14:00 LUNCH BREAK (Room under the Auditorium)</td>
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**13:00-14:00 LUNCH BREAK (Room under the Auditorium)**
**15:20**

Parametric study of fatigue crack growth in cracked finite plates (MDA20_87)
LDC Ramalho (INEGI, Portugal), PMST de Castro, RDSG Campilho, J Belinha

Fracture envelope of automotive adhesives at high loading rates (MDA20_198)
CSP Borges (INEGI, Portugal), PDF Nunes, A Akhavan-Safar, EAS Marques, RJC Carbas, L Alfonso, LFM da Silva

Mechanical characterization of multi-material 3D printed specimens (MDA20_127)
MC dos Reis (INEGI, Portugal), J Galante, GMF Ramalho, M Frascio, M Reis, RJC Carbas, EAS Marques, LFM da Silva

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Material properties scatter and its influence on formability behavior in sheet metal forming process (MDA20_119)
SS Miranda (INEGI, Portugal), DJ Cruz, RL Amaral, AD Santos, J César de Sá, JV Fernandes

Titanium near net shape engine components from Selective Laser Melting: a comparison with the conventional forged parts (MDA20_56)
S Cecchel (Streparava SpA, Italy), D Ferrario, F Mega, G Comacchia

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**16:00-16:20 COFFEE BREAK (Room under the Auditorium)**

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**16:20**

Study of the influence of microparticles of cork on the fracture type in single lap joints (MDA20_35)
CI da Silva (INEGI, Portugal), AQ Barbosa, RJC Carbas, EAS Marques, LFM da Silva

Evaluation of the influence of design in the mechanical properties of honeycombs cores used in composite panels (MDA20_20)
A Miranda, M Leite, L Reis, E Copin, MF Vaz (University of Lisbon, Portugal), AM Deus

Analysis and evaluation of mechanical descriptors from micro compression tests on spherical samples (MDA20_105)
H Sonnenberg (University of Bremen, Germany), B Clausen

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**16:40**

Adherence of epoxy and polyurethane adhesive in pultruded composite material (MDA20_185)
AC Passos, RAA de Aguiar, HRM Costa, S de Barros (CEFET/RJ, Brazil), EM Sampaio

Biological evaluation of commercially available decellularized matrices (MDA20_69)
LA Quintero (University of Verona, Italy), G Conti, A Sbarbati

Phase-field ductile fracture diffusive approach using residual control staggered solution method (MDA20_160)
E Abzourou (University of Porto, Portugal), AD Santos, JMA Cesar de Sá

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**17:00**

Functionally graded adhesive joints under impact loads (MDA20_126)
MQ dos Reis (INEGI, Portugal), RJC Carbas, EAS Marques, LFM da Silva

Use of wood in the mobility sector – Opportunities, benefits and challenges (MDA20_144)
D Berthold (Fraunhofer Institute for Wood Research, Germany), C Burgold, N Ritter

Dilatometric study and microstructure evolution during one-step and double-step isothermal treatment of 4Mn multiphase automotive sheet steel (MDA20_180)
A Skowroniec (Silesian University of Technology, Poland), A Grajcar, M Morawiec, C Garcia-Mateo, V Ruiz-Jimeínez, K. Radwański

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**17:20**

Fatigue life evaluation of adhesive materials at different mode mixities (MDA20_25)
F Castro Sousa (University of Porto, Portugal), A Akhavan-Safar, R Goyal, LFM da Silva

Development and data analysis of a process-integrated pretension monitoring system for thermoset fiber composites in robotic coreless winding (MDA20_71)
P Mindermann (University of Stuttgart, Germany), SI Bodea, G Dubetini, B Rongen, A Menges, J Knippers, GT Gresser

Influence of strain rate effects on temperature field distribution and mechanical behavior of dual-phase steel sheets (MDA20_123)
RJ Amaral (INEGI, Portugal), AD Santos, SS Miranda, J César de Sá

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**17:40**

Characterization of different adhesive materials in terms of fatigue loadings and environmental effects (MDA20_12)
A Akhavan-Safar (INEGI, Portugal), EAS Marques, RJC Carbas, LFM da Silva, R Goyal, N Cuvillies, I Maus, Y Takashashi, J Sherwood

Adhesive strength of gypsum composites with lightweight fillers (MDA20_179)
M Doileželová (Czech Technical University in Prague, Czech Republic), J Krejcová, A Vimmrová

Microstructure and mechanical performance of cast and heat treated Al-12%Si-piston alloy with rare earth metals (Sm, Tb and Ce) (MDA20_134)
MM Tash (Cairo University, Egypt), WM Khalifa, IS El-Mahallawi

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**18:00**

An overview of techniques for characterization and modelling of the strain rate dependency of structural adhesives (MDA20_60)
EAS Marques (INEGI, Portugal), CSP Borges, PDF Nunes, RJC Carbas, LFM da Silva

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**19:00**

Poster session and RECEPTION (Room under the Auditorium)
### Metals

**Poster 1** Prediction of the yield stress of aluminium alloys using Big Data and Artificial Neural Networks  
(MDA20_59)  
D Merayo (UNED, Spain), A Rodriguez-Prieto, AM Camacho

**Poster 2** Microstructure of Ti50Ni25Cu25 rapidly quenched ribbons crystallized by electric pulse treatment  
(MDA20_116)  
NN Sitnikov (National Research Nuclear University MEPhI, Russia), AV Shelyakov, IA Khabibullina, KA Borodasko, AA Diadechko

**Poster 3** Seedless copper electroplating on CoW thin films in low pH electrolyte - early stages of formation  
(MDA20_162)  
BMC Oliveira (INEGI, Portugal), RF Santos, F Viana, S Simões, P Alpuim, PJ Ferreira, M Vieira

**Poster 4** Finite element implementation of the Cazacu ductile damage law for porous orthotropic hcp crystalline structure materials exhibiting strength differential effect  
(MDA20_169)  
C Rojas-Ulloa (Universidad de La Frontera, Chile), V Tuninetti, AM Habraken

**Poster 5** Effect of solution heat treatment conditions on the microstructure of a Ni-Si-B alloy  
(MDA20_176)  
GM Gorito (University of Porto, Portugal), P Lacerda, M Vieira, LMM Ribeiro

**Poster 6** Minisample tensile-compression testing for sheet metal mechanical characterization  
(MDA20_117)  
DJ Cruz (INEGI, Portugal), AD Santos, RL Amaral, JC Xavier, JG Mendes, SS Miranda

**Poster 7** Temperature-dependent mechanical stability of retained austenite and strain hardening behavior of thermomechanically-processed medium-Mn TRIP-aided steel  
(MDA20_182)  
A Kozłowska (Silesian University of Technology, Poland), A Grajcar

**Poster 8** Theoretical and experimental studies of bainite formation in lean medium-Mn steel  
(MDA20_183)  
M Morawiec (Silesian University of Technology, Poland), A Grajcar, C Garcia-Mateo, V Ruiz-Jimenez

### Additive manufacturing

**Poster 9** Rotating fatigue analysis of 3D printed specimens from assorted materials  
(MDA20_88)  
M Brcic (University of Rijeka, Croatia), S Krsanski, J Bmnic

### Forming

**Poster 10** Numerical analysis of anisotropic sheet metals based on non-associated flow  
(MDA20_124)  
DG Wagre (INEGI, Portugal), RL Amaral, AD Santos, J César de Sá

### Tribology

**Poster 11** The effect of surface preparation on the tribological performance of anodized automotive aluminum alloy  
(MDA20_114)  
N Laszlo, NTakacs (Bay Zoltán Nonprofit Ltd. for Applied Research, Hungary)

### Machining

**Poster 12** Titanium Ti-6Al-4V alloy milling by applying industrial robots  
(MDA20_50)  
E Grisol de Melo (Aeronautics Institute of Technology ITA, Brazil), JO Gomes, E Uhlmann

**Poster 13** Evaluation of CFRP machining by applying industrial robots  
(MDA20_190)  
E Grisol de Melo (Aeronautics Institute of Technology ITA, Brazil), JC dos Santos Silva, TB Kleinb, JP Polte, J de Oliveira Gomesa, E Uhlmann

**Poster 14** Optimization of parameters in the drilling of hybrid sheet Al/GFRP/Al using carbide drill and box-behken design (BBD)  
(MDA20_54)  
C Devitte (Federal University of Rio Grande do Sul Brazil), AJ Souza
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<th>Determining the scopes of applicability of cutting blades made of conventional and sintered high-speed steels (MDA20_62)</th>
<th>MJ Kupczyk (Poznan University of Technology, Poland), J Komolka</th>
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<td>The use of laser heating to improve the adhesion of different wear-resistant coatings on the base of titanium nitride to cutting tools (MDA20_63)</td>
<td>MJ Kupczyk (Poznan University of Technology, Poland), P Twardowski</td>
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<td>Investigation of adhesion behaviour of different underlayer DLC coated cold forming tool steel (MDA20_113)</td>
<td>N Lázaro (Bay Zoltán Nonprofit Ltd. for Applied Research, Hungary)</td>
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<td>Adapted versus projected machining centers energy consumption for MQL technique (MDA20_193)</td>
<td>A Dietmann (Aeronautics Institute of Technology (ITA), Brazil), JG Gomes</td>
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<td>Evaluation of additive manufacturing parts machinability using automated GMAW ER70S-6 with Nodular Cast Iron (MDA20_194)</td>
<td>A Dietmann (Aeronautics Institute of Technology (ITA), Brazil), JG Gomes</td>
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<td>Microstructure and high temperature oxidation behavior of ZrB2-ZrO2-MoS2-Al coatings for the protection of carbon/carbon composites (MDA20_99)</td>
<td>YY Novikov (Belgorod State National Research University, Russia), MG Kovalева, GV Gonchаров, MY Yaprьntsev, VN Tyurin, VV Sirota, ON Vagina, PV Pavlenko, OV Kolisinchenko</td>
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<td>Novel lightweight concrete made from footwear industry waste (MDA20_130)</td>
<td>MC Baptista, ML Garcia, SC Pinho, MA Lopes, MF Almeida, C Coelho, CF Fonseca (University of Porto, Portugal)</td>
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<td>Evaluation of mechanical properties of 3D lattice structures for sandwich panels cores (MDA20_22)</td>
<td>JG Monteiro, M Sardinha, F Alves, M Leite, AMR Ribeiro, AM Deus, L Reis, MF Vaz (University of Lisbon, Portugal)</td>
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<td><strong>Joining</strong></td>
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<td>Poster 23</td>
<td>Attempts to increase the adhesion of boron nitride coatings to sintered carbides blades (MDA20_64)</td>
<td>MJ Kupczyk (Poznan University of Technology, Poland)</td>
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<td>Hydrothermal aging of adhesives subjected to cyclic humidity conditions (MDA20_26)</td>
<td>JA da Costa, A Akhavan-Safar (INEGI, Portugal), EAS Marques, RJC Carbas, LFM da Silva</td>
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<td>Effect of adhesive thickness on butt adhesive joints under torsional loads (MDA20_32)</td>
<td>RJC Carbas (INEGI, Portugal), LFM da Silva</td>
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<td>Poster 26</td>
<td>Evaluation of the mechanical properties of a functional graded joint using magnetic microparticles (MDA20_36)</td>
<td>P-L Corre, CL da Silva (INEGI, Portugal), AQ Barbosa, RJC Carbas, EAS Marques, LFM da Silva</td>
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<td>Evaluation of the mechanical properties of an adhesive single lap joint using rubber microparticles (MDA20_37)</td>
<td>P-L Corre, CL da Silva (INEGI, Portugal), AQ Barbosa, RJC Carbas, EAS Marques, LFM da Silva</td>
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<td>Poster 28</td>
<td>Polymer joining techniques state of the art review (MDA20_82)</td>
<td>LRR Silva (Instituto Federal do Espírito Santo, Brazil), EAS Marques, LFM da Silva</td>
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<td>Poster 29</td>
<td>Quasi-static validation of SHPB specimens for the determination of mode I, mode II and mixed-mode fracture toughness of structural adhesives (MDA20_121)</td>
<td>PDP Nunes (INEGI, Portugal), EAS Marques, A Akhavan-Safar, RJC Carbas, LFM da Silva</td>
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<td>Poster 30</td>
<td>Functionally graded adherends by additive manufacturing (MDA20_125)</td>
<td>MQ dos Reis (INEGI, Portugal), J Galante, GMF Ramalho, M Frascio, RJC Carbas, EAS Marques, LFM da Silva</td>
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Poster 31  Effect of thermal cycling on stress - strain behaviour of bonded, riveted and hybrid joints in façade applications (MDA20_128)
B Nečasova (Brno University of Technology, Czech Republic), P Liška, P Sedlák

Poster 32  Prediction of tensile shear strength of resistance spot welded AA 5052 using regression analysis model (MDA20_171)
TE Abioye (Federal University of Technology Akure, Nigeria), FZ Bin Redzuan, H Zuhailawati, AS Anasyida, BD Bankong, TC Akintayo

Poster 33  Is $G_{lc}$ an adhesive material property? (An artificial neural network analysis) (MDA20_196)
F Delzendeurooy, R Beigy (INEGI, Portugal), A Akhavan-Safar, LFM da Silva

Poster 34  Effect of moisture ageing on the interfacial strength of adhesive joints: An overview (MDA20_34)
CSP Borges (INEGI, Portugal), A Akhavan-Safar, EAS Marques, RJC Carbas, C Ueffing, P Weissgraeber, LFM da Silva

Poster 35  Stiffness and damping properties of a composite beam design (MDA20_67)
M Ferreira, N Peixinho (University of Minho, Portugal), V Carneiro, P Ribeiro, J Meireles, D Soares

Poster 36  Numerical simulation of impact behaviour of multi-cell thin-walled structures with configurable thermal trigger design (MDA20_153)
N Peixinho (University of Minho, Portugal), P Resende

Poster 37  Design of a new concept machine for suspension/wheel/tire study (MDA20_84)
M Cima (Università degli studi di Brescia, Italy), L Solazzi

Friday 6 November 2020

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8:40  Hygroscopic behavior of cellulose acetate: A preliminary study for the production of an environmentally responsive laminate (MDA20_52)
S Khoshtinat (Politecnico di Milano, Italy), V Carvelli, C Marano

9:00  Study of impacts on kevlar/epoxy foam composites applied to shields (MDA20_98)
L Boutrou (Université de Toulouse, France), I Tawk, P Navarro, S Marguet, JF Ferrero

9:20  Fracture mechanism of adhesive single-lap joints with composite adherends under quasi-static tension (MDA20_61)
X Shang, EAS Marques (INEGI, Portugal), JJM Machado, RJC Carbas, AQ Barbosa, D Jiang, LFM da Silva

9:40  Method and apparatus to distribute nonuniformly particles for obtaining a functionally graded adhesive joint (MDA20_27)
JB Marques, AQ Barbosa (INEGI, Portugal), CI da Silva, LFM da Silva

10:00  Synthesis and tribo-mechanical characterization of particulate TiB2 reinforced aluminum metal matrix composite (MDA20_149)
A Sheelwant (BITS Pilani, India), NSK Reddy, P Shaleesh

10:40-11:00  COFFEE BREAK (Room under the Auditorium)
### Session 6A – Forming
(Chair: PAF Martins, AD Santos)

**Room A101 (Auditorium)**

- **11:00**
  - Development of a testing method for real-time diameter measurement in extrusion expansion test (MDA20_118)
    - DJ Cruz (INEGI, Portugal), AD Santos, RL Amaral, JG Mendes, SS Miranda, JV Fernandes
  - Composites for life (MDA20_112)
    - PD Menezes, T Carneiro, AT Marques (University of Porto, Portugal)

### Session 6B – Composites IV
(Chair: AT Marques, A Akhavan-Safar)

**Room B032**

- **11:00**
  - Study of gypsum composites with fine solid aggregates at elevated temperatures (MDA20_181)
    - M Dolezelova, L Scheinherova, A Vimmovak (CTU in Prague, Czech Republic)
  - Low-cycle fatigue of X100 welded structures: Physically-based yield criteria (MDA20_186)
    - L Bergonzi, A Pirondi (Università di Parma, Italy), F Moroni, M Avalle

### Session 6C – Design II
(Chair: AM Ferreira, A Rodriguez-Prieto)

**Room 'Sala de atos’**

- **11:00**
  - Modelling of a metallic insert to assemble hydraulic parts manufactured with carbon fiber composite materials for robotic applications (MDA20_76)
    - M Steiman (University of Versailles, France), S Alifayad, R Khalil

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**13:00-14:00**

**LUNCH BREAK (Room under the Auditorium)**

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### Session 7A – Additive Manufacturing III
(Chair: A de Jesus, M Vieira)

**Room A101 (Auditorium)**

- **14:00**
  - Compressive behaviour of additively manufactured high strength steels under dynamic loading and high temperature conditions (MDA20_168)
    - TEF Silva (University of Porto, Portugal), AVL Gregório, PAR Rosa, AMP Jesus, ARL Reis

### Session 7B – Joining III
(Chair: R Grangeat, RJC Carbas)

**Room B032**

- **14:00**
  - Exploitation of rubbery electrospun nanofibrous mat for fracture toughness improvement of CFRP composite laminates (MDA20_13)
    - A Akhavan-Safar (INEGI, Portugal), M Moazzami, MR Ayatollahi, LFMDa Silva
  - Parametric study of composite curved adhesive joints (MDA20_86)
    - M Salamat-talab, M Safari, H Bahrami-Manesh, A Akhavan-Safar (INEGI, Portugal)

### Session 7C – Composites V
(Chair: AT Marques, A Akhavan-Safar)

**Room 'Sala de atos’**

- **14:00**
  - Effect of acid-thermal aging on mode II interlaminar fracture toughness of unidirectional laminated composites (MDA20_17)
    - M Salamat-talab, M Safari, H Bahrami-Manesh, A Akhavan-Safar (INEGI, Portugal)
  - Experimental study of bio-based epoxy composite materials in the strengthening of reinforced concrete structures (MDA20_184)
    - I Ivanova, J Assih (University of Reims Champagne-Ardenne, France)

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### Session 8A – Manufacturing III
(Chair: LDC Ramalho, S Thrippakmas)

**Room 032**

- **14:00**
  - Design of and effect of surface morphology in adhesive bonding of Fused Filament Fabrication (FFF) additively manufactured polymeric componentes (MDA20_80)
    - L Bergonzi, A Pirondi (Università di Parma, Italy), F Moroni, M Frascio, M Avalle
  - Preparation of Amazonian palm tree fiber (Manicaria saccifera Gaertn.) for composite materials (MDA20_187)
    - AS Montera (University of Sao Paulo, Brazil), D Dantas, T Yoji
### 15:20

**4D Structures for short-time building of emergency shelters** *(MDA20_111)*

LA Costa, B Rangel Carvalho, FJ Lino, AT Marques (University of Porto, Portugal), AFBM da Silva, P Esfandiari, JFMG da Silva

**Water diffusion in the interface of an epoxy/metal bonded assembly** *(MDA20_94)*

R Grangeat (University of Nantes GeM, France), M Girard, F Jacquemin, C Lupi

**Innovative application of composite materials in urban farms and eco-production buildings - Evaluation of Smart City solutions** *(MDA20_188)*

M Grochul ska-Salak (Warsaw University of Technology, Poland)

### 15:40

**Feasibility study of hybrid joints using additive manufacturing with conductive thermoplastic filament** *(MDA20_167)*

M Frascio (University of Genova, Italy), F Moroni, M Avalle, E Marques, RJC Carbas, LFM da Silva

### 16:00-16:20 COFFEE BREAK (Room under the Auditorium)

**Session 8A – Joining IV**

*Chair: S de Barros, A Pirondi*

**Room A101 (Auditorium)**

16:20

**Laser transmission joining of thermoplastics and thermoset carbon fibre reinforced plastics: Analyzing the occurrence of ablation and pores** *(MDA20_95)*

J Brodhun (TU Braunschweig, Germany), K Dilger, S Hartwig

**Machining of Ti6Al4V alloy: A numerical and experimental approach** *(MDA20_57)*

S Carvalho (University of Aveiro, Portugal), A Horovistiz, JP Davim

### 16:40

**Influence of aging on the mechanical behavior of bonded assemblies** *(MDA20_100)*

H Obeid (Université de Toulouse, France), S Marguet, B Hassoune-Rhabbour, T Merian, A Leonardi, J-F Ferrez, H Welemane

**Topology optimization of continua using conventional element technology and the Newton-Raphson method** *(MDA20_191)*

P Areias (University of Lisbon, Portugal), HC Rodrigues, T Rabczuk

### 17:00

**Mixed-mode fracture of composite-to-metal bonded joints** *(MDA20_106)*

MM Arouche (Federal Center for Technological Education in Rio de Janeiro, Brazil), S Teixeira de Freitas, S de Barros

**Generation of reproducible metallic micro-samples for high-throughput method using drop-on demand droplet generator** *(MDA20_152)*

SI Moqadam (University of Bremen, Germany), H Sonnenberg, A Thomann, N Ellendt, L Madler

### 17:20

**In pursuit of toughness and damage tolerance in adhesive joints by using architectured substrates** *(MDA20_172)*

C Morano, G Zhou, M Alfano (University of Waterloo, Canada)

**A comparison of safety factor values for Soderberg and DIN 743 fatigue analyses** *(MDA20_192)*

BS Henriques (University of Porto, Portugal), MR Carvalho, SMO Tavares, PMST de Castro

### 17:40

**A physically based fatigue crack initiation for P91 welded steel: application to simple and complex connections** *(MDA20_177)*

J Zhou (NUI Galway, Ireland), RA Barrett, SB Leen

**Multi-scale modeling for residual stresses analysis of a super duplex stainless steel** *(MDA20_154)*

BD Sousa (University of Porto, Portugal), AP Costa, LMM Ribeiro, AD Santos, JC de Sá

### 20:00

**MDA2020 BANQUET (Porto caves)**