



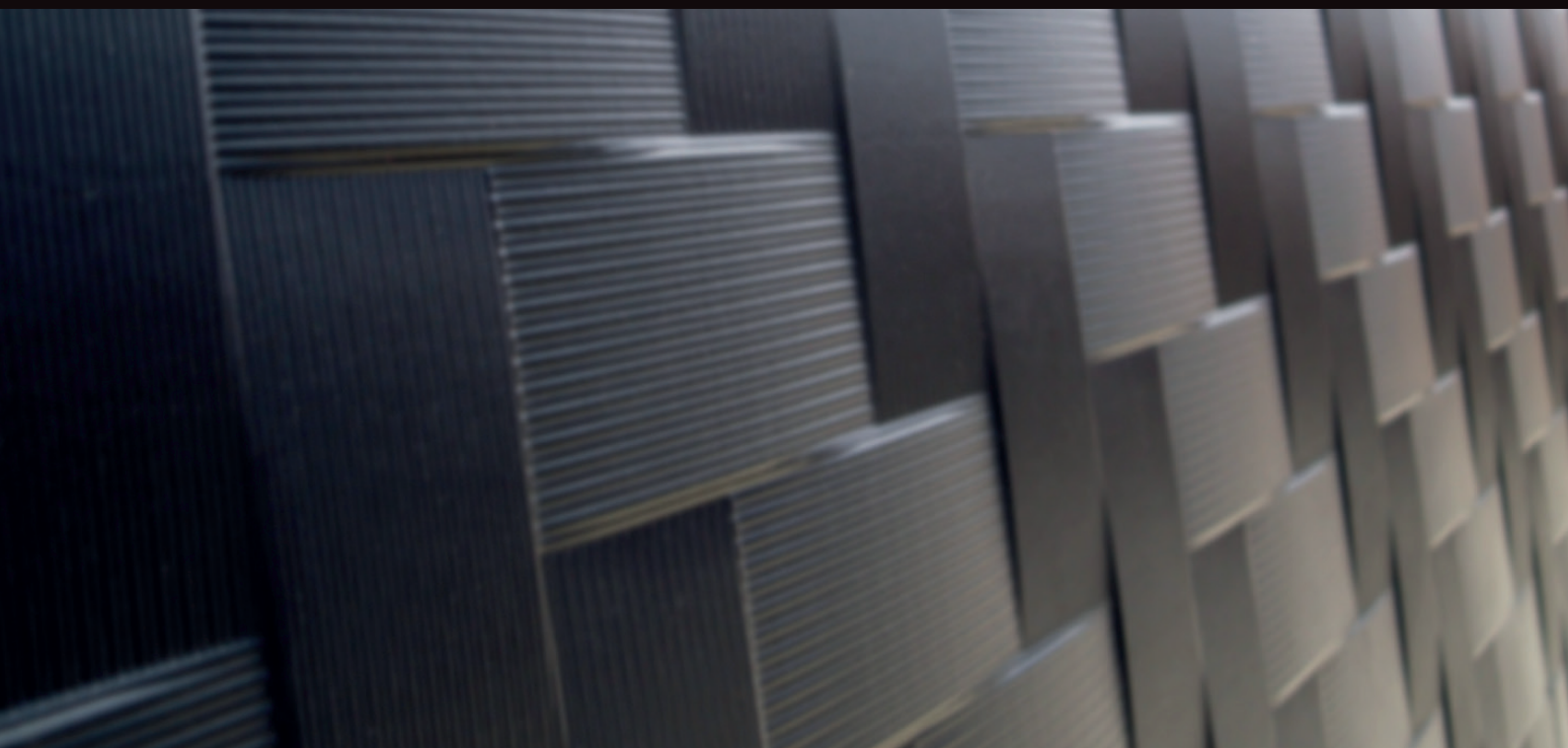
**Programme**

**IAMaC2021**

**29<sup>th</sup> and 30<sup>th</sup> of July, 2021  
FEUP - Porto, Portugal**

**1<sup>st</sup> Ibero-American  
Conference on  
Composite  
Materials**

**U. PORTO**  
FEUP FACULDADE DE ENGENHARIA  
UNIVERSIDADE DO PORTO



Thursday 29 July 2021

8:45 **IAMaC2021 opening (Room B032)****Session 1 – Modelling and mechanics of composites I**

(Chair: T. Panzera, M. Baccocchi)

**Room B032**9:00 Fracture mechanism of adhesive single-lap joints with composite adherends under quasi-static tension (**IAMaC\_18**)

X. Shang, E.A.S. Marques (INEGI, Portugal), J.J.M. Machado, R.J.C. Carbas, A. Q. Barbosa, Dazhi Jiang, L.F.M. da Silva

9:20 Mechanical behaviour of solution blow spun fibrous composite materials of Poly(lactic acid)/Hydroxyapatite (**IAMaC\_11**)

S. Zuñiga, J. Najera, D. Olmos (Universidad Carlos III de Madrid, Spain), J. González-Benito

9:40 The influence of geometric parameters and core stiffness on the three-point bending properties of sandwich panels (**IAMaC\_15**)

R.J. Silva (Federal University of São João del-Rei, Brazil), F.B. Batista, T.H. Panzera

10:00 RVE optimization for hybrid composite materials for modeling pseudo-ductile behavior (**IAMaC\_46**)

A. Correia (IDMEC, Portugal), F. Leal, P. Heredia, H. C. Rodrigues, J. M. Guedes

10:20 A recursive homogenization scheme for calculating the energy harvesting figures of merit of porous ceramics (**IAMaC\_35**)

R.O. Caballero-Pérez (IIMAS-UNAM, México), J. Bravo-Castillero, L.D. Pérez-Fernández

10:40

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

11:00

**Session 2 – Modelling and mechanics of composites II**

(Chair: R. M. Guedes, H. Santana)

**Room B032**11:00 Conforming and nonconforming finite elements for vibrations and buckling of laminated thin nanoplates including strain gradient effect (**IAMaC\_37**)

M. Baccocchi (University of San Marino, Italy), N. Fantuzzi, A.J.M. Ferreira

11:20 ROM-based micromechanical model with fiber circular geometry (**IAMaC\_31**)

L.L. Vignoli (Universidade Federal do Rio de Janeiro, Brazil), R.M.C. Neto, M.A. Savi

11:40 Natural frequency analysis of thin laminated nanoplates with non-uniform orthotropic mechanical properties by means of nonconforming finite elements (**IAMaC\_38**)

N. Fantuzzi (University of Bologna, Italy), M. Baccocchi, A.J.M. Ferreira

12:00 Application of the Tsai's Modulus concepts to the elastic properties of multidirectional glass fibre reinforced composites (**IAMaC\_30**)

R.M. Guedes (LAETA, INEGI, Portugal)

12:20 Modelling the delamination failure under compression loads in CFRPs materials (**IAMaC\_08**)

J.V. Calvo (Universidad Carlos III de Madrid, Spain), N. Feito, M.H. Miguélez, E. Giner

12:40 Effective elastic properties of layered composites considering the effect of the location of the delamination (**IAMaC\_25**)

H.B. Santana (Universidad Tecnológica Metropolitana, Chile), B.G. Christoff, R.L. Le Fort, R.R. Ramos, V. Tita

13:00

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

14:00

### Session 3 – Nano and micro-composites

(Chair: J. Bravo-Castillero, A. M. Ferreira)

#### Room B032

- 14:00** Morphological and structural properties of orthorhombic gadolinium aluminate doped with praseodymium (**IAMaC\_03**)  
A. Alonso (Universidad Michoacana de San Nicolás de Hidalgo, México), T. Rivera, M.E. Contreras, J. Zárate
- 14:20** Reiterated homogenization for conductive media with interfacial resistance: a FEM+DDM based approach (**IAMaC\_02**)  
E. Iglesias-Rodríguez (IIMAS, UNAM, México), J. Bravo-Castillero, M.E. Cruz, J.A. Mesejo-Chiong
- 14:40** Synthesis and thermoluminescence of gadolinium aluminate doped with europium (**IAMaC\_04**)  
A. Alonso (Universidad Michoacana de San Nicolás de Hidalgo, México), T. Rivera, D. Nolasco, T. López, J. Zárate
- 15:00** Asymptotic homogenization approach applied to micropolar heterogeneous media (**IAMaC\_05**)  
V. Yanés (Facultad de Física, Universidad de La Habana, Cuba), R. Rodríguez
- 15:20** Study of mechanical properties in polysulfone/ZnO nanocomposite materials (**IAMaC\_45**)  
M. Moradineyat (Universidad Carlos III de Madrid, Spain), D. Olmos, J. González-Benito
- 15:40** Fabrication of multilayer graphene alumina composites (**IAMaC\_47**)  
C.G.B. Pereira (São Paulo State University, Brazil), F.D. Faglioni, V. Gerlin Neto, C.R. Foschini
- 16:00**  
- **COFFEE BREAK (Room under the Auditorium)**  
**16:20**

### Session 4 – Bio-composites

(Chair: A. Akhavan-Safar, S. de Barros)

#### Room B032

- 16:20** Pultrusion of bio composites for window profiles with natural fibres and reshapable, repairable and recyclable resin (**IAMaC\_42**)  
A. Navarro (AIMPLAS Technological Centre, Spain)
- 16:40** Study of composites of poly (L-lactide) PLLA reinforced with cellulose pineapple fiber composites (**IAMaC\_52**)  
I.D. Campos, L.G.H. Komatsu, E.C.L. Cardoso, D.F. Parra (Institute of Nuclear and Energetic Research, Brazil)
- 17:00** Effect of reinforcement filler nature, scale and weight fraction on the mechanical properties of natural/synthetic hybrid composites (**IAMaC\_32**)  
H.F.M. de Queiroz (CEFET/RJ, Brazil), M.D. Banea, D.K.K. Cavalcanti J.S.S. Neto
- 17:20** Study of the influence of the incorporation of CNT's on the mechanical and sensing properties of nanocomposites produced with textile waste PET (**IAMaC\_53**)  
C. Mota (Fibrenamics, University of Minho, Portugal), F. Leite, J. Bessa, F. Cunha, G. Paixão, J. Belino, R. Fangueiro
- 17:40** Development of bio-based composites for structural applications (**IAMaC\_14**)  
M. Hofmann (CERIS, Instituto Superior Técnico, Portugal), M.D. T. Shahid, M. Garrido, J.C. Bordado, J.R. Correia
- 18:00** Mechanical performance of natural interlaminar and intralaminar hybrid composite materials (**IAMaC\_36**)  
K.P. Arjun, S. Budhe, S. de Barros (CEFET/RJ, Brazil)
- 18:20** **Poster Session and RECEPTION**
- Poster 1** Moisture effect on the fracture toughness of 3D printed continuous carbon fiber-reinforced nylon-based thermoplastic (**IAMaC\_26**)  
B.C. Kikuchi (Aeronautics Institute of Technology, Brazil), F.L.S. Bussamra, M.V. Donadon
- Poster 2** Effect of water on the mechanical and thermal properties of natural fibre and hybrid composites (**IAMaC\_33**)  
G. Bittencourt, M.D. Banea (CEFET/RJ, Brazil), H.F.M. de Queiroz, J.S.S. Neto, D.K.K. Cavalcanti
- Poster 3** Effect of temperature on the behaviour of multi-material adhesive joints for automotive industry (**IAMaC\_21**)  
M.Q. dos Reis (INEGI, Portugal), J.J. Machado, R.J.C. Carbas, E.A.S Marques, L.F.M. da Silva

- Poster 4** A comprehensive review on the joining techniques in composite marine structures (**IAMaC\_22**)  
E.Delzendehrooy (INEGI, Portugal), A. Akhavan-Safar, A.Q. Barbosa, R.J.C. Carbas, E.A.S. Marques, L.F.M. da Silva
- Poster 5** Fatigue behaviour of environmentally aged composite-aluminium adhesive joints for the automotive industry (**IAMaC\_48**)  
E.A.S. Marques (INEGI, Portugal), J.J.M. Machado, A.Q. Barbosa, L.F.M da Silva
- Poster 6** Impact testing of CFRP adhesive joints for the automotive industry (**IAMaC\_49**)  
J.F.D. Varajão (INEGI, Portugal), R.J.C. Carbas, E.A.S Marques, L.F.M. da Silva
- Poster 7** Outstanding effects of lignin addition in castor oil-based polyurethanes with elastomeric properties (**IAMaC\_50**)  
A.M. Borrero-López (Universidad de Huelva, Spain), L. Wang, C. Valencia, J.M. Franco, O.J. Rojas

### Friday 30 July 2021

#### Session 5 – Sensing and non-destructive testing

(Chair: E. A. S. Marques, R. Carbas)

#### Room B032

- 9:00** Sensing capabilities of flexible CNT-doped PEGDGE nanocomposites for strain monitoring purposes (**IAMaC\_34**)  
A. del Bosque (Universidad Rey Juan Carlos, Spain), X.F. Sánchez-Romate, M. Sánchez, A. Ureña
- 9:20** Experimental determination of transversal strain effect in embedded FBGs response in composites structures (**IAMaC\_13**)  
F. Terroba, M. Frövel, M. González-Gallego (Instituto Nacional de Técnica Aeroespacial, Spain), J.L.Martinez, M.C.Serna, R.Atiienza
- 9:40** Optimal shunted damping configurations for noise reduction in laminated composite sandwich panels: a mesh dependency study (**IAMaC\_27**)  
M.F.A. Tomé (IDMEC, Portugal), A.L. Araújo, J.F.A. Madeira
- 10:00** Use of Kriging Metamodel and Damage Index technique in damage detection of composite structures (**IAMaC\_20**)  
K.A. Possenti, V.G.S. Menezes, D. Vandepitte, V. Tita, R. de Medeiros (Universidade do Estado de Santa Catarina – UDESC, Brazil)
- 10:20** Shunted damping configurations for noise reduction in laminated composite sandwich panels: a mode-by-mode approach (**IAMaC\_29**)  
B.R. Cotrim (IDMEC, Portugal), A.L. Araújo, J.F.A. Madeira
- 10:40**  
– **COFFEE BREAK (Room under the Auditorium)**  
**11:00**

#### Session 6 – Durability

(Chair: V. Tita, M. D. Banea)

#### Room B032

- 11:00** Effect of UV ageing on mechanical and thermal properties of hybrid composites modified with multi-walled carbon nanotube (**IAMaC\_28**)  
J.S.S. Neto, M.D. Banea (CEFET/RJ, Brazil), D.K.K. Cavalcanti, H.F.M. de Queiroz, R.A.A. Aguiar, A.B. Pereira
- 11:20** Tensile and flexural responses of CFRP composite laminates subjected to cyclic ageing conditions (**IAMaC\_23**)  
A. Akhavan-Safar (INEGI, Portugal), M. Moazzami, M.R. Ayatollahi, S. Teixeira de Freitas, L.F.M. da Silva
- 11:40** The effect of overload on the mode I fatigue crack growth of a ductile adhesive (**IAMaC\_06**)  
F.C. Sousa (INEGI, Portugal), A. Akhavan-Safar, L.F.M. da Silva
- 12:00** Effect of water ingress on the mechanical and chemical properties of polybutylene terephthalate reinforced with glass fibers (**IAMaC\_16**)  
C.S.P. Borges (INEGI, Portugal), A. Akhavan-Safar, E.A.S. Marques, R.J.C. Carbas, C. Ueffing, P. Weissgraeber, L.F.M. da Silva
- 12:20** Fatigue life estimation of similar and dissimilar single lap adhesive joints using a critical distance approach (**IAMaC\_07**)  
F.C. Sousa (INEGI, Portugal), A. Akhavan-Safar, L.F.M. da Silva

**12:40** Effect of water ingress on the properties of adhesive joints with polybutylene terephthalate reinforced with glass fiber substrates and silicone adhesive (**IAMaC\_17**)  
C.S.P. Borges (INEGI, Portugal), A. Akhavan-Safar, E.A.S. Marques, R.J.C. Carbas, C. Ueffing, P. Weissgraeber, L.F.M. da Silva

**13:00**  
- **LUNCH BREAK (Room under the Auditorium)**  
**14:00**

### Session 7 – Applications

(Chair: R. de Medeiros, R. Rodríguez Ramos)

#### Room B032

**14:00** Performance enhancement of a bioinspired micro air vehicle by integrating a smart composite in its morphing wing (**IAMaC\_43**)

J. Crespo, R. Bardera, Á.A. Rodríguez-Sevillano, Á. Cobo-González (Escuela Técnica Superior de Ingeniería Aeronáutica y del Espacio, Spain)

**14:20** The influence of structural adhesives on the strength of CFRP SLJs using metal laminate adherends for the aeronautical applications (**IAMaC\_19**)

R. J. C. Carbas (INEGI, Portugal), E.A.S. Marques, L.F.M. da Silva

**14:40** Recent developments in composite bonding techniques (**IAMaC\_51**)

E. Ramezani (INEGI, Portugal), R. J. Carbas, E. A. S. Marques, L. F. M. da Silva.

**15:00** Bifurcation analysis for a fractional viscoelastic model of fluttering and its applications to aeroelasticity (**IAMaC\_09**)

A. Baez, E. Iglesias, G. Juárez, A. Lobato, P. Padilla (Instituto de Investigaciones en Matemáticas Aplicadas y Sistemas, México), M. Ramirez-Trocherie, R. Rodríguez-Ramos

**15:20** Evaluation of the influence of the composition of construction and demolition waste (CDW) on the strength of cement (**IAMaC\_10**)

B. P. Bravin, F.C.M. Wall, L.F. Ribas (Centro Universitário Fametro, Brazil), M.E.N. Tavares

**15:40** Numerical simulation and structural design applied to biaxial elastic buckling of plates of composite material used in naval structures (**IAMaC\_01**)

T. da Silveira (UNIPAMPA, Brazil), G. R. Baumgardt, L. A. O. Rocha, E.D. dos Santos, L.A. Isoldi.

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

### Session 8 – Emerging technologies

(Chair: A. Araújo, N. Fantuzzi)

#### Room B032

**16:20** Bending performance of sandwich structures composed of 2D and 3D cellular cores manufactured with Fused Filament Fabrication and CFRP skins (**IAMaC\_40**)

A. Forés-Garriga (IQS School of Engineering, Spain), G. Gómez-Gras, G. Reyes-Pozo, M.D. Abad, A.A. García-Granada, J. Menacho, M. A. Pérez

**16:40** Mechanical and thermal properties prediction for a 3D printing material produced with a nano-modified filament (**IAMaC\_44**)

C. Valero (ITAINNOVA, Spain), A. Chiminelli, B. Jiménez, R. Rivera and others

**17:00** Mechanical behaviour and manufacturing analysis of 2D Cellular Solids manufactured by Fused Filament Fabrication (**IAMaC\_39**)

A. Forés-Garriga (IQS School of Engineering, Spain), G. Gómez-Gras, G. Reyes-Pozo, M.D. Abad, A.A. García-Granada, J. Menacho, M.A. Pérez

**17:20** Effects of natural date palm tree fibers on mode II fracture energy of E-glass/epoxy plain-woven laminated composites (**IAMaC\_24**)

A. Akhavan-Safar (INEGI, Portugal), M. Salamt-Talab, F. Delzendehrooy, L.F.M. da Silva

**19:30** **CONFERENCE DINNER (Casarão do Castelo Restaurant – Leça da Palmeira)**