

ICCS24

24th International Conference on Composite Structures

Faculty of Engineering, University of Porto, Portugal

14-16 June 2021

Conference program

António J.M. Ferreira

Carlos Santiuste

Nicholas Fantuzzi

Michele Baccocchi

Ana Neves

General Information

Conference chairs

António J.M. Ferreira, University of Porto, Portugal

Carlos Santiuste, Universidad Carlos III de Madrid, Spain

Nicholas Fantuzzi, University of Bologna, Italy

Michele Bacciocchi, University of San Marino, San Marino

Ana Neves, University of Porto, Portugal

Conference program – *Portugal time (WEST/GMT+1)*

Monday, June 14

10h30-10h45 — Welcome coffee

10h45-11h00 — Opening (*Conference chairs*)

11h00-13h00 — Mid-morning parallel sessions

13h00-14h00 — Break

14h00-17h20 — Afternoon parallel sessions

Tuesday, June 15

08h30-10h30 — Early-morning parallel sessions

10h30-11h00 — Break

11h00-13h00 — Mid-morning parallel sessions

13h00-14h00 — Break

14h00-17h20 — Afternoon parallel sessions

Wednesday, June 16

08h30-10h30 — Early-morning parallel sessions

10h30-11h00 — Break

11h00-13h00 — Mid-morning parallel sessions

13h00-14h00 — Break

14h00-17h20 — Afternoon parallel sessions

17h20 — End of conference

Zoom Links

Room 1

<https://videoconf-colibri.zoom.us/j/81266402911?pwd=Rmgva0xvOFNTQXlqTmc5aVl0bXZZQT09>

Room 2

<https://unibo.zoom.us/j/91072028253?pwd=Q2QzTzB5MjlxQXNNRk5mUW82a21xUT09>

Room 3

<https://unibo.zoom.us/j/93537851839?pwd=aDN1eTBhQ0Nma2pIQ3Z3a3ZCUGlLdz09>

Live program

Monday, June 14 (Mid-morning)

Room 1

Session chair: Eduardo Marques

Session chair: Luís Miguel Pereira Durão

10h45

Opening

Antonio J.M. Ferreira

Keynote

11h00

1066|Layered Structures – Advantages and Disadvantages of Various Modeling Approaches

Altenbach, Holm

Mixed Live/Virtual Session

11h40

1016|Non Destructive Evaluation Of Damage In Drilled Carbon Fibre Reinforced Plates – Correlation With Mechanical Tests

Durão, Luís Miguel Pereira; Matos, João Emílio; Devesa, Luís Filipe da Silva

12h00

2272|Stretching and Forming Limit Curve of Steel-Glass Fibre Reinforced and Non-reinforced Steel-Polyamide Sandwich Materials

Wei Hua; Mohamed Harhash; Heinz Palkowski

12h20

1037|Influence of experimental test grip on buckling and post-buckling behaviour in composite channel section subjected to pure bending

Kazmierczyk, Filip; Kubiak, Tomasz; Urbaniak, M.

12h40

2010|Characterisation of aluminium matrix syntactic foams under high strain-rate loadings

Alteneiji, Mohamed; Guan, Zhongwei; Cantwell, Wesley; Zhao, Yuyuan; Langdon, Geneviev

— **Break** —

Monday, June 14 (Afternoon)

Room 1

Session chair: Eduardo Marques

Session chair: Carlos Santiuste

Mixed Live/Virtual Session

14h00

2161|Multi-scale topology optimisation design of porous femur implant with graded-density anisotropic microstructures using latent variable Gaussian process

Zhao, Jiuzhou; Deng, Xiaowei

14h20

1032|Investigation of wavelength resonator using helical structure for harmonic noise reduction

Jonghoon, Jeon; Semin, Kwon; Junhong, Park

14h40

1023|Incremental Transformation Field Analysis for Heterogenous Composite Materials using Numerically Determined Interaction Tensors

Kevin Spilker; Ling Wu; Ludovic Noels

15h00

2036|Accurate multi-level model for creep of micro-cracked masonry

A. Chaker; A. Rezik; R. Hambli; A. Langlet

15h20

2225|Effective material properties of hyper-elastic particulate composites with random interface

Sokołowski, Damian; Kamiński, Marcin

15h40

2221|Clustering of breaks and avalanches in impregnated fiber bundles as precursors of failure

Lomov, Stepan; Breite, Christian; Melnikov, Arsen; Mesquita, Francisco Manuel Gonçalves; Swolfs, Yentl; Abaimov, Sergey

16h00

1012|Numerical simulation of blister development and spallation in thin coatings

Hay, Harry; Harvey, Christopher M.; Wang, Simon

16h20

2097|Temperature effects on the flexural response of NSM CFRP-strengthened RC beams under sustained load

Jahani Younes; Baena Marta; Gómez Javier; Barris Cristina; Torres Lluís

— End of the day —

Monday, June 14 (Mid-morning)

Room 2

Session chair: Nicholas Fantuzzi

Keynote

11h00

1001|Nonlinear solid-shell elements for 3D stress analysis of composite and smart structures

Kulikov, Gennady

Experimental Methods

11h40

2023|Identification of a set of macroscopic elastic parameters for aerogel composite material with high porosity using inverse method with multi-region strategy

Ji, Xiaohui; Hao, ziqing; Deng, Linlin

12h00

2131|Evaluation of a pressure resistance performance of composite cylinder using the mechanically structured ring burst test device

Woe Tae, Kim; Kim, Seong Su

12h20

2280|Experimental evidence of polymer and fiber type and fractional parameter influence on internal friction in fiber-reinforced rubber concrete

Shitikova, Marina V.; Popov, Ivan I.; Levchenko, Artem

12h40

2178|Experimental and numerical modal analysis of the glass composite plate damaged by cut

Vavro, Ján jr.; Vavro, Ján; Darina, Ondrušová; Klímek, Lukáš; Marček, Luboš; Taraba, Miloš

— Break —

Monday, June 14 (Afternoon)

Room 2

Session chair: Francesco Ascione

Session chair: Nicholas Fantuzzi

Durability of composite materials

14h00

2157|Corrosion effect on mechanical performance of self-prestressing ultra-high-performance concrete-steel tubular columns.

KHAN, Mahram; DENG, Xiaowei

14h20

2135|Coupled thermomechanical, creep and degradation behaviour Carbon PEKK composites for aircraft applications above the glass transition temperature

Marco, Gigliotti; Giuseppe, Pedoto; Jean-Claude, Grandidier; Alain, Vinet

14h40

2076|Hygrothermal durability of epoxy resins used for civil engineering applications: experimental and numerical investigation

Ascione, Francesco; Guadagno, Liberata; Granata, Luigi; Naddeo, Carlo

15h00

2091|Adhesively bonded hybrid Al-CFRP joints: Influence of pre-treatment, adhesive chemistry as well as corrosion and ageing processes on the mechanical properties

Schanz, Jochen; Meinhard, Dieter; Pott, Timo; De Silva, Anjali K. M.; Harrison, David K.; Riegel, Harald; Knoblauch, Volker

15h20

2150|Thermal and thermo-mechanical investigation of an interpenetrating metal-ceramic-composite

Schukraft, Joël; Lohr, Christoph; Weidenmann, Kay

Experimental Methods

15h40

2046|Experimental Study on the Out-of-Plane Deformation of Symmetrical Flat Laminate Composites Manufactured through Autoclave Process

LERDWONGPAISAN Arnon; CASTANIE Bruno; OLIVIER Philippe

16h00

2102|Cyclic Testing of Composites and Textile Cords – Design of Experiment Methods and Results for Practical Use

Krmela, Jan; Krmelová, Vladimíra; Dubec, Andrej; Skalková, Petra; Gavendová, Mária

Stability of Nano, Micro and Macro Composite Structures

16h20

2075|Closed-form solution for buckling of shear-deformable laminated plates with rotational restraints

Schreiber, Philip; Mittelstedt

Keynote

16h40

1065|Machine learning based modeling in composite materials

Sepahvand, Kian K.

— End of the day —

Monday, June 14 (Mid-morning)

Room 3

Session chair: Riccardo Vescovini

Session chair: Michele Baccocchi

Keynote

11h00

1003|Sublaminar variable kinematics approach for the numerical analysis of composite structures

D'Ottavio, Michele

Applications of Composites

11h40

2125|Magnetic Properties of Polymer-Coated Soft Magnetic Composites for Electric Motor Core Applications with Low Core Losses

Muhammad Salman Sarfraz; Seong Su Kim

12h00

2088|Carbon paper electrodes with pseudo-channel effect to enhance flow characteristics of electrolyte in vanadium redox flow batteries

Jae-Moon Jeong; Kim, Seong Su

12h20

2206|Development of carbon composite bipolar plate structure for LT-PEMFC

Kim, Minkook; Lim, Jun Woo

12h40

2207|Development of polyaniline carbon composite bipolar plate for VRFB

Kim, Tae Hyeon; Lim, Jun Woo

— Break —

Monday, June 14 (Afternoon)

Room 3

Session chair: Alfonso Pagani

Session chair: Michele Bacciocchi

Applications of Composites

14h00

2210|Effect of sulfonic group on the properties of the carbon felt electrode for the vanadium redox flow battery

Kaur, Amanpreet; Lim, Jun Woo

14h20

2027|Repair methods of cracked shear walls with composite materials

Corradi, Marco; Speranzini, Emanuela

14h40

2183|Preparation of polymer composite materials with a content of modified aluminosilicates and investigation of their resulting properties and rubber application

Pajtášová, Mariana; Pecušová, Beáta; Ondrušová, Darina; Skalková, Petra; Ďurišová, Silvia; Feriancová, Andrea

Laminated composites with material uncertainties

15h00

2038|Reliability design optimisation of classic composite plates using a CUF-based layerwise approach

Racionero Sanchez-Majano, Alberto; Pagani, Alfonso

FRP reinforced concrete structures

15h20

2203|PARAMETRIC STUDY ON MOMENT REDISTRIBUTION OF FIBER REINFORCED CONCRETE CONTINUOUS BEAMS WITH BASALT FRP BARS

Abushanab, Abdelrahman; Alnahhal, Wael

15h40

2205|Shear Behavior of Green Concrete Beams Reinforced with Basalt FRP Bars and Stirrups: An Experimental and Analytical Investigations

Al-Hamrani, Abathar; Alnahhal, Wael; Elahtem, Ayman

16h00

2266|Assessment of RC beam strengthened with NSM C-GFRP rods by experimental tests

Capozucca, Roberto; Magagnini, Erica; Vecchiatti, Maria Vittoria

16h20

2229|Use of CFRP U-Wrap Anchors in Flexural Strengthening of RC T-Beams with CFRP Sheets

Raheem, Mustafa; Rasheed, Hayder; Al Shboul, Khalid

— End of the day —

Tuesday, June 15 (Early-morning)

Room 1

Session chair: Ana Neves

Session chair: Antonio Ferreira

Auxetic materials and structures

08h30

2155|Characterization of Mechanical Properties and Multiscale Topology Optimization of Auxetic Honeycomb Cellular Structures with Various Microstructures

Kandamulla Waduge Chermila Piyumi; Xiaowei Deng

08h50

2219|Novel auxetic crushable structure with enhanced impact protection range

Temprano, Gonzalo; Pernas-Sanchez, Jesus; Varas, David

Joints

09h10

2062|Anchor bolts for load introduction into cross-sectional faces of thick fiber-reinforced polymer composites: Stress analysis of the adhesive layer

Klein, Jens; Meissler, Alexander; Schürmann, Helmut; Mittelstedt, Christian

09h30

2226|The effect of fiber orientation mismatch on scarf joint damage mechanisms under fatigue load

Ghafafian, Carineh; Trappe, Volker

09h50

2222|Bond strength of aluminum die castings and thermoplastics by overmolding

Steinberg, Julian; Hartwig, Sven

10h10

2139|TENSION-TENSION FATIGUE BEHAVIOR OF DUCTILE HYBRID FRP JOINTS

Liu, Lulu; Keller, Thomas; Wang, Xin; Wu, Zhishen

— **Break** —

Tuesday, June 15 (Mid-morning)

Room 1

Session chair: Luigi Solazzi

Session chair: Antonio Ferreira

Composites in Innovative Applications (chaired by L. Solazzi)

11h00

2109|GFRP/CFRP hybrid composites with self-sensing capability for the ankle spring of exoskeleton robot

Hong, Hyunsoo; Kim, Seong Su

11h20

1013|Cement Composites to Detect Elevated Temperature with Colors

Jong-Han Lee

Composite structures in civil engineering

11h40

2015|Experimental Study on the Flexure Response of CFST Beams using Normal and Recycled Aggregate

Abed, Farid; Abdelmageed, Yosri; Alhobi, Yazan

12h00

2242|Random Vibration of Composite Saddle Membrane Structure under Dynamic Impact

Liu, Changjiang; Deng, Xiaowei

12h20

2058|A non-invasive reinforcement solution of power transmission monopoles

Liu Qimao

12h40

2236|The thermal and mechanical analysis of polymer-cementitious floor composite made of epoxy resin and concrete substrate

Krzywiński, Kamil; Sadowski, Łukasz

— **Break** —

Tuesday, June 15 (Afternoon)

Room 1

Session chair: Luigi Solazzi

Session chair: Antonio Ferreira

Composite structures in civil engineering

14h00

2269|Dynamic nonlinear analysis and vulnerability protection of structures with base isolation systems

De Angelis, Fabio; Cancellara, Donato

14h20

2079|Material characteristics of Carbon Fiber Reinforced Polymer Matrix Composites and their application for the Strengthening of Reinforced Concrete Structure

Kormanikova Eva; Zmindak Milan; Novak Pavol; Sabol Peter

14h40

1059|Design of locally resonant metamaterial curved double wall with embedded resonators to improve sound insulation

Liu, Zibo; Rumpler, Romain; Feng, Leping

15h00

1027|On the effectiveness of composite layers reinforcements on the static behavior of damaged civil structures through unified formulation.

Augello, Riccardo; Xu, Xiangyang; Pagani, Alfonso; Carrera, Erasmo

Composites in Innovative Applications (chaired by L. Solazzi)

15h20

2232|Coreless Filament Wound Fiber-Polymer Composites Structures in Architecture: a state-of-the-art review

Dambrosio, Niccolo; Zechmeister, Christoph; Gil Pérez, Marta; Knippers, Jan; Menges, Achim

15h40

2243|Three-point bending of closed profiles with an omega cross-section, made by additive processing, reinforced by glass fiber

Sadowski, Tomasz; Nowicki, Marek; Golewski, Przemysław; Pietras, Daniel

16h00

2169|Reusable sand composite mandrels for Multi-Stage Filament Winding

Früh, Nikolas; Knippers, Jan

16h20

2051|Dynamic Analysis of a Novel Composite Pump

Ghoneim, Hany

Keynote

16h40

1067|Steered Fiber Paths and Effects of Manufacturing Constraints on Future Advanced Aerospace Structures

Waas, Antony

— End of the day —

Tuesday, June 15 (Early-morning)

Room 2

Session chair: Riccardo Vescovini

Session chair: Nicholas Fantuzzi

Advanced Numerical Techniques

08h30

2164|Analysis of Thin-Walled Composite Structures using Physics-Informed Neural Networks and Extreme Learning

Vescovini, Riccardo; Cheng, Angelo Yan; Dozio, Lorenzo

08h50

2116|Numerical investigation on the cold spray of fiber reinforced polymer composites

Heydari Astarae, Asghar; Colombo, Chiara; Bagherifard, Sara

09h10

2234|High-order modelling of wave propagation in multilayered plates and shells via the implicit-mesh discontinuous Galerkin method

Gulizzi, Vincenzo

09h30

2042|Approach to numerical modelling of time-dependent behaviour of thermoset polymers

Jan, Vorel; Jan, Vozab

09h50

2250|A framework for aeroelastic analysis employing higher-order structural and aerodynamic theories

Grifò, Marco; Benedetti, Ivano; Da Ronch, Andrea; Milazzo, Alberto

10h10

2261|Process modelling of manufacturing of polyamide 6/carbon fibre by infrared lamp (IR) assisted automated fibre placement

Venkatesan, Chadurvedi; Vaheed, Nahaad; Him Cheng, Wong; Tong Earn, Tay; Silva, Arlindo

— **Break** —

Tuesday, June 15 (Mid-morning)

Room 2

Session chair: Alberto Milazzo

Session chair: Nicholas Fantuzzi

Beam, Plate and Shell Theories and Computational Models for Laminated Structures

11h00

2026|A finite element approach for studying the size dependent effect of laminated micro-nano plates

He, Zhanhang; XUe, Jianghong; Yao, Sishi; Wu, Yongfu; Xia, Fei

11h20

2061|Determination of bifurcation shortening of the real thin-walled laminated column with initial imperfections under compression

Teter, Andrzej; Kolakowski, Zbigniew

11h40

2112|Higher-order modelling of latticed-structures and doubly-curved sandwich plates and shells with a honeycomb and grid core

Viscotti, Matteo; Dimitri, Rossana; Tornabene, Francesco

12h00

2106|Discontinuous Galerkin models for composite multilayered shells with higher-order kinematics

Guarino, Giuliano; Gulizzi, Vincenzo; Milazzo, Alberto

12h20

2039|Bending analysis of FGM magneto-electro-elastic plates by a meshless method

Sator, Ladislav; Sladek, Vladimir; Sladek, Jan

— Break —

Tuesday, June 15 (Afternoon)

Room 2

Session chair: Jaroslaw Bienias

Session chair: Nicholas Fantuzzi

Failure of Composites

14h00

2104|Methods of repairing mechanically damaged GFRP laminates and its verification in uniaxial tensile tests with the use of DIC

Golewski, Przemysław

14h20

2025|Development of a Micro-Crack Toughening Mechanism for Unidirectional Composite Plates by using Peridynamics

Basoglu, Muhammed Fatih; Zerin, Zihni; Kefal, Adnan; Oterkus, Erkan

14h40

2170|Experimental and Analytical Study of the Mohr-Coulomb Envelope of Strain Hardening Fiber Reinforced Cementitious Composites

Georgiou, Antroula; Eshghi, Najmeh; Pantazopoulou, Stavroula

15h00

2055|Failure simulation of four point bending CFRP laminate specimen including wrinkles

Pierre JOURNOUD; Bruno CASTANIE; Christophe BOUVET; Léon RATSIFANDRIHANA

15h20

2080|Analytical modeling of fatigue crack growth in hybrid fiber metal laminates

Dadej, Konrad; Bienias, Jarosław

15h40

2288|Effect of binder weave structures on the tensile properties of 3D woven composites and their failure mechanisms.

Sowrov, Kazi; Fernando, Anura; Koncherry, Vivek; Potluri, Prasad

16h00

2252|On the interlaminar shear deformations in the thick GLARE laminates

Solyaev, Yury; Prokudin, Oleg; Babaytsev, Arseniy

16h20

2208|Preparation of interpenetrating metal matrix composite based on 3D-printed metallic glass foams produced by gas pressure infiltration

Dittmann, Kerstin; Trauth, Anna; Weidenmann, Kay André

— End of the day —

Tuesday, June 15 (Early-morning)

Room 3

Session chair: Victor Eremeyev

Session chair: Michele Baccocchi

Composite Structures

08h30

2132|A study on the curing process of epoxy molding compound encapsulation to reduce the warpage of ultra-thin semiconductor packages

Seong Yeon Park; Kim, Seong Su

08h50

1062|OPTIMUM DESIGN OF WATER-LUBRICATED COMPOSITE JOURNAL BEARING BASED ON ELASTO-HYDRODYNAMIC ANALYSIS

Kim, Wonvin; Kim, Seong Su

09h10

2246|Strength and ductility of a functionally graded reinforced concrete beam

Moy, Charles K.S.

09h30

2077|Finite-element modelling, analysis and design of anisogrid composite lattice spoke of an umbrella-type deployable space reflector

Morozov, Evgeny; Lopatin, Alexander; Khakhlenkova, Anna

09h50

2141|The equivalent thermal conductivity of C/SiC pyramidal lattice core composite sandwich structures

Wang Xiaohong; Zeng Tao; Xu Guodong; Cui Yuhua; Zhang Kun; Fan Meiling

10h10

2030|Towards modelling of beam-like structures considering flexoelectricity and flexomagnetism

Eremeyev, Victor A.; Malikan, Mohammad

— **Break** —

Tuesday, June 15 (Mid-morning)

Room 3

Session chair: Victor Eremeyev

Session chair: Michele Bacciocchi

Analysis of Wood and Natural Fibre Composites

11h00

2193|Investigation of the mechanical behavior of the treated and untreated bamboo fiber reinforced epoxy composites- Assam's Bamboo

BORA, MRIDUSMITA; SAHA, ABIR; KUMARI, POONAM; SAHOO, NIRANJAN

11h20

2049|Wood as a structural material for transportation industry: Past example and recent advances.

Bruno Castanié; Romain Guelou; Arthur Cantarel; Samuel Rivallant; Florent Eyma

Impact Problems

11h40

1006|Finite Element Modeling of Low Velocity Impacts on Coated Composite Structures

Othman, Al-Hussain; Majeed, Majed; Yigit, Ahmet

12h00

2147|Compression After Impact of Fibre Metal Laminates – evaluation possibilities

Jakubczak, Patryk; Podolak, Piotr; Drożdziel, Magda; Bienias, Jarostaw

12h20

2209|Impact and multiple impact of titanium based FML – experimental and numerical approach

Podolak Piotr; Jakubczak Patryk; Bienias Jarostaw

12h40

2118|Use of Artificial Neural Networks to optimize UHMWPE personal protections

Peinado, Jairo; Jiao-Wang, Liu; Olmedo, Álvaro; Santiuste, Carlos

— **Break** —

Tuesday, June 15 (Afternoon)

Room 3

Session chair: Bruno Castanié

Session chair: Michele Baccocchi

Composite Structures

14h00

2065|Structural testing of large notched composite specimens under combined shear and pressure

Florent, Grotto; Joël, Serra; Christophe, Bouvet; Bruno, Castanié

14h20

1017|The effect of metallic additives on the mechanical and thermal properties of poly ether ether ketone.

Duffy Sean; Archer Edward; Mokhtari, Mozaffar; McIlhagger, Alistair

14h40

2217|Effect of low oxidation graphene oxide on physical, dynamic and mechanical properties of MCC type refractory castable

Kudžma, Andrius; Stonys, Rimvydas; Kilikevičius, Artūras; Višniakov, Nikolaj; Antonovič, Valentin; Škamat, Jelena

15h00

2284|Structural performance of composite tubes developed using 3D complex winding in comparison to braided and filament wound architectures

Roy, Sree Shankhachur; Liu, Yan; Lloyd, Ben; Potluri, Prasad; Whitham, Andy

15h20

2145|Investigation on economic notch connections for composite UHPC-CLT floor

Lecours, Simon; Sorelli, Luca; Nguyen, Truong-Thanh

15h40

2182|Integrative structural design of a hybrid coreless filament wound building system for inhabitable spaces: Maison Fibre

Gil Pérez, Marta; Früh, Nikolas; La Magna, Riccardo; Knippers, Jan

Structural Health Monitoring

16h00

2175|Comparison of attachment methods for optical fiber sensors in time dependent strain monitoring of thermoplastic composites

Wang, Shaoquan; Sæter, Erik; Lasn, Kaspar

16h20

2231|In-situ detection of aging effects in hybrid specimens using resonant inspection techniques - Part II: Correlating variation of frequency spectra with changes in the specimen

Gundlach, Christian; Karch, Jens; Hopmann, Chris; Dilger, Klaus; Hartwig, Sven

— End of the day —

Wednesday, June 16 (Early-morning)

Room 1

Session chair: Carlos Santiuste

Session chair: Antonio Ferreira

Optimization techniques and methods

08h30

2095|A Study on the Optimal Curing Process of Filament Wound Tow-preg Laminated Composites through Multi-scale Modeling

Lee, Hu-Gon; Kim, Seong Su

08h50

2185|Analysis of the Possibilities of Forecasting Selected Properties of Aviation Polymer Composites

KOSICKA Ewelina; KRZYŻAK Aneta; SZCZEPANIAK Robert

Design and application of composite structures

09h10

2086|Mechanical Behaviour of GFRP Full Adhesive Connections: Experimental and mechanical aspects

Ascione, Francesco; Carozzi, Giulia; Granata, Luigi

09h30

2085|DESIGN OF FABRIC RUBBER SEAL BASED ON DEEP LEARNING

Yao, Xuefeng; Yan, Han

10h10

2289|The effect of the addition of recycled steel fibers on the properties of ultra-high performance self-compacting cementitious composites

Abdolpour, Hassan; Niewiadomski, Paweł; Sadowski, Łukasz

— Break —

Wednesday, June 16 (Mid-morning)

Room 1

Session chair: Carlos Santiuste

Session chair: Antonio Ferreira

Multi-scale Modeling of Graphene- and Carbon Nanotube-Reinforced Composites

11h00

2100|Graphene Origami/Metal Nanocomposites with Tunable Negative Thermal Expansion Coefficient

Zhao, Shaoyu; Zhang, Yingyan; Kitipornchai, Sritawat; Yang, Jie

Natural Fibre Composites

11h20

2233|Investigation into the fatigue properties of flax fibre vinyl-ester composites and hybrid composites based on flax and glass fibres

Barouni, Antignoni; Giasin, Khaled; Dhakal, Hom; Zhang, Zhongyi; Saifullah, Abu; Lupton, Colin; Jiang, Chulin

11h40

2184|Elaboration of hybrid bio-composites with thermoplastic matrix: optimal material formulation and modelling of the quasi-static behaviour for an automotive structural application parts

GUERFALA Wassim; ROZYCKI Patrick; BINETRUY Christophe

12h00

2119|Study of different flax/PLA biocomposite bumper configurations

Jiao-Wang, Liu; Santiuste, Carlos

Non-destructive Inspection Techniques for Composite Materials and Structures

12h20

2248|Terahertz radiation in non-destructive testing of composite pyrotechnic materials

Hlosta, Pawel; Swiderski, Waldemar

12h40

1008|Automated modeling of damages in large-scale composite structures based on NDT images

Chen, Xiao; Semeno, Sergey

— Break —

Wednesday, June 16 (Afternoon)

Room 1

Session chair: Sergio de Traglia Amancio-Filho

Session chair: Salvatore Brischetto

Additive Manufacturing (chaired by Sergio de Traglia Amancio-Filho)

14h00

2082|Evaluating the recycling potential of additively manufactured carbon fiber reinforced PA 6

Lohr, Christoph; Trauth, Anna; Brück, Bastian; Leher, Sophia; Weidenmann, Kay

14h20

2279|Comparisons between strain gauges and digital image correlation in experimental testing of 3D printed PLA elements

Torre, Roberto; Brischetto, Salvatore

14h40

2021|Design optimization of FGM structures

Majak, Jüri; Karjust, Kristo; Pohlak, Meelis; Eerme, Martin; Shvartsman, Boris

15h00

2273|Characterization of fibre reinforced 3D printed polymer composites with varying fibre volume fractions

Saeed, Khalid; McIlhagger, Alistair; Harkin-Jones, Eileen; McGarrigle, Cormac; Dixon, Dorian; Archer, Edward

15h20

2165|Experimental Analysis of Thermal Impact for 3D Printed Polymer Composites with Continuous Carbon Fibre Reinforcement Mechanical Characteristics

Rimašauskienė, Rūta; Rimašauskas, Marius; Kuncius, Tomas

15h40

2115|Mechanical performance optimization and investigation of the effects of process parameters on the fused-filament fabrication of polyamide-6 reinforced by short carbon fibers

Belei, Carlos; Joeressen, Jana; Traglia Amancio-Filho, Sergio

16h00

2107|Statistical-based optimization of mechanical performance in FFF-printed unreinforced and short-carbon-fiber-reinforced PEEK

S. de Carvalho, Willian; Marzemin, Francesco; T. Amancio-Filho, Sergio

16h20

2133|Low velocity impact response of aluminum 2024-T3 / polyamide 6 / carbon-fiber-reinforced polyamide 6 hybrid joints produce by AddJoining

Falck, Rielson; Amancio-Filho, Sergio T.

Keynote

16h40

1069|Impact response of glass fibre reinforced PEKK laminates and GF/PEKK based titanium fibre metal laminates

Jun Zhou; Mohammed Al Teneiji; Zhongwei Guan

— End of the Conference —

Wednesday, June 16 (Early-morning)

Room 2

Session chair: Nicolae Crainic

Session chair: Nicholas Fantuzzi

Micromechanics

08h30

2093|Oxidation behavior of SiC fiber reinforced SiC-Ti₃SiC₂ matrix composite at high temperature

Zeyu Fu; Yu Liu; Kun Liu; Shenwei Xu; Xiaozhong Huang; Yuan Shi; Haitang Yang

08h50

2022|Investigation of constitutive response and failure prediction for aerogel matrix composites based on a combination of meso-scale finite element model and tensor decomposition method

Deng, Linlin; Liu, Liu

09h10

2198|Cross-scale characterization of thermoelastic properties of attractive-dominated DNA films and its concave-packaged design based on microbeam frequency drift

Wu, Chun-Xia; Zhang, Neng-Hui; Wu, Jun-Zheng; Zhang, Cheng-Yin

09h30

2247|Stochastic multiscale failure analysis of textile composite structures using a dehomogenisation approach

Balasubramani, Nimal Kumar; Pearce, Garth; Chowdhury, Nayeem

Nano-Composites

09h50

2293|FRACTURE BEHAVIOUR OF NANOBAMS THROUGH TWO-PHASE LOCAL/NONLOCAL STRESS-DRIVEN MODEL

Scorza, Daniela; Luciano, Raimondo; Ronchei, Camilla; Vantadori, Sabrina; Zanichelli, Andrea

10h10

2256|Nano Magnetic Composite Materials based on magnetic nanoparticles with Polymer Matrix

Nicolae, Crainic; Antonio, Torres Marques; Ladislau, Vekas; Nuno, Correia; Nicolae Calin, Popa

— Break —

Wednesday, June 16 (Mid-morning)

Room 2

Session chair: Christopher Harvey

Session chair: Nicholas Fantuzzi

Thermal problems on Composite structures

11h00

2191|Snap-through of composite sandwich beams with FG-CNTRC face sheets in thermo-mechanical loads

Xi, Yong-Yong; Zhang, Neng-Hui; Lyu, Qiang

Delamination, damage and fracture

11h20

2149|Impact Damage Morphology of STF-incorporated Sandwich Composite Structures using a 3D X-ray Micro-Computed Tomography Technique

Mat Daud Siti Zubaidah; Lim Jaehyeong; Kim Sang-Woo

11h40

2105|Predictions of Damage in SiCf/SiC Ceramic Matrix Composites by Considering the Coupling of Multiple Failure Modes

Liu, Bo; Huang, Zhong

12h00

2052|Investigation on low-velocity impact damage and CAI characteristics of hybrid normal/thin ply composite laminates

Li, Shuxin; Zheng, Kaidong; Cao, Dongfeng; Hu, Haixiao

12h20

1009|Telephone cord blisters driven by pockets of energy concentration in multilayer films

Yuan, Bo; Harvey, Christopher; Thomson, Rachel; Critchlow, Gary; Rickerby, David; Wang, Simon

12h40

1010|Telephone cord blisters in hydrogel films

Wang, Simon; Harvey, Christopher; Yuan, Bo

— Break —

Wednesday, June 16 (Afternoon)

Room 2

Session chair: Bekir Bediz

Session chair: Nicholas Fantuzzi

Dynamics of Composite Materials

14h00

2156|A Study on the Vibration Damping Effect of Building Structures According to the Resin Ratio of Polymer Concrete

Seong, Yeonuk; Lee, Donghyeon; Yeom, Jihye; Park, Junhong

14h20

2216|Vibration analysis of porous metal aluminum foam truncated conical shells with general boundary conditions

Yuxin Hao

14h40

2142|Buckling analysis of laminated composite panels using 2D spectral Chebyshev and lamination parameters

Khandar Shahabad, Peiman; Rafiei Anamagh, Mirmeyssam; Bediz, Bekir

15h00

2257|FE analysis of PPF controller efficiency to suppression of composite beam large vibration

Mitura Andrzej; Gawryluk Jarosław

15h20

2032|Modelling of dynamic behaviour of brittle two phase composite platelets

Postek, Eligiusz; Sadowski, Tomasz

15h40

2126|Rotordynamic response of Composite-Shaft-Disk-Bearing System Based on Finite Element Analysis

Najafi, Mohsen; Ganesan, Rajamohan

Delamination, damage and fracture

16h00

2262|DELAMINATION GROWTH AND POST-BUCKLING BEHAVIOR OF COMPOSITE LAMINATE WITH FLAW UNDER COMPRESSION

Delvadiya, Chirag; Ganesan, Rajamohan

— End of the Conference —

Wednesday, June 16 (Early-morning)

Room 3

Session chair: Frédéric Lachaud

Session chair: Michele Baccocchi

Smart Composites

08h30

1005|Tuning topological state in a composite piezoelectric rod via electric means

Chen, Weiqiu

08h50

2187|Evaluation of piezoelectric energy harvesting for aeroelastic wind tunnel test model

AKBAR, MAHESA; Gunawan, Leonardo; Sasongko, Rianto Adhy; Kusni, Muhammad; Ramadhani, Mileniawan Januar

09h10

2072|An Integrated electrode with the bipolar plate / current collector to reduce contact resistance in vanadium redox flow batteries

Kwang Il Jeong; Seong Su Kim

09h30

2096|Sandwich type shape memory polymer composite to increase the recovery force for space deployable structures

Kang, Da Jeong; Kim, Seong Su

09h50

1036|Investigation of a Composite Single-lap Joint (SLJ) Reinforced by Multifunctional Thermoplastic Composite Fastener (MTCF)

Li Wenhao; Guo Shijun

Modeling, simulation and testing of sandwich and adaptive structures

10h10

2249|Low velocity Impact behaviour of a sandwich panels based on flax fibres reinforced epoxy bio-composites

LACHAUD Frédéric; RIGANTI Matteo; PLANAS ANDRES David

— Break —

Wednesday, June 16 (Mid-morning)

Room 3

Session chair: Luigi Solazzi

Session chair: Michele Baccocchi

Joints

11h00

2162|Influence of heat input on the laser welded steel/CFRP lapped joints

Hongbo Xia; Yunwu Ma; Jianhui Su; Caiwang Tan; Liqun Li; Ninshu Ma

11h20

2194|Interfacial Strength Analysis of Shape Memory Fibers Reinforced Epoxy Adhesive

Moktadir, Monem; Hwang, Hui Yun

11h40

2050|Performance of monolithic and precast dry beam-column joints using GFRP bolts and GFRP reinforcements under impact loading

NGO, Tuan T; PHAM, Thong M; HAO, Hong

12h00

2151|CRACK ROWTH IN ADHESIVELY BONDED STRUCTURES AND THE IMPORTANCE OF SIMILITUDE

Jones, Rhys; Kinloch, Anthony; Michopoulos, John

12h20

2043|Net tension failure analysis for composite laminate bolted joints using complex potential method

Nguyen-Hoang, Minh; Becker, Wilfried

12h40

2211|Effect of stacking sequence of CFRP composite laminates on the single lap hybrid joint strength under tensile loading

Paliwal Isha; Manoharan Ramji

— **Break** —

Wednesday, June 16 (Afternoon)

Room 3

Session chair: Elena Raponi

Session chair: Michele Baccocchi

Composite Structures

14h00

2235|The correlation of the physical properties of the surface of aluminum and titanium with selected strength properties of fibre metal laminates

Drożdziel, Magda; Jakubczak, Patryk; Bienias, Jaroslaw

14h20

2074|Hybrid aluminum alloy and thermoplastic CFR-PA12 joints manufactured by IR-irradiation: Influence of pre-treatment and ageing on the mechanical properties

Meinhard, Dieter; Schanz, Jochen; Pott, Timo; Riegel, Harald; De Silva, Anjali K.M.; Harrison, David K.; Knoblauch, Volker

14h40

1044|A Preliminary Analytical Approach To Model The Low-Velocity Impact Behavior Of Flax, Basalt and Hybrid Composite Laminates

Raponi, Elena; Boria, Simonetta; Giammaria, Valentina; Sarasini, Fabrizio; Tirillò, Jacopo

15h00

1021|Composite strut reinforcements in foam core sandwich panels: Analysis of weight-related stiffening effects and free edge effects

Skrna-Jakl, Isabella

15h20

2283|Experimental and Numerical Analysis of Braided Box Section with Optimised Axial Reinforcement

Wu, Zijie; Roy, Sree Shankhachur; Atas, Akin; Pothuri, Prasad

15h40

2166|On the efficiency of some analytic wrinkling models

Malo Ginot; Bruno Castanié; Christophe Bouwet

16h00

2044|Investigating the mechanical properties of polymer samples from different additive manufacturing processes using ultrasonic phase spectroscopy (UPS)

Eyer, Philipp; Trauth, Anna; Weidenmann, Kay

16h20

2108|Variability in the response and failure of composite tubes subjected to combined axial and torsional loadings due to non-deterministic in-situ material properties

Ganesan, Rajamohan; Nair, Ajeesh Suresh

— End of the Conference —

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- 1035|Coupling effects in FGM micro/nano-plates within couple stress elasticity**
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- 2078|Finite Element Analysis of volumetric callus growth during healing of long bone fracture fixed with composite IM nails**
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- 2173|Detailed Review of Flexural Design Parameters of FRP-RC Beams Detailed According to ACI 440.1R-15**
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- 2218|On the effect of different geometrical parameters of polymeric 3D manufactured auxetic lattices in their mechanical performance**
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- 2239|Axial compressive behavior of 3D printed novel auxetic lattice structures**
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- 2029|Thermal-mechanical coupling analysis of laminated composite plates using wavelet finite element method**
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- 2053|On the dynamics of rotating matrix cracked blades reinforced with graphene nanoplatelets**
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- 2016**|Compressive Behavior of FRP-Confined Elliptical CFST Columns with a High-Strength Steel Tube
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- 2017**|Flexural behaviour of hollow concrete-filled rectangular GFRP tube beams
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