

4th International Conference on Structural Integrity

Funchal, Madeira, Portugal

30 August - 1 September, 2021

<https://www.icsi.pt/>

ICSI2021 Program

Program prepared in accordance to WEST time zone

Program Overview

Monday 30/08			
8:15-8:30	OPENING SESSION		
8:30-09:00	PLENARY LECTURE I		
09:00-10:30	Session 1A	Session 1B	Session 1C
10:30-10:45	COFFEE-BREAK		
10:45-12:15	Session 2A	Session 2B	Session 2C
12:15-13:30	LUNCH		
13:30-14:00	PLENARY LECTURE I		
14:00-15:30	Session 3A	Session 3B	Session 3C
15:30-15:45	COFFEE-BREAK		
15:45-17:15	Session 4A	Session 4B	Session 4C

Tuesday 31/08			
8:15-8:30			
8:30-09:00	PLENARY LECTURE III		
09:00-10:30	Session 5A	Session 5B	Session 5C
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15:00-15:15	COFFEE-BREAK		
15:15-15:45	PLENARY LECTURE IV		
15:45-17:15	Session 8A	Session 8B	Session 8C

Wednesday 01/09			
8:15-8:30			
8:30-09:00	PLENARY LECTURE V		
09:00-10:30	Session 9A	Session 9B	Session 9C
10:30-10:45	COFFEE-BREAK		
10:45-12:15	Session 10A	Session 10B	Session 10C
12:15-13:30	LUNCH		
13:30-14:00	PLENARY LECTURE VI		
14:00-15:30	Session 11A	Session 11B	
15:30-15:45	COFFEE-BREAK		
15:45-17:15	Session 12A	Session 12B	
17:15-17:30	CLOSING SESSION		

Program prepared in accordance to WEST time zone

Technical Program

August 30th, 2021 version

Monday, 30nd August 2021

MON, 08:15 - 08:30	OPENING SESSION	Room A
Welcome to Participants (Conference Co-Chairs) Welcome Address		
MON, 08:30 - 09:00	PLENARY LECTURE I	Room A
Beyond Hopkinson's bar: the IB test series Prof. Fabrice Pierron University of Southampton, UK Chair: Pedro Moreira (INEGI, Portugal)		

Prof. Fabrice Pierron

Faculty of Engineering and Physical Sciences
School of Mechanical Engineering
University of Southampton

Professor Fabrice Pierron has been a Professor of Solid Mechanics at the University of Southampton (UoS) since June 2012, having spent the first part of his career in France. His research specialization concerns the development of novel identification strategies based on full-field deformation measurements and data-rich inverse identification. He has been instrumental in the development of the Virtual Fields Method (VFM), which has now gained widespread international recognition and is commercialised as part of a dedicated software platform marketed by the MatchID company (www.matchid.eu), of which he is a founding member. He has published over 140 international journal articles and co-authored the only existing book on the VFM. He was awarded a Royal Society Wolfson Research Merit Award in May 2012 as part of his relocation to the UoS, and has been Editor-in-Chief of Strain (Wiley) between 2010 and 2020. In 2014, he was granted a £1.2M EPSRC Established Career Fellowship that extended his main research interest to high strain rate testing using high-speed imaging (www.photodyn.org). This effort has also been supported by a stream of US Air Force EOARD grants totalling 700k+ USD since 2013. He is part of a group of researchers who have recently been awarded a £6.1M EPSRC programme grant. His role in this project is using ultra-high speed imaging and novel ultrasonics deformation procedures to elucidate mechano-transduction processes at the scale of cells and tissues when submitted to ultrasonic deformation (20 Hz to 1 MHz).

Mon	Session 1A 09:00-10:30	Room A	Mon	Session 1B 09:00-10:30	Room B	Mon	Session 1C 09:00-10:30	Room C
Topic: Modelling Chair: Behzad Farahani			TOPIC: Symposium E - Mechanical behaviour and modelling of wood and timber structures Chair: Almudena Majano-Majano and José Xavier			TOPIC: Symposium I - Structural Integrity of steel/FRP & concrete composite structures Chair: Xin Haohui, Jose Correia, Jun He, Rong Liu and Zhihua Xiong		
Ref:	Title and Author (s)		Ref:	Title and Author (s)		Ref:	Title and Author (s)	
190	Stress intensity factors, T-stress and higher order coefficients of the Williams series expansion and their evaluation through molecular dynamics simulations <u>Larisa Stepanova, Oksana Belova</u>		006	Identification of orthotropic elastic properties of wood by digital image correlation and finite element model updating techniques <u>J. Henriques, J. Xavier, A. Andrade-Campos</u>		044	Investigation of Web Buckling of Pultruded GFRP Bridge Deck Subjected to Concentrated Load <u>Yun Sun, Haohui Xin, Yuqing Liu</u>	
051	Penetration of thin aluminium targets with non-axisymmetric projectiles: Numerical study <u>Theodosios Stergiou, Konstantinos P. Baxevanakis, Anish Roy, Nickolay A. Sazhenkov, Mikhail Sh. Nikhamkin, Vadim V. Silberschmidt</u>		073	CLT-concrete composite slab optimization <u>Carlos Martínez-Criado, José-Ramón Aira</u>		076	Comparison between design guidelines in predicting FRP contribution to shear capacity of strengthened RC beams <u>Haya H. Mhanna, Rami A. Hawileh, Jamal A. Abdalla</u>	
034	Interfacial damage in flexible electronics on collagen substrate: effect of environmental conditions <u>Shirsha Bose, Simin Li, Elisa Mele, Vadim V. Silberschmidt</u>		085	Influence of the connector shape parameters in the structural behaviour of the adhesive-free timber floor panels <u>Gonzalo Moltini, Vanesa Baño</u>		077	Evaluation the effect of FRP anchor embedment depth on the flexural bond capacity of concrete prisms <u>Ghusoon S. Alshami, Rami A. Hawileh, Jamal A. Abdalla, Haya H. Mhanna</u>	
156	Geometrical study of adhesively-bonded T-joints by cohesive models <u>J.P.M. Lopes, R.G.S.G. Campilho, R.J.B. Rocha, F.J.G. Silva</u>		089	Mechanical behavior of tropical Glued Laminated Timber (GLT) beams with fingers joints <u>Cédric Horphé Ndong Bidzo, Rostand Moutou Pitti, Claude Feldman Pambou, Nziengui, Samuel Ikogou, Beat Kaiser</u>		092	An approach for assessment of concrete deterioration by surface waves <u>Alexey Tatarinov, Aleksandrs Sisojevs, Gennady Shahmenko, Viktors Kurtenoks</u>	
120	Innovative processing for ceramic ball manufacturing: analytical estimation, experimental testing and numerical simulation <u>Raffaella Sesana, Irene Pessolano Filos, Sebastiano Rizzo, Rocco Lupoi</u>		097	Impact of mechano-sorptive loading on crack propagation of notched beams of White-fir and Okume <u>Martian Asseko Ella, Samuel Ikogou, Giacomo Goli, Rostand Moutou Pitti, Joseph Gril, Eric Fournely, Gaël Godi</u>		111	Failure Analysis and Prevention of a Cyclone located in a Cement Production Line <u>Alexandre Fragoso, Rui F. Martins, António Soares</u>	
224	Effect of Voids Shape on Deformation of 3D Printed Closed-Cell Porous Structures <u>Mikhail Tashkinov, Yulia Pirogova</u>		099	Direct evaluation of Mode I cohesive law of eucalyptus bonded joints <u>Almudena Majano-Majano, Antonio José Lara-Bocanegra, José Xavier, Fábio Pereira, José Morais</u>		135	Behavior of R/C Beams Strengthened in Flexure using Externally Bonded Aluminum Alloy Plates <u>Jamal A. Abdalla, Rami A. Hawileh</u>	
						018	Mechanical Behavior Analysis of a Galvanized Corrugated Steel Concrete Composite Arch Bridge Structure by FEM <u>Lei Xiao, Yang Zegang, Zhang Shicheng, Ye Tairu, Zheng Yuhan</u>	

Monday, 10:30 - 10:45	COFFEE-BREAK
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Mon	Session 2A 10:45-12:15	Room A	Mon	Session 2B 10:45-12:15	Room B	Mon	Session 2C 10:45-12:15	Room C
TOPIC: Symposium A - Fatigue Crack Growth – experimental, theoretical and numerical approach Chair: Grzegorz Lesiuk			TOPIC: Symposium E - Mechanical behaviour and modelling of wood and timber structures Chair: Almudena Majano-Majano and José Xavier			TOPIC: Symposium J - Structural integrity of 3D printed metal components Chair: Miloslav Kepka and Vladimír Chmelko		
Ref:	Title and Author (s)		Ref:	Title and Author (s)		Ref:	Title and Author (s)	
019	Fatigue Crack Growth on Modified CT Specimens Using Artificial Neural Networks <u>R. Baptista</u> , P. Moita, V. Infante		116	Behaviour of timber-concrete composite with defects in adhesive connection K. Buka-Vaivade, <u>D. Serdjuks</u>		037	Influence Assessment of Artificial Defects on the Fatigue Behavior of Additively Manufactured Stainless Steel 316LVM <u>Felix Stern</u> , Jonas Grabowski, Stefan Kleszczynski, Daniel Kotzem, Arno Elspaß, Gerd Witt, Frank Walther	
066	Influence of the mesh size on plastic CTOD <u>J. Sanchez-Mancera</u> , D. Camas, P.A. Prates, F.V. Antunes		119	Effects of long-term loading on Moabi timber beams in the tropical environment of Gabon: spatial variability of mechanical parameters in 3-point bending and axial compression tests <u>Valérie Nsouami</u> , Nicaise Manfoumbi Boussougou, Emilio Bastidas-Arteaga, Rostand Moutou Pitti		054	Analysis of cyclic properties of additive vs. conventionally produced material AlSi10Mg <u>Vladimír Chmelko</u> , Igor Berta, Matúš Margetin	
141	Crack Closure Analysis Using Digital Image Correlation <u>Behzad V. Farahani</u> , Frederico Direito, Pedro J. Sousa, Pedro M. G. P. Moreira		128	Security determination in timber structures <u>Miguel Tortoriello</u> , Luis Lima, Ana Clara Cobas		055	Fatigue lifetime of a bicycle frame made additively from AlSi10Mg Róbert Ďurka, Marek Gašparík, Pavel Žlábek	
199	Crack growth rate deceleration effect in constructional caused by artificial crack closure effect (ACCE) <u>Lesiuk G.</u> , Nykyforchyn H., Zvirko O., Duda Sz., Zielonka P., Correia J.A.F.O, Seitl S., de Jesus A.M.P		129	Notched Connection Design in Timber-Concrete Composite Floors <u>Lei Zhang</u> , Jianhui Zhou, Ying Hei Chui		124	Static and fatigue properties of maraging steel X3NiCoMoTi18-9-5 Miloslav Kepka, <u>Ivana Zetkova</u> , Miroslav Zetek, Ludmila Kucerova	
057	Numerical simulation of fatigue crack growth in aircraft structure with a honeycomb mesh M. Dinulović, A. Grbović, <u>S. Sedmak</u> , M. Arandjelović, T. Mijatović		148	Identification of material properties of green laminate composite plates using bio-inspired optimisation algorithms A. F. F. Rodrigues, J. V. Araújo dos Santos, <u>H. Lopes</u>		131	SLM process parameters effects on the fatigue strength of AMed Inconel 718 <u>G. Macoretta</u> , B. D. Monelli	
058	Analysis of fatigue behaviour of a bridge welded structure Z. Burzić, <u>A. Sedmak</u> , S. Sedmak, S. Perković, I. Čamagić		153	Load-bearing and aseismic mechanism of traditional Chinese timber structures Qingshan Yang, <u>Pan Yu</u> , Ke Liu		009	In Situ Full-Field Deformation Measurements on Advanced Manufacturing Processes <u>Filipa G. Cunha</u> , Telmo G. Santos, José Xavier	
121	Experimental study on the mechanism of wheel-rail steels crack initiation and wear growth under rolling contact fatigue <u>Junpeng Li</u> , Yu Zhou, Zheng Wang, Zhechao Lu, Zhongning Cheng, Shiye Wang							

Monday, 12:15 - 13:30	LUNCH
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MON, 13:30 - 14:00	PLENARY LECTURE II	Room A
The coexistence of hydrogen embrittlement mechanisms in steel: HELP + HEDE model Prof. Milos B. Djukic University of Belgrade, Serbia Chair: Daniel Braga (INEGI, Portugal)		

Prof. Milos Djukic

University of Belgrade, Faculty of Mechanical Engineering, Department of Engineering Materials and Welding, Belgrade, Serbia.

Dr. Milos B. Djukic, Associate Professor is a specialist in the field of hydrogen embrittlement, materials and corrosion science, and the mechanical behavior of materials. He has more than 20 years of teaching and research experience and is the author/co-author of 4 books, 5 book chapters, 1 patent, 72 refereed scientific papers and 120 papers published in conference proceedings and journals.

His new book (co-authored with Prof. Branko Popov) entitled: "Hydrogen Embrittlement Theory and Prevention of Hydrogen Damage in Metals and Alloys, 1st Edition" will be published in 2021 by Elsevier. The book chapter (co-authored with Prof. Branko Popov and Prof. Jong Won Lee), entitled: "Hydrogen Permeation and Hydrogen-Induced Cracking" in the "Handbook of Environmental Degradation of Materials, 3rd Edition" was published by Elsevier in 2018.

Since 2014 he is an external peer reviewer for scientific projects for the following European scientific agencies: Research Foundation Flanders, Belgium, National Science Centre, Poland, and the Dutch Research Council, Netherlands. He was a keynote speaker – topic hydrogen embrittlement at the Materials Science and Engineering 2018 Conf., Germany. He was also an invited speaker on the 13th Int. Conf. on Diffusion in Solids and Liquids in Austria, and on the CORROSION 2015 Conf., USA. Recently, in 2021, he gave an invited talk on the HYDROGENIUS, I2CNER and HydroMate Joint Research Symposium on Hydrogen Materials Interactions 2021, Japan. He was an external Ph.D. thesis examiner at the University of Queensland, Australia, and ISAE-ENSMA, Université de Poitiers, France. He is a member of the editorial board of seven international journals: International Journal of Hydrogen Energy, Frontiers in Materials, Metals, Coatings, Journal of Pipeline Science and Engineering, Frattura ed Integrità Strutturale, and Structural Integrity and Life. He has 217 verified editor records and 111 reviews for 40 international journals including Science, Acta Materialia and Scripta Materialia.

In 2019, he was a Managing Guest Editor of Engineering Fracture Mechanics journal, SI titled: "Recent Advances on Hydrogen Embrittlement Understanding and Future Research Framework". In 2020/2021 he is a Guest Topic Editor of Frontiers in Materials journal, Research Topic: "Hydrogen Embrittlement in Metals: Characterization, Mechanism and Prevention".

Mon	Session 3A 14:00-15:30	Room A	Mon	Session 3B 14:00-15:30	Room B	Mon	Session 3C 14:00-15:30	Room C
TOPIC: Symposium C - Structural Health Monitoring Chair: Hernani M. R. Lopes, José V. Araújo dos Santos			TOPIC: Symposium E - Mechanical behaviour and modelling of wood and timber structures Chair: Almudena Majano-Majano and José Xavier			TOPIC: Symposium L - Structural Integrity of Additively Manufactured Polymers and Smart Composites Chair: Rui Fernando Martins, Ricardo Branco and Filippo Berto		
Ref:	Title and Author (s)		Ref:	Title and Author (s)		Ref:	Title and Author (s)	
105	On the defect tolerance by fatigue spectral methods based on full-field dynamic testing <u>Alessandro Zanarini</u>		154	Modeling method of traditional Chinese timber structures with loose mortise-tenon joints Qingshan Yang, <u>Pan Yu</u> , Ke Liu		027	Fracture studies of 3D-printed PLA-wood composite <u>Mohammad Reza Khosravani</u> , Tamara Reinicke	
150	On the use of finite differences for vibration-based damage localization in laminated composite plates T. Oliveira, J. V. Araujo dos Santos, <u>H. Lopes</u>		176	A risk-based approach for timber building decay prediction Andrea Gaspari, <u>Ivan Giongo</u> , Maurizio Piazza		028	A method for determining the distribution of carbon nanotubes in nanocomposites by electric conductivity <u>Dayou Ma</u> , Ali Esmaeili, Claudio Sbarufatti, Marco Giglio, Andrea Manes	
155	Health indicator development for damage monitoring of composite panels utilizing SHM sensors <u>Georgios Galanopoulos</u> , Dimitrios Milanoski, Agnes Broer, Dimitrios Zarouchas, Theodoros Loutas		182	Impact of moisture content on tropical wood under opening mode <u>Stanislas Malfait</u> , José Xavier, Rui F. Martins, Rostand Moutou Pitti, Claude Nziengui		047	Dynamic Fracture Behaviour of Additively Manufactured Polymers and Composites under Ballistic Impact <u>Md Niamul Islam</u> , Konstantinos P. Baxevanakis, Vadim V. Silberschmidt	
164	Pipeline Bending Strain Assessment from IMU Data – A Comprehensive Approach <u>Enyang Wang</u> , Rick Gailing, Aaron Dinovitzer, Francisco Bernal, Juan Mora		Topic: Fracture and Fatigue I Chair: Behzad Farahani			109	Structural Integrity of Polymeric Components Produced by Additive Manufacturing Rui F. Martins, Ricardo Branco, Filippo Berto, Nuno Santos, Sebastião Bandeira	
169	Analytically based time reversal damage imaging in plate-like structures with a sparse piezoelectric sensor network <u>Artem Eremin</u> , Ilia Bareiko, Evgeny Glushkov, Natalia Glushkova		205	Review and synthesis of stress intensity factor (SIF) solutions for annular outer cracks in round bars under tension loading Jesús Toribio, Beatriz González, Juan-Carlos Matos		143	Compression fatigue behaviour of extrusion-based 3D printed PLA <u>R.A. Cláudio</u> , R.A Baptista, J. Dupont, M. Leite, L. Reis	
200	Damage detection and localization in imperfect bolted joints <u>Reza Soleimanpour</u> , Sayed Mohamad Soleimani, Naser Khaled Mahmoud Mohammad		206	Review and synthesis of stress intensity factor (SIF) solutions for circular inner cracks in round bars under tension loading Jesús Toribio, Beatriz González, Juan-Carlos Matos		194	Creep and stress relaxation behaviour of 3D printed nanocomposites P.N.B. Reis, S. Valvez, J.A.M. Ferreira	

Monday, 15:30 - 15:45	COFFEE-BREAK	
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Mon	Session 4A 15:45-17:15	Room A	Mon	Session 4B 15:45-17:15	Room B	Mon	Session 4C 15:45-17:15	Room C
TOPIC: Symposium C - Structural Health Monitoring Chair: Hernani M. R. Lopes, José V. Araújo dos Santos			Topic: High Strength steels and iron&steel bridges Chair: Stéphane Sire, Grzegorz Lesiuk, José A.F.O. Correia			TOPIC: Symposium L - Structural Integrity of Additively Manufactured Polymers and Smart Composites Chair: Rui Fernando Martins, Ricardo Branco and Filippo Berto		
Ref:	Title and Author (s)		Ref:	Title and Author (s)		Ref:	Title and Author (s)	
023	SHM of a Foot Bridge in a Virtual Reality Environment <u>Furkan Luleci</u> , Liangding Li, Jiapeng Chi, Carolina Cruz-Neira, F. Necati Catbas		101	Estimation of the fatigue strength of ultra-high strength steels <u>Patrick Yadegari</u> , H. Thomas Beier, Michael Vormwald, Andreas Kleemann		146	Ironing process influence in the mechanical properties of seams in PLA specimens produced with multiple extrusion modules <u>Manuel Sardinha</u> , Nuno Frutuoso, Marco Leite, Relógio Ribeiro, Luís Reis	
040	Hardware proposal for SHM in airborne vehicles <u>Josu Etxaniz</u> , Gerardo Aranguren, José Miguel Gil-García, Jesús Sánchez		093	Fracture Mechanics Based Approach for Fatigue Assessment of Ultra-High Strength Steels <u>I. Varfolomeev</u> , T. Straub, M. Luke, A. Kleemann		166	Stiffness optimization through a modified greedy algorithm Iulian Constantin Coropețchi, Alexandru Vasile, Ștefan Sorohan, Cătălin Radu Picu, <u>Dan Mihai Constantinescu</u>	
061	Ultrasonically assisted turning of SiCp/Al composites <u>Jin Kim</u> , Lorenzo Zani, A Abdul-Kadir, Marcelo L Ribeiro, Anish Roy, Konstantinos P Baxevanakis, Lewis Jones, Vadim V Silberschmidt		197	Autofrettage of component-like ultra high Strength Steel Specimens with intersecting Holes <u>Carl Fällgren</u> , H. Thomas Beier, Michael Vormwald		184	Development of a custom setup for additive manufacturing of high-performance thermoplastics <u>Tiago Domingues</u> , António Cachaço, Pedro J. Sousa, Fernando Carneiro, Job Silva, Shayan Eslami, Pedro M. G. P. Moreira	
074	Proof of concept for impact and flaw detection in airborne structures Gabriel Vivas, Jon González, <u>Josu Etxaniz</u> , Gerardo Aranguren		036	The Evaluation of Quenching Temperature Effect on Microstructural and Mechanical Properties of Advanced High Strength Low Carbon Steel After Quenching Partitioning Treatment <u>Ehsan Entezari</u> , Hamid Mousalou, SasanYazdani, Jorge Luis González-Velázquez		185	A simulated annealing algorithm for stiffness optimization Alexandru Vasile, Iulian Constantin Coropețchi, Ștefan Sorohan, Cătălin Radu Picu, <u>Dan Mihai Constantinescu</u>	
091	Ship Model Structural Health Monitoring using FBGS to obtain internal forces <u>M.González-Gallego</u> , F.Terroba, J.L. Martinez, R.Atiensa, M.Frövel		118	Characteristics of old irons and steels, a statistical analysis <u>Stéphane Sire</u>		159	Annealing effect on mechanical properties of 3D printed composites <u>S. Valvez</u> , Abílio P. Silva, P.N.B. Reis, F. Berto	
086	Research and Prediction of the Stress-Strain State of Construction Facilities in the Undermined Territories <u>G. Gusev</u> , I. Shardakov		168	Solution for consolidation and retrofitting an historical steel bridge <u>Dorin Radu</u> , Radu Băncilă, Dorel Bolduș, Simon Sedmak, Mihajlo Arandelović		035	Structural integrity of 3D-printed prosthetic sockets: Experimental study for paediatric applications Theodoros Marinopoulos, <u>Simin Li</u> , Vadim V. Silberschmidt	
127	Thermal and Electrical characterization of Si3N4 blanks through Active Thermography Techniques: experimental tests and numerical simulation Raffaella Sesana, <u>Irene Pessolano Filos</u> , Andrea Uva					225	Structure Integrity and Fracture Prediction of PLA 3D-Printed Eye Grab Hooks with Different Cross Sections <u>Mohammed Zwawi</u>	

Tuesday, 31st August 2021

TUE, 08:30 - 09:00	PLENARY LECTURE III	Room A
Fracture toughness of advanced materials at different length scales Prof. Sabrina Vantadori University of Parma, Italy Chair: Paulo Tavares (INEGI, Portugal)		

Prof. Sabrina Vantadori

Department of Engineering and Architecture, University of Parma, 43124 Parma-Italy

Sabrina Vantadori is a Professor in Structural Mechanics at the Department of Engineering and Architecture of the University of Parma. She is the TC3 President (Technical Committee No.3 "Fatigue of Engineering Materials and Structures") of ESIS (European Structural Integrity Society) since October 2020, and Vice Head of the Laboratory "Prove Materiale e Strutture" of the University of Parma since February 2021.

Her research field is fatigue and fracture mechanics of traditional and innovative materials at different length scales.

She received 7 Scientific International Awards. She was the chairperson of 3 International Conferences, member of International Scientific Advisory Committee of several International Conferences, and keynote speakers of 6 International Conferences. She was editor of 11 Special Issues of International Journals. She is committee member of 3 international journals with peer-review. She is author of more than 130 publications on international peer-reviewed journal with impact factor.

Tue	Session 5A 09:00-10:30	Room A	Tue	Session 5B 09:00-10:30	Room B	Tue	Session 5C 09:00-10:30	Room C
TOPIC: Symposium H - Damage identification and prediction of structural response Chair: Andrzej Katunin			TOPIC: Fatigue and Welding Chair: Virginia Infante			TOPIC: Symposium I - Structural Integrity of steel/FRP & concrete composite structures Chair: Xin Haohui, Jose Correia, Jun He, Rong Liu and Zhihua Xiong		
Ref:	Title and Author (s)		Ref:	Title and Author (s)		Ref:	Title and Author (s)	
050	The Demonstrator of Structural Health Monitoring System of Helicopter Composite Blades <u>Aleksey Mironov</u> , Pavel Doronkin		015	Aluminium to GFR Polymer Composite Joining through Friction Stir Welding F. Dias, V. Infante, G. Cipriano, <u>D. Braga</u> , A. Correia, S. Eslami, P.M.G.P. Moreira		136	Strengthening of RC Columns using NSM-CFRP Strips and CFRP-Fabric Wraps Jamal A. Abdalla, <u>Raed Abokwiek</u> , Rami A. Hawileh	
060	Crack identification in tungsten carbide using image processing techniques <u>Kafayat E Hazzan</u> , Manuela Pacella		031	Mechanical behaviour of friction stir butt welded joints under different loading and temperature conditions L. Pinto, <u>C. Vidal</u> , M.A. Machado, D. Braga, V. Infante		014	A prefabricated MVFT composite girder suitable for small-span bridge <u>Zhihua Xiong</u> , Meng Li ,Tianqi Wang, Yang Meng	
062	Effectiveness of damage identification in composite plates using damage indices based on smoothing polynomials and curvelet transform: A comparative study <u>Andrzej Katunin</u> , Sandris Ručevskis		067	Effect of primer and sealant in refill friction stir spot welded joints on strength and fatigue behaviour of aluminium alloys <u>Petr Homola</u> , Roman Růžek, Anthony R. McAndrew, Jeroen De Backer		214	Fatigue life estimation of CFRP reinforced puddle iron structural details using fatigue local approach <u>Anis Mohabeddine</u> , João Arrojado, José Correia, Abilio de Jesus, José Miguel Castro, Rui Calçada, Filippo Berto	
083	Prospects of Structural Damage Identification Using Modal Analysis and Anomaly Detection <u>Deniss Mironovs</u> , Sandris Ručevskis		075	Effect of specimen configuration and notch root angle on fatigue behavior of novel dissimilar resistance spot welds of AA5754 to HSLA steel <u>Liting Shi</u> , Jia Xue, Jidong Kang, Amberlee S. Haselhuhn, Blair E. Carlson		215	Comparison between rigid and ductile adhesives in CFRP/Steel bonded joints <u>Anis Mohabeddine</u> , Ghassan Malik, José Correia, Nciholas Fantuzzi, Abilio de Jesus, José Miguel Castro1, Filippo Berto	
125	The influence of high temperature on dynamic response of concrete beams reinforced with GFRP rods <u>Beata Zima</u>		102	Microstructure and mechanical properties of laser beam-welded AA2198 using Al-Si filler wire under post-weld heat treatment <u>T.N. Examilioti</u> , V. Ventzke, N. Kashaev, B. Klusemann, N.D. Alexopoulos		008	Flexural behavior of prefabricated composite beams with twin I-girders Rong Liu, Hao Zhao	
056	Structural integrity analysis of a Kaplan turbine cover <u>Aleksandar Sedmak</u> , Miodrag Arsić, Mirjana Opačić		223	Friction based spot joining method for thermoplastic based materials <u>Shayan Eslami</u> , Pedro J. Sousa, Pedro M. G. P. Moreira				

Tuesday, 10:30 - 10:45	COFFEE-BREAK
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Tue	Session 6A 10:45-12:15	Room A	Tue	Session 6B 10:45-12:15	Room B	Tue	Session 6C 10:45-12:15	Room C
TOPIC: Symposium H - Damage identification and prediction of structural response Chair: Andrzej Katunin			TOPIC: Symposium N - Corrosion and Degradation of Materials Chair: Nikolaos Alexopoulos			Topic: Polymers Chair: Rui Martins		
Ref:	Title and Author (s)		Ref:	Title and Author (s)		Ref:	Title and Author (s)	
004	Index Combination for Damage Localization using Genetic Algorithm <u>Elizabeth K. Ervin</u> , Chuangshuo Zeng1		162	Corrosion characterisation of solid and lattice AlSi10Mg manufactured by laser powder bed fusion <u>Carlien Taute</u> , Heinrich Möller, Anton du Plessis		012	Experimental study on fatigue crack propagation of octet-truss lattice <u>Yifan Li</u> , Martyn Pavier, Harry Coules	
032	Frontal impact on a coach, door sub-system pseudo-dynamic (PSD) test <u>Rogério Lopes</u> , Francisco Barros, Francisco Q. de Melo, Nuno V. Ramos, P.M.G.P. Moreira, Rafael Cunha, Ricardo Maia, Rui Rodrigues		167	A constitutive equation for the kinetics of high temperature hydrogen attack and its use for structural life prediction <u>R.J. Mostert</u> , T. W. Mukarati, C.C.E. Pretorius, VM Mathoho		013	Fracture behaviour of octet-truss lattices in different orientations <u>Yifan Li</u> , Martyn Pavier, Harry Coules	
041	Experimental investigation of factors influencing the transmission capabilities of a low cost, side-polished evanescent wave absorption plastic optical fiber sensors <u>Grzegorz Wójcik</u> , Piotr Przystałka		183	Effect of different hostile solutions on mechanical properties of composite materials <u>M.P. Silva</u> , P. Santos, J.M. Parente, S. Valvez, P.N.B. Reis		079	Mechanical Characterization of PDMS with Different Mixing Ratios Flaminio C. P. Sales, Ronaldo M. Ariati, <u>Verônica T. Noronha</u> , João E. Ribeiro	
042	Damage classification in composite structures based on X-ray computed tomography scans using features evaluation and deep neural networks <u>Tomasz Rogala</u> , Piotr Przystałka, Andrzej Katunin		195	The effect of artificial ageing on the corrosion-induced mechanical properties degradation of aeronautical aluminum alloy 2198 <u>Christina Margarita Charalampidou</u> , Dimitris Georgoulis, Angeliki Proiou, Stavros K. Kourkoulis, Nikolaos D. Alexopoulos		144	Fatigue Behavior of PLA Material and the Effects of Mean Stress and Notch: Experiments and Modeling <u>Mohammed Algarni</u>	
043	A reverse engineering approach for modeling of barely visible impact damage by combining results of non-destructive testing and numerical simulations <u>Angelika Wronkowicz-Katunin</u> , Andrzej Katunin, Wojciech Danek, Krzysztof Dragan, Marek Wyleźoł		078	Modelling the impact of climate change on a novel Irish Concrete Bridge <u>David R. Wallace</u> , Paraic C. Ryan		149	Numerical Simulation of Deformation Behavior of Additively Manufactured Polymer Lattice Structures with a Porosity Gradient Mikhail Tashkinov, <u>Natalia Elenskaya</u>	
005	Experimental Investigations on Stiffened and Web-core Sandwich Panels Made for Steel under Quasi-Static Penetration <u>Jani Romanoff</u> , Mihkel Kõrgesaar, Pauli Lehto, Kennie Berntsson, Heikki Remes		147	Experimental and theoretical study of a laser beam-welded Al-Li AA2198 alloy under different artificial ageing conditions <u>A. Germanou</u> , T. N. Examilioti, P. Papanikos, N. Kashaev, B. Klusemann, N. D. Alexopoulos		103	Strain measurements by FBG-based sensors embedded in various materials manufactured by different technological processes Matveenkov V.P., <u>Kosheleva N.A.</u> , Serovaev G.S.	
			207	Environmentally-assisted microstructural integrity of commercial cold drawn pearlitic steel wires Jesús Toribio, Francisco-Javier Ayaso, Antonio Fernández-Viña				
			179	Mechanism of fireside corrosion deteriorating creep rupture life of Super304H in simulated coal-fired power plant environment <u>Yaxin Xu</u> , Xiaofeng Yang, Jintao Lu, Zhiqi Guo, Wenya Li				

Tuesday, 12:15 - 13:30	LUNCH
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Tue	Session 7A 13:30-15:30	Room A	Tue	Session 7B 13:30-15:30	Room B	Tue	Session 7C 13:30-15:30	Room C
TOPIC: Symposium H - Damage identification and prediction of structural response Chair: Andrzej Katunin			Topic: Fatigue I Chair: Luís Borrego			Topic: Composite and nanomaterials Chair: Nikolaos D. Alexopoulos		
Ref:	Title and Author (s)		Ref:	Title and Author (s)		Ref:	Title and Author (s)	
130	On the transmission of non-Gaussian random loading through linear structures <u>Arvid Trapp</u> , Fabian Hollweck, Peter Wolfsteiner		020	Fatigue crack propagation direction under different loading conditions using MTS and MSS criteria <u>R. Baptista</u> , V. Infante		095	Mechanical, electrical and piezoresistive properties of hydraulic lime paste reinforced with modified carbon nanotubes <u>Angeliki Eirini Dimou</u> , Zoi S. Metaxa, Stavros K. Kourkoulis, Ioannis Karatasios, Nikolaos D. Alexopoulos	
161	Multiple Damage Detection of Cantilever Wing using Classification Machine Learning and Neural Network Architecture <u>Zia Ur Rehman</u>		029	Mechanical characterization and fatigue assessment of wire and arc additive manufactured HSLA steel parts Nicolae Rodideal, Carla M. Machado, Virginia Infante, Daniel F.O. Braga, Telmo G. Santos, <u>Catarina Vidal</u>		098	Optimization of the graphene reinforcement in cement-based materials Anastopoulos G Stylianos, <u>Givannaki Th Faidra</u> , Zoe S Metaxa, Paraskevas. Papanikos, Alexopoulos D Nikolaos	
138	Active thermography for the investigation of corrosion in steel surfaces M. M. Dugand, F. Curà, <u>R. Sesana</u> , S. Lazzaro		126	Effect of elliptical defect orientation on the durability of specimens subject to cyclic bending <u>Zbigniew Marciniak</u> , Ricardo Branco, Rui F. Martins, Dariusz Rozumek, Wojciech Macek		178	Effect of graphene nanoparticles on suspension viscosity and mechanical properties of epoxy based nanocomposites <u>J.M. Parente</u> , R. Simões, P.N.B. Reis	
139	Signal to noise ratio in active thermography for metals characterization Francesca Curà, <u>Raffaella Sesana</u> , Irene Pessolano, Luca Corsaro, Luca Santoro		113	Fatigue peculiarity of metals treated by laser shock impact <u>Prokhorov A.</u> , Vshivkov A., Plekhov A., Kashaev N., Zherebtsov S.		196	Mechanical, electrical and piezoresistive properties of a ternary cement-based restoration paste with incorporated carbon-based nanomaterials <u>Christina Margarita Charalampidou</u> , Angeliki Eirini Dimou, Zoi S. Metaxa, Stavros K. Kourkoulis, Ioannis Karatasios, Nikolaos D. Alexopoulos	
140	Lock-in thermography for residual stresses investigation in steel welded joints Francesca Curà, <u>Raffaella Sesana</u> , Luca Corsaro, Irene Pessolano, Luca Santoro		117	Energy balance and acoustic emission in titanium Grade 2 under fatigue <u>A. Vshivkov</u> , A. Iziumova, V. Mubassarova, A. Prokhorov, I. Panteleev, O. Plekhov		175	Estimation of residual fatigue life of polymer composites after preliminary low-velocity impact <u>Oleg Staroverov</u> , Dmitrii Lobanov	
216	Application of Sandwich Panels in Steel Structures <u>Aditya Vidwans</u> , José A.F.O. Correia		094	Cyclic deformation behaviour of AlSi10Mg aluminium alloy fabricated by laser powder-bed fusion R.F. Fernandes, J. Jesus, R. Branco, <u>L.P. Borrego</u> , J.A. Martins Ferreira		064	Eigenstrain Reconstruction from Contaminated Data using Inverse-EIM <u>Arun Agrawal</u>	

Tuesday, 15:30 - 15:45	COFFEE-BREAK
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TUE, 15:45 - 16:15	PLENARY LECTURE IV	Room A
<p align="center"> Establishing specimen property to part performance in additive manufacturing Prof. Nima Shamsaei / Prof. Shuai Shao Auburn University, United States of America Chair: Paulo Lobo, University of Madeira </p>		

Prof. Nima Shamsaei

Philpott-WPS Distinguished Professor and NCAME Director
National Center for Additive Manufacturing Excellence (NCAME)
Samuel Ginn College of Engineering
Auburn University

Nima Shamsaei is currently the Philpott-WestPoint Stevens Distinguished Professor in the Department of Mechanical Engineering at Auburn University, where he is also the founding director of the National Center for Additive Manufacturing Excellence (NCAME), a NASA and NIST funded research center focused on advancing the additive manufacturing (AM) technology. NCAME is also one of the two U.S.-based founding partners of the ASTM International Additive Manufacturing Center of Excellence (AM CoE). Prior to joining academia, Dr. Shamsaei spent many years in industry, including leadership positions, specializing in fatigue analysis and durability test development. Dr. Shamsaei then took his skillset to Mississippi State University in 2013 and initiated a research track in the AM field. The focus of his research was on the structural integrity of AM metallic materials, which is his continued primary area of interest at Auburn University. His research work has resulted so far in publishing over 200 peer-reviewed journal articles and conference proceedings as well as 70+ technical presentations including 40+ invited talks or keynote/plenary speeches in the areas of fatigue, fracture, mechanics of materials, and AM part qualification and certification. Several government agencies and private companies sponsor many of his research projects in order to advance AM technology for faster industrial adoption. He has served as the guest editor for the International Journal of Fatigue 1st and 2nd special issues on Additive Manufacturing in 2017 and 2019 and continues to organize multiple AM-related symposia and conferences in ASTM, TMS, and ASME.

Tue	Session 8A 16:15 -17:45	Room A	Tue	Session 8B 16:15 -17:45	Room B	Tue	Session 8C 16:15 -17:45	Room C
TOPIC: Symposium B - Innovations in Crack Detection Methods Chair: Jürgen Bär			Topic: Fatigue II Chair: Luís Reis			Topic: Concrete and Civil Structures I Chair: Paulo Lobo		
Ref:	Title and Author (s)		Ref:	Title and Author (s)		Ref:	Title and Author (s)	
072	Investigation of Crack Formation and Propagation in AA7475 using Multiple Potential Drop Measurement <u>Jürgen Bär</u> , Mike Nahbein		163	Influence of easy repair using plasma sintering and alumina particle on fatigue crack growth <u>Daisuke Sasaki</u> , Tomokazu Kiyonaga, Yuki Obukuro, Yuji Kawakami		096	Numerical modeling of a masonry arch structure <u>Khalil Naciri</u> , Issam Aalil, Ali Chaaba, Muzahim Al-Mukhtar	
104	On the exploitation of multiple 3D full-field pulsed ESPI measurements in damage location assessment <u>Alessandro Zanarini</u>		186	Combined approach for fatigue crack characterisation in metals <u>J. M. Robles</u> , J. M. Vasco-Olmo, A. S. Cruces, F. A. Diaz, M. N. James, P. Lopez-Crespo		122	Assessment of potential alkali-silica reactivity of aggregates for concrete <u>João Custódio</u> , Dória Costa, António Santos Silva, António Bettencourt Ribeiro	
187	Crack Tip Monitoring by Multiscale Optical Techniques <u>Frederico Direito</u> , Behzad V. Farahani, Pedro J. Sousa, Paulo J. Tavares, Pedro M. G. P. Moreira		202	On the use of the plastic component of the CTOD for fatigue analysis in austenitic stainless steel <u>M. Ajmal</u> , C. Lopez-Crespo, A. S. Cruces, F. V. Antunes, P. Lopez-Crespo		134	Estimation of maximum temperature attained during concrete cure for internal sulfate reaction prevention in structures <u>João Custódio</u> , Manuel Vieira, António Bettencourt Ribeiro, António Mesquita, Rodrigo Santos	
063	Quantitative Thermometry: A Revived Simplified Approach to Fatigue Strength Determination <u>Florian Schäfer</u> , Jan Rosar, Michael Marx, Haoran Wu, Peter Starke		TOPIC: Symposium G - Multiaxial fatigue and VHCF: experimental, theoretical and numerical approach Chair: Luís Reis, Manuel Freitas, Vitor Anes			172	Modelling superelastic SMA bars using OpenSees <u>Mariana Jesus</u> , Paulo Silva Lobo, Rui Marreiros	
030	Hot spot stress analysis on steel 316L(N)-IG welded joints for nuclear applications <u>Catarina Vidal</u> , João Milheiro, Raul Luís, Virgínia Infante, Paulo Varela, Bruno Soares Gonçalves		065	Fatigue Damage Assessment in a Welded Tubular Joint Under Random Loading <u>C. Ronchej</u> , S. Vantadori, Andrea Carpinteri, Scorza Daniela, Andrea Zanichelli		204	Structural integrity of hot bituminous mixtures for road pavements: mechanical and environmental factors governing fatigue & fracture Jesús Toribio, Rubén Tino, Beatriz González, Juan-Carlos Matos	
			151	VHCF under biaxial loading of a mold tool steel Pedro R. da Costa, <u>Luís Reis</u> , Manuel Freitas		116 video	Behaviour of timber-concrete composite with defects in adhesive connection K. Buka-Vaivade, <u>D. Serdjuks</u>	

Wednesday, 1st September 2021

WED, 08:30 - 09:00	PLENARY LECTURE V	Room A
Differences in Mechanical Behavior between Additively and Conventionally Manufactured Metallic Materials		
Prof. Youshi Hong		
Chinese Academy of Sciences, China		
Chair: Pedro Moreira, INEGI		

Prof. Dr. Youshi Hong

Institute of Mechanics, Chinese Academy of Sciences, Beijing 100190, China

Youshi Hong is a Professor in the Institute of Mechanics (IMECH), Chinese Academy of Sciences (CAS). He was the Director of IMECH-CAS between 1998 and 2006. He has been the Editor-in-Chief for Fatigue & Fracture of Engineering Materials & Structures (FFEMS) since 2012. He was elected as an academician of Asia Pacific Academy of Materials Science in 2017.

His research fields are mechanical behavior of materials, fracture mechanics and structure mechanics. His main research achievements are related to: high-cycle and very-high-cycle fatigue behavior of metallic materials; effects of second phase particles on deformation, fracture and stress corrosion cracking of steels; analyses of stress intensity factors and plastic zone sizes for notch-cracks and fatigue crack growth from a circular notch under biaxial stress; mechanism and modeling of collective damage evolution process of initiation and propagation for short fatigue cracks; mechanical behavior of nano-crystalline metallic materials; and dynamic response and prototype design of submerged floating tunnels. He has published 330 papers in academic journals and conference proceedings, and obtained 17 Chinese patents. He received a First Grade Award of Natural Science of CAS, a National Second Grade Award of Natural Science, a Second Grade Award of Natural Science of Chinese Society of Theoretical and Applied Mechanics, and a First Grade Award of Science and Technology of China Highway & Transportation Society.

Wed	Session 9A 09:00 -10:30	Room A	Wed	Session 9B 09:00 -10:30	Room B	Wed	Session 9C 09:00 -10:30	Room C
TOPIC: Symposium F – Failure Analysis Chair: Virginia Infante and Manuel Freitas			Topic: Fracture and Fatigue I Chair: José Correia			Topic: Concrete and Civil Structures II Chair: Paulo Lobo		
Ref:	Title and Author (s)		Ref:	Title and Author (s)		Ref:	Title and Author (s)	
016	Fracture analysis of a leaf spring of a wagon railway car <u>M. Freitas</u> , V. Infante, M. Fonte		189	Experimental evaluation of the stress intensity factors, T-stress and higher order coefficients of the Williams series expansion by digital photoelasticity method and finite element analysis <u>Larisa Stepanova</u> , Oksana Belova		070	NLFEA based design optimization of GFRP stirrups in partially confined concrete <u>Djenad Sonia</u> , Ait Taleb Souad, Si Salem Abdelmadjid, Bouzidi M. Amin	
017	Failure analysis of a parabolic spring belonging to a railway wagon <u>V. Infante</u> , M. Freitas, R. Baptista		021	High Resolution Crack Tip Displacement Field Applications Using Numerical Methods <u>R. Baptista</u> , V. Infante, M. Garcia, C. Esteves, D. Braga, B. Farahani, P. Moreira		026	Analysis and Construction of Transfer Structures: a Case Study <u>Gonçalo Ribeiro</u> , João Almeida, Paulo Silva Lobo	
045	In service failure of a signal-support bridge structure for traffic signaling <u>Mihaela Iordachescu</u> , Andrés Valiente, Maricely de Abreu		048	Integrity evaluation of a reactor pressure vessel based on a sequential Abaqus-FRANC3D simulation method <u>M. Annor-Nyarko</u> , Hong Xia		069	3D simulation models for developing digital twins of heritage structures: challenges and strategies <u>A. Shabani</u> , M. Skamantzari, S. Tapinaki, A. Georgopoulos, V. Plevris, M. Kioumarsis	
046	Graphite debonding in compacted graphite iron under thermal loading: 3d microstructure-based modelling <u>Evangelia Nektaria Palkanoglou</u> , Konstantinos P. Baxevanakis, Vadim V. Silberschmidt		081	Global and local fracture behavior in a brittle solid with a set of pre-existing small-scale cracks Koji Uenishi, <u>Kunihiro Nagasawa</u>		087	Study of rock dilation effect on oil recovery during steam-assisted gravity drainage <u>A. Kostina</u> , M. Zhelnin, O. Plekhov	
049	Failure Analysis of FRP Composites Exposed to Real Marine Environment <u>Goran Vizentin</u> , Goran Vukelić		191	Nonlinear eigenvalue problems arising from nonlinear fracture mechanics problems <u>Larisa Stepanova</u> , Ekaterina Yakovleva		173	Accuracy of models of concrete in circular columns using different proposals for the prediction of failure of the confining FRP Paulo Silva Lobo, <u>Mariana Jesus</u>	
084	Effect of testing frequency on fatigue behavior of base materials AA2024, Ti-6Al-4V and Inconel 718 <u>Ruslan Kuliiev</u> , Stefan Riekehr, Volker Ventzke, Nikolai Kashaev		208	Micro- and nano-structural integrity of cold drawn pearlitic steels: drawing-induced evolution of intracolony micro-defects Jesús Toribio, Francisco-Javier Ayaso, Antonio Fernández-Viña				
152	Effect of WC-Co Grade on Heading Die Performance in Cold Forging M. Burak Toparli, <u>Ilhan Burak Özhan</u>							

Wednesday, 10:30 - 10:45	COFFEE-BREAK
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Wed	Session 10A 10:45 -12:15	Room A	Wed	Session 10B 10:45 -12:15	Room B	Wed	Session 10C 10:45 -12:15	Room C
Topic: Symposium F – Failure Analysis Chair: Virginia Infante and Manuel Freitas			TOPIC: Symposium K – Impact and High Strain Rate Testing of Engineering Materials and Structures Chair: Giuseppe Catalanotti, José Xavier, and Fabrice Pierron			Topic: Monitoring Chair: Paulo Tavares		
Ref:	Title and Author (s)		Ref:	Title and Author (s)		Ref:	Title and Author (s)	
088	Damage assessment of CFRP laminate plate subjected to close-range blast loading: hydrocode methodology validation and case study <u>A. Vescovini</u> , L. Lomazzi, M. Giglio, A. Manes		033	Frontal impact on a coach, door sub-system numerical modelling <u>Rogério Lopes</u> , M. P. L. Parente, P.M.G.P. Moreira, Rafael Cunha, Ricardo Maia, Rui Rodrigues		038	Displacement monitoring of crossbeams in an airport runway extension using digital image correlation <u>Francisco Barros</u> , Susana Aguiar, Pedro J. Sousa, António Cachaço, Nuno V. Ramos, Paulo J. Tavares, Pedro M. G. P. Moreira, Min Xu, L. Oliveira Santos, Elsa Franco	
110	Failure Analysis of a Ball Mill located in a Cement's Production Line Alexandre Fragoso, <u>Rui F. Martins</u> , António Soares		145	Dynamic delamination resistance of electrically modified composites <u>Sahand P. Shamchi</u> , Marcelo F.S.F. de Moura, Zhongjie Zhao, Xiaosu Yi, Pedro M.G.P. Moreira		039	Structural monitoring of a breakwater using UAVs and photogrammetry António Cachaço, Pedro J. Sousa, <u>Francisco Barros</u> , Paulo J. Tavares, Pedro Moreira, Rui Capitão, Maria Graça Neves, Elsa Franco	
123	Oil transmission pipelines with corrosion defects reinforced by two types of sleeves: comparison efficiency of sleeves <u>Jan Kec</u> , Ivo Černý, Adam Poloch, Barbora Kyselá, Miloslav Poupa, Přemysl Kuchař		201	On material identification of Pinus pinaster Ait. at high strain rate loading by the image-based inertial impact test <u>F.G. Cunha</u> , R. Nunes, L.C. Fletcher, J. Xavier, F. Pierron		188	Displacement monitoring of a pedestrian bridge using 3D digital image correlation <u>Francisco Barros</u> , Susana Aguiar, Pedro J. Sousa, António Cachaço, Paulo J. Tavares, Pedro M. G. P. Moreira, D. Ranzal, N. Cardoso, N. Fernandes, R. Fernandes, R. Henriques, P.M. Cruz, A. Cannizzaro	
165	A Study on Tensile Strain Limit Evaluations Using Failure Assessment Diagrams for IMU Pipeline Bending Strain Assessment <u>Enyang Wang</u> , Rick Gailing, Aaron Dinovitzer, Francisco Bernal, Juan Mora		082	The effect of confinement and material heterogeneities on the dynamics of a granular medium subjected to impact loading Koji Uenishi, <u>Dongyun Xi</u>		174	Evaluation Framework for Tensile Measurements, based on Full-Field Deformation Measurements and Digital Twins <u>Fekete, Tamás</u>	
112	Cyclic compression behavior of multilayered polymeric nanostructured foams: FEM simulation and experimental testing Ignacio Gutiérrez Montero, <u>Raffaella Sesana</u> , Sebastián D'hers, Fabrizio Scarpa		180	Custom control system for Split Hopkinson Pressure bars <u>Pedro J. Sousa</u> , Rogério Lopes, Pedro M. G. P. Moreira		068	Acousto-Ultrasonic Investigation of corrosion in CORTEN steel by Deep Learning Neural Network approach Claudia Barile, Caterina Casavola, Giovanni Pappalettera, <u>Vimalathithan Paramsamy Kannan</u>	
160	Probabilistic Method to estimate the Scatter of the Fatigue Strength of Shafts in the HCF-region <u>Sebastian Vetter</u> , Alexander Hasse		181	Impact characterization of bio-based sandwich panels with cork core <u>P. Santos</u> , N. Bouhemame, P.N.B. Reis, A. Bezazi		114	Method of Coaxial Accelerometers Correlation for Quality Assessment of Structural Joints <u>D. Serdjuks</u> , V. Kurtenoks, A. Tatarinov, V. Mironovs, V. Lapkovskis, K. Buka-Vaivade, A. Macevičs, K. Topcijs, M. Vilnitis	
052	Failure behavior of human trabecular bone <u>Ekaterina Smotrova</u> , Simin Li, Mikhail Tashkinov, Vadim V. Silberschmidt					115	Non-model vibration analysis methods for health monitoring of structural joints V. Lapkovskis, V. Kurtenoks, K. Buka-Vaivade, <u>D. Serdjuks</u> , V. Mironovs, A. Tatarinov, A. Podkoritovs	

Wednesday, 12:15 - 13:30	LUNCH	
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WED, 13:30 - 14:00	PLENARY LECTURE VI	Room A
More Steps Towards an Innovative Concept of Structural Integrity: Between Leonardo da Vinci and Galileo Galilei Prof. Prof. Jesús Toribio University of Salamanca, Spain Chair: José Correia, INEGI		

Prof. Jesús Toribio

University of Salamanca, Spain

Professor Jesús Toribio graduated in Civil Engineering in 1982 and then in Mathematics in 1986. In 1987 he was awarded his PhD in the Polytechnic University of Madrid (UPM) and turned into Associate Professor in that Institution. In 1992 he became Full Professor and Head of the Materials Science Department of the University of La Coruña (at the age of 32, thus being the youngest Full Professor in the area of Materials Science in Spain). In 2000 he moved to the University of Salamanca (USAL) where is currently Full Professor of Materials Science and Head of the Fracture and Structural Integrity Research Group (FSIRG) of that Institution.

His research work is mainly concerned with fatigue and fracture mechanics, environmentally assisted cracking, stress corrosion cracking and hydrogen embrittlement/degradation/damage of metals and alloys (mainly cold drawn pearlitic steel wires for civil engineering and austenitic stainless steels for nuclear engineering and energy applications), covering theoretical, computational and experimental aspects. He actively participates in International Conferences, very often being member of the International Advisory Committee, organising Special Sessions/Symposia, being Session Chairman or delivering Plenary/Keynote/Invited Lectures. Professor Dr. Jesús Toribio has published more than 500 scientific papers, most of them in international books and journals.

He is the Chairman of the Technical Committee 10 (TC10): Environmentally Assisted Cracking of the European Structural Integrity Society (ESIS) and has been Director (2013-2017) of the International Congress of Fracture-The World Academy of Structural Integrity (ICF-WASI), being responsible of launching the Ibero-American Academy of Structural Integrity (IA2SI). Prof. Toribio has been awarded a variety of scientific research prizes and awards including: (i) UPM Young Scientist Award of the Polytechnic University of Madrid; (ii) METROTEC Award for the best Technological Research Project; (iii) Honour Medal of the Spanish Group of Fracture (GEF/SEIE) in recognition of his research achievements in the field of fracture mechanics; (iv) Fellow of the Wessex Institute of Technology (WIT) in recognition of leadership and outstanding work in engineering sciences; (v) Top Reviewer 2011 in recognition of an outstanding contribution to the quality of the Elsevier International Journal Engineering Fracture Mechanics; (vi) Fellow of the European Structural Society (ESIS Fellow) for his outstanding contributions to the art, science, teaching or practice of fracture mechanics and his service to the society; (vii) Honorary Member of the Italian Group of Fracture (IGF) in acknowledgement and appreciation of his outstanding achievements in the research field of fracture mechanics; (viii) Best Paper and Presentation Award in the International Conference on Energy Materials and Applications (ICEMA 2017) held in 2017 in Hiroshima, Japan, with a paper entitled: Numerical Simulation of Hydrogen Diffusion in the Pressure Vessel Wall of a WWER-440 Reactor; (ix) María de Maeztu Scientific Award of the University of Salamanca (800th anniversary during 2018) in recognition of academic trajectory and excellence in scientific and technological research.

Wed	Session 11A 14:00 -15:30	Room A	Wed	Session 11B 14:00 -15:30	Room B		
Topic: Testing Chair: Luís Borrego			TOPIC: Sponsors Technical session Chair: Paulo Tavares				
Ref:	Title and Author (s)		Ref:	Title and Author (s)			
080	PU tensile tests: conventional and digital image correlation analysis Flaminio C. P. Sales, Ronaldo M. Ariati, Verônica T. Noronha, Romeu R. C. da Costa, <u>João E. Ribeiro</u>		219	Fatigue Testing at 1000Hz Testing Frequency <u>Markus Berchtold</u>			
198	Influence of ester on the mechanical hysteresis characteristic of power transformer insulation components <u>Daniel F.O. Braga</u> , E. E. Almeida, Shayan Eslami, Ricardo Lopes, Pedro M.G.P. Moreira		220	An Automatic System for Residual Stress Measurements by Hole Drilling <u>Alessio Benincasa</u> , Emilio Valentini, Simone Gulisano, Enrico Boccini			
158	Development of a small-scale testing machine for use with interferometric monitoring methods <u>Pedro J. Sousa</u> , Shayan Eslami, Frederico Direito, Pedro M. G. P. Moreira		221	High-speed imaging options in material and component testing <u>Tim Nicholls</u>			
157	Adherend effect on the peel strength of a brittle adhesive J.P.O. Pereira, <u>R.G.S.G. Campilho</u> , F.J.G. Silva, D.C. Gonçalves		222	Advanced Mechanical Surface Characterization <u>João Cascalheira</u>			
211	Review and synthesis of stress intensity factor (SIF) solutions for elliptical surface cracks in round bars under tension loading: A Tribute to Leonardo Torres-Quevedo Jesús Toribio, Beatriz González, Juan-Carlos Matos						
212	Review and synthesis of stress intensity factor (SIF) solutions for elliptical surface cracks in bolts under tension loading: A Tribute to Juan de la Cierva Jesús Toribio						

Wednesday, 15:30 - 15:45	COFFEE-BREAK	
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Wed	Session 12A 15:45 -17:15	Room A	Wed	Session 12B 15:45 -17:15	Room B		
Topic: Fracture Mechanics II Chair: Pedro Moreira			Topic: Large Structures Chair: Francisco Melo				
Ref:	Title and Author (s)		Ref:	Title and Author (s)			
071	Overloading effect on transient fatigue crack growth of TiAl6V4 parts produced by Laser Powder Bed Fusion <u>L. Borrego</u> , J. Jesus, J.M. Ferreira, C. Capela, J.D. Costa		171	The Fundamentals of Structural Integrity of Large-Scale Pressure Systems <u>Fekete, Tamás</u>			
192	An effective scheme for solving a class of nonlinear boundary value problems of stress concentration through quasilinearization approach Larisa Stepanova, <u>Ramil Zhabbarov</u>		024	Numerical and Theoretical Modal Analysis of Transit Buses Rogério Lopes, Behzad V. Farahani, Francisco Q. de Melo, <u>Nuno V. Ramos</u> , P. M. G. P. Moreira			
209	A fracture criterion for cold drawn pearlitic steel cracked wires with elliptical surface cracks of different aspect ratios: A Tribute to Eduardo Torroja Jesús Toribio		025	A Numerical Dynamic Analysis of a Multi-Body Bus Rogério Lopes, Behzad V. Farahani, <u>Francisco Q. de Melo</u> , Nuno V. Ramos, P. M. G. P. Moreira			
210	A fracture criterion for cold drawn pearlitic steel notched wires with circumferentially-shaped notches of different geometries: From Eduardo Torroja to José Antonio Torroja Jesús Toribio, Francisco-Javier Ayaso		142	A Study on the Passive Safety Solution on Transit Buses According to Regulation No. 66 of UN/ECE <u>Behzad V. Farahani</u> , Nuno V. Ramos, Pedro M. G. P. Moreira, Rafael Cunha, André Costa, Ricardo Maia, Rui. M. Rodrigues			
193	Constraint effect on fracture toughness resistance curves of an X60 pipe steel <u>Cheng Qian</u> , Jie Liang, Yifan Huang, Jidong Kang, Jim Gianetto		218	A review of fatigue damage in offshore wind turbine structures <u>D. Haselibozechaloe</u> , P. Mendes, J.A.F.O. Correia, M. Correia, A.M.P. Jesus, Filippo Berto			
			217	Effects of normalizing heat treatment on the mechanical and magnetic properties of an ancient iron bridge Lucas Benini, Iara Oliveira, Juan Pardal, Leosdan Noris, José Correia, Filippo Berto			

Wednesday, 17:15	Closing Session	Room A
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