M2D2015
PROGRAM

University of Porto
University of Toronto
University of Azores
### MAIN TOPICS

| A | Analytical and Numerical Tools. (Sessions: 2A-3A) | I | Composite & Advanced Materials. (Sessions: 4B-6B) |
| B | Testing and Diagnostics. (Sessions: 2B-3B) | J | Nanotechnologies & Nanomaterials. (Session: 1A) |
| C | Surface and Interface Engineering. (Sessions: 2C-3C) | K | Biomechanical Applications. (Sessions: 5D-6D) |
| D | Civil Engineering Applications. (Sessions: 2D-3D) | L | Energy and Thermo-Fluid Systems. (Session: 7G) |
| F | Tribology, Gears and Transmissions. (Session: 4F) | M | Impact and Crashworthiness. (Sessions: 7D-8D) |
| G | Mechanical Design and Prototyping. (Sessions: 5C-6C) | N | Case Studies. (Session: 8D) |
| H | Modes of Failure. (Session: 1C) |

### THEMATIC SYMPOSIA

2. EXPERIMENTAL MECHANICS IN DESIGN, by Hernani Lopes (ISEP/IPP, Portugal) and Jaime Monteiro (INEGI/U.Porto, Portugal) - Session: 1B.

3. DYNAMICS, STABILITY AND CONTROL IN STRUCTURAL ENGINEERING: CASE STUDIES, by Rui C. Barros (FEUP/U. Porto, Portugal) - Session: 7B.

4. ANALYSIS DESIGN & TESTING OF TOWERS AND POLES, by Rui C. Barros (FEUP/U. Porto, Portugal) - Session: 8B.

5. DESIGN AND PRODUCT DEVELOPMENT, by Jorge Lino (FEUP/U. Porto, Portugal) and Xavier de Carvalho (FEUP/U. Porto, Portugal) - Session: 4C.

6. MECHANICAL BEHAVIOUR OF BIO-BASED MATERIALS, by Nuno Dourado (CITAB/UTAD, Portugal) and Marcelo Moura (FEUP/U. Porto, Portugal) - Session: 5E.

7. SYSTEMATIC INNOVATION AND LEAN APPROACH IN ENGINEERING, by Helena V.G. Navas (FCT/UNL, Portugal) and Anabela Alves (U. Minho, Portugal) - Sessions: 5G-6G.

10. SEISMIC BEHAVIOUR CHARACTERIZATION AND STRENGTHENING OF CONSTRUCTIONS, by António Arêde (FEUP/U. Porto, Portugal), Humberto Varum (FEUP/U. Porto, Portugal), Hugo Rodrigues (ESTG/IPL, Portugal) and Aníbal Costa (DECivil/U. Aveiro, Portugal) - Session: 1D.

11. MECHANICS AND MATERIALS IN DENTAL MEDICINE, by J.C. Reis Campos (FMD/U. Porto, Portugal) and Mário A.P. Vaz (FEUP/U. Porto, Portugal) - Sessions: 4D-5D.

12. OPTIMIZATION FOR SUSTAINABLE DEVELOPMENT, by Carlos C. António (FEUP/U. Porto, Portugal) and Catarina F. Castro (FEUP/U. Porto, Portugal) - Sessions: 4A.

13. CARDIOVASCULAR AND ORTHOPEDIC MECHANICS DESIGN, by Luísa C. Sousa (FEUP/U. Porto, Portugal) and Catarina F. Castro (FEUP/U. Porto, Portugal) - Session: 7E.

17. MECHANICAL BEHAVIORS OF ADVANCED MATERIALS & STRUCTURES AT ALL SCALES, by Yu Su (Beijing Institute of Technology, China) - Sessions: 1E-4E.

18. MECHANICAL BEHAVIOR OF SOFT BIOMATERIALS, by Renato N. Jorge (FEUP/U. Porto, Portugal), Pedro Martins (FEUP/U. Porto, Portugal) and Marco Parente (FEUP/U. Porto, Portugal) - Session: 8E.

19. NON-DESTRUCTIVE INSPECTION TECHNIQUES FOR MATERIALS AND STRUCTURES, by João Tavares (FEUP/U. Porto, Portugal), Luis Durão (ISEP/IPP, Portugal) and João Rebelo (UFRJ, Brazil) - Sessions: 7C-8C.

20. THERMAL COMFORT IN BUILDINGS, by Marta Silva (U. Aveiro) and Mário Talaia (U. Aveiro, Portugal) - Session: 8G.


22. FIRE AND STRUCTURAL ENGINEERING, by P. Piloto (IPB, Portugal) and A. Meda (U. Rome, Italy) - Session: 7A.
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# PROGRAM

## SUNDAY, 26 JULY 2015

15:00-18:00  
EARLY-BIRD REGISTRATION AND WELCOME DRINK  
Lobby

## MONDAY, 27 JULY 2015

08:00-09:00  
REGISTRATION  
Lobby

09:00-09:30  
OPENING SESSION  
Serreta

09:30-10:15  
KEYNOTES SESSION - 1  
Serreta & Auditorium

| A  | (Room: Serreta)  
|----|-----------------|
| Chair: Prof. J.F. Silva Gomes (U.Porto, Portugal)  
| Professor Shaker A. Meguid  
(University of Toronto, Canada)  
ENERGY ABSORPTION IN AXIAL CRUSHING OF ULTRALIGHT STRUCTURES |

| B  | (Room: Auditorium)  
|----|-----------------|
| Chair: Prof. Peter Hess (U. Heidelberg, Germany)  
| Professor Noritsugu Umehara  
(Nagoya University, Japan)  
RECENT DEVELOPMENTS IN TRIBOLOGY FOR ENERGY SAVING IN SUSTAINABLE SOCIETY |

10:15-10:45  
COFFEE-BREAK  
Lobby

10:45-12:30  
PAPERS SESSION - 1  
All Rooms

| 1A | (Monchique-1)  
|----|----------------|
| Topic-J  
Chair  
Shaker Meguid |
| Ref: 5549  
HEAT-RESISTANT CELLULAR MATERIALS BASED ON COMPOSITE (GYSPUM-SILICA) BINDER, E.V. Voitovich, N.I. Kozhukhova, A.V. Cherevatova, I.V. Zhemovsky |

| 1B | (Monchique-2)  
|----|----------------|
| Symp-2  
Chair  
Jaime Monteiro |
| Ref: 5357  
A NEW METHOD FOR THE RECONSTRUCTION OF INCOMPLETE EXPERIMENTAL SPECTRAL RESPONSE MATRICES  
José Artunes, Laurent Borsoi, Xavier Delaune, Philippe Pileau |

| 1C | (Urzeina-1)  
|----|----------------|
| Topic-H  
Chair  
José Maria Cirne |
| Ref: 5442  
A FULLY IMPLICIT COMPUTATIONAL APPROACH TO DYNAMIC DELAMINATION UNDER LARGE DISPLACEMENTS  
Marco Paggi, Mauro Corrado, José Reinoso |

| 1D | (Urzeina-2)  
|----|----------------|
| Symp-10  
Chair  
Hugo Rodrigues |
| Ref: 5536  
SEISMIC REABILITATION OF BUILDINGS: STANDARDIZATION OF INFORMATION FOR BIM  
Filipa Salvaio, Mátia João Silva, Paula Couto, Alvaro Azevedo |

| 1E | (Auditorium)  
|----|----------------|
| Symp-17  
Chair  
Yu Su |
| Ref: 5340  
EXPERIMENTAL INVESTIGATION ON PROPAGATION OF ADIABATIC SHEAR BAND  
Lu Ming, Tao Sun, Chao Zhang, Xusheng Zhang, Fengbo Liu |

| 1F | (Serreta-1)  
|----|----------------|
| Symp-25  
Chair  
Xiong Zhang |
| Ref: 5369  
A NEW TYPE OF HIGH-ORDER ELEMENTS BASED ON MESH-FREE GALERKIN FORMULATIONS  
Yigang Wang, Dean Hu, Xu Han |

| 1G | (Serreta-2)  
|----|----------------|
| Symp-23  
Chair  
José Barradas |
| Ref: 5374  
AN ADAPTIVE COUPLING MOLECULAR DYNAMICS-SMOOTHED MOLECULAR DYNAMICS (MD-SMD) METHOD FOR NANO-MECHANICS  
Niagfeng He, Yan Liu, Xiong Zhang |

Ref: 5585  
DEVELOPMENT OF MODIFIED WETABILITY SURFACES ON METALLIC SUBSTRATES BY SHORT PULSE LASER MICROSTRUCTURING  
H. Jagadheesh, J.J. Bajlesters, A.V. Tur, J.L. Ocana

Ref: 5424  
INVESTIGATION OF THERMAL AND MECHANICAL PROPERTIES OF QUENCHABLE HIGH STRENGTH STEELS IN HOT STAMPING  
Anton Gomfo, Carlos Angulo, Maider Muro, Julian Izaga

Ref: 5755  
STUDY ON THE MECHANICAL PERFORMANCE OF ALUMINUM ALLOY 6156 SKIN BUTT JOINTS WITH ELECTRON BEAM WELDING  
Theano Examiloti, Nikolaos D. Alexopoulos, George Stefanou, Vasios Stergiou, Stavros K. Kourkoulis

Ref: 5541  
IN-PLANE SEISMIC BEHAVIOR OF A STRONG MASONRY INFILL  
Miltiadis Oliaee, Paulos Morand, Guido Magenes

Ref: 5342  
IMPACT RESPONSE OF FOAM FILLED CONCRETE USING A DROP HAMMER TEST SYSTEM  
Yiping Liu, Zeyu Liu, Zeyu Jiang, Liqun Tang

Ref: 5376  
STATISTICAL PROCESS CONTROL - THE IMPORTANCE OF USING CALIBRATED MEASUREMENT EQUIPMENT - CASE STUDY  
José Barradas, Maria Mendes

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Ref: 5438 FATIGUE IMPROVEMENT OF WELDED ELEMENTS BY ULTRASONIC IMPACT TREATMENT (UIT). Yuri Kudryavtsev

Ref: 5593 EXPERIMENTAL AND NUMERICAL ANALYSIS OF POST INSTALLED ADHESIVE ANCHORS. Masoud Babaie, Mojtaba Hosseini, Bijan Bastaeef

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Ref: 5554 BIOTRIBOLOGICAL BEHAVIOR OF AG-ZRCN1-X COATINGS AGAINST UHMWPE FOR JOINT PROSTHESSES DEVICES. Y.S. Calderon, J.C. Sanchez-Lopez, Albano Cavaliere, Sandra Carvalho

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**A TRIBOLOGICAL ASSESSMENT OF PEEK SURFACE MODIFIED BY FESEM/SECOND LASER TREATMENT.** Sabrina Hamoud, Alina Pascale-Ham, Cyril Mauduit, Stéphane Benayoun, Stéphane Valette

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**A ROTARY DRAW BENDING OF RECTANGULAR TUBES: EXPERIMENTS AND NUMERICAL ANALYSES.** Simone Ancilotto, Matteo Benedetti, Virgilio Fontanari, Marco Tassan, Stefano Slaghenaui

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**INFLUENCE OF THE GROWING ANGLE ON THE FATIGUE STRENGTH OF EOS MARAGING STEEL PRODUCED BY ADDITIVE METAL MACHINE.** Dan Crocchio, Massimiliano De Agostinis, Stefano Fini, Giorgio Ottino, Snejana Kostic, Aleksandar Vranic

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**IMPROVEMENT OF MECHANICAL AND SURFACE PROPERTIES OF METALLIC ALLOYS BY LASER SHOCK PROCESSING.** José Ocana, Juan Porro, Carlos Corra, Marcos Diaz, Leonardo Lara, David Penal

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**LIMITS OF ULTRASONIC WAVES PROPAGATION IN CONCRETE. APPLICATION OF WATERMAN & TRUCELL MODEL.** Alesztaz Bouchtcha, M.S. Oltman Marabout, Jean Louis Gallias, Norbert Renault

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FULL-SCALE TESTS OF TEMPORARY STEEL (FOOT) BRIDGES. Marcella Karmaninov, Jindrich J. Melcher, Milan Pilgr, Michal Stibra
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IN-PLANE AND OUT-OF PLANE EXPERIMENTAL CHARACTERIZATION OF RC MASONRY INFILLED FRAMES. Farhad Akhoundi, Graça Vasconcelos, Paulo B. Lourenço, Carlos Palha, Luis Silva

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DIMENSIONAL INTERVAL AND CRITICAL SIZES OF NON-LEGAND NANO- AND MICRO- PARTICLES. A.N. Kharkhardin, V.V. Strokova, N.I. Kozhukhova
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DETERMINATION OF BASIC CHARACTERISTICS OF PROTECTIVE LAYERS BASED ON POLYMERIC NANOFIBERS. Pedra Ticha, Alexey Svetsniikov, Pavel Deyko, Michal Havířík, Martin Cermohorsky
Ref: 5724
SHAPE DESIGN SENSITIVITY ANALYSIS OF MOLECULAR DYNAMICS FOR NANOSCALE LATTICE STRUCTURES. Hong-Lae Jang, Song-Hyun Cha, Youmie Kim, Youmie Park, Seonho Cho
Ref: 5727
NANOSCALE SELECTIVE NOISE REMOVAL AND EXTRACTION OF INTRINSIC GEOMETRY FROM AFM EXPERIMENTAL DATA. Hong-Lae Jang, Hyun-Seok Kim, Youmie Park, Seonho Cho
Ref: 5762
THE EFFECT OF LA ON PROPERTIES OF AL2O3/CU COMPOSITES. Gui-min Liu, Tao Yan, Zhong-xu Yang, Bin Li

Symp: 2
Ref: 5409
PRECISION INSPECTION OF FLATNESS BY MOIRÉ INTERFEROMETRY. Meguellati Said
Ref: 5582
CRAFT SHOES DEVELOPMENT: POETICS OF CREATION TO MAKING PROCESSES. Castori Souza

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Ref: 5505
AN OVERVIEW THROUGH PORTUGUESE SEISMIC DESIGN REGULATION AND THE NEW EUROCODES. Maria João Silva
Ref: 5588
COST-BENEFIT ANALYSIS FOR SEISMIC REHABILITATION OF BUILDINGS. Filipa Salvador, Maria João Silva
Ref: 5677
SEISMIC REINFORCEMENT OF CONCRETE BUILDINGS. M. Tavares da Silva, Maria João Silva
Ref: 5750
APPLICATION OF LIGHT STEEL FRAMING IN SEISMIC REHABILITATION. Raquel Fernandes, Maria João Silva
Ref: 5774
SEISMIC BEHAVIOUR OF PORTUGUESE RAMMED EARTH BUILDINGS. Ricardo Barros, Humberto Varum, Hugo Rodrigues, Mariana Correia, Graça Vasconcelos, Paulo Lourenço

Symp: 17
Ref: 5392
ABNORMAL FRACTURE IN TITANIUM ALLOY TA6V. Thomas Paris, Aymeric Migliorini
Ref: 5463
FRACTURE TOUGHNESS OF HDPE EVALUATED BY FATIGUE AND NOTCH PRECRACKING. Luis Iglesias, Thais Sequeira, Marysilia Costa, Cello Costa
Ref: 5503
THEORETICAL AND EXPERIMENTAL STUDY OF PIEZOELECTRIC CANTILEVER BIMORPH DYNAMIC CHARACTERISTICS BY ELECTROMECHANICAL EQUIVALENT REPLACEMENT. Hongzhuang Zhang, Shijun Luo, Jiangtian Shi

Symp: 25 & 27
Ref: 5703
ARTIFICIAL NEURAL NETWORK: A MODULAR APPROACH. Catarina F. Castro
Ref: 5723
ADJOINT DESIGN SENSITIVITY ANALYSIS OF DYNAMIC CRACK PROPAGATION USING PERIDYNAMIC THEORY. Jae-Hyun Kim, Song-Hyun Cha, Seonho Cho
Ref: 5587
TRIBOLOGICAL PERFORMANCE OF MODIFIED W-S COATINGS IN RUBBER MOULDING APPLICATIONS. Anatoliy Manaia, Geet Raju, Albano Cavaleiro, Tomas Pollar

19:30-22:00 WELCOME DINNER VIP Restaurant
TUESDAY, 28 JULY 2015

08:00-12:00 POSTERS SESSION -2

TOPICS: F, I; SYMPOSIA: 5, 26

**Topic: F**
Ref: 5353
EFFECT OF SURFACTANT ON SURFACE MODIFICATION OF CaCO3 NANOPARTICLES FOR LUBRICANT APPLICATION. EunMin Song, DoWon Kim, JongChoo Lim
Ref: 5425
POSSIBILITY OF REDUCING THE EFFECTIVE EQUIVALENT MISALIGNMENT IN HELICAL GEARS BY A DISC-TYPE LARGE WHEEL CENTRE. Maciej Krasinski
Ref: 5417
DEVELOPMENT OF A SYSTEM OF FIXING FOR RECTIFYING THE INTERNAL DIAMETER OF GEARS. Marlon Intriago, Alessandra Montenegro
Ref: 5449
PREPARATION OF ENVIRONMENTAL FRIENDLY BENZENE-FREE METAL SULFONATE SURFACTANT FOR LUBRICANT ADDITIVE FORMULATION. EunMin Song, DoWon Kim, ByungJo Kim, JongChoo Lim
Ref: 5562
PROCESS FOR TREATMENT SURFACE BY USING GRANULAR VIBRO-IMPACT. Khaled Hamouda, A.P. Babichevb
Ref: 5577
FRICION AND WEAR CHARACTERISTICS OF MAGNETORHEOLOGICAL ELASTOMER UNDER VIBRATING CONDITION. Chenglong Lian, Kwang-Hee Lee, Chul Hee, Eun Sang

**Topic: I**
Ref: 5450
INVESTIGATION OF LOCALLY RESONANT ABSORPTION OF PHONONIC GLASS. Meng Chen, Meng Dan, Yuren Wang, Heng Jiang, Yafei Feng
Ref: 5455
SPECIAL CLASS OF QUASI-ISOTROPIC LAMINATES FOR AEROSPACE APPLICATIONS. Biranchi N. Panda, M. Raju Bahubalendruni, Bhusan Biswal
Ref: 5479
SHEAR THICKENING FLUIDS IMPREGNATED SPACER FABRICS FOR ENERGY ABSORBING SYSTEMS. Lukasz Wierzbicki, Marcin Leonowicz, Malysa Maria
Ref: 5508
WALL-SLIP AS A PHENOMENON ATTENDING PROCESSING OF HIGHLY POWDER PARTICLE FILLED POLYMER MELTS. Daniel Sanetmik, Berenika Hausnerová, Eva Hnatkova
Ref: 5518
VISCOELASTIC ANALYSIS OF THE PRE-STRESSED DOUBLE-RINGS UNDER THE STATE OF CONSTANT TEMPERATURE DISPERSION. Min Yang, Shengli Chen
Ref: 5547
MECHANICAL PROPERTIES OF ALLOYS | SiO2 AND AUTOMATED SYSTEM OF ANISOTROPY VISUALIZATION. Anatoly Onanko, Georgiy Prodayvoda, Yry Onanko, Aleksandr Shabatura, Galina Onanko, Artue Onischenko
Ref: 5573
ANALYSIS OF LONG-TERM INFLUENCE OF CHLORIDE AGGRESSIVE ENVIRONMENT ON THE UHPC. Radka Pernicova, Daniel Dobias
Ref: 5634
NOVEL COMPOSITE ALLOY FOR COMBUSTION ENGINE PISTONS. Jozef Zurek, Zenon Slawinski, Antoni Jankowski
Ref: 5637
RHEOLOGY-SIMULATION OF SHORT FIBRE REINFORCED CONCRETE CASTING. Heiko Hermann, Aarne Lees, Michael Krause, Marcel Padilla, Emiliano Pasobreli
Ref: 5659
MICROSTRUCTURE EVOLUTION AND MECHANICAL PROPERTIES OF COLD DRAWN HYPEREUTECTOID STEEL WIRE. Zifei Ni, Lili Yao, Huafang Ni
Ref: 5687
COMPARATIVE STUDY BETWEEN GEOPOLYMERS ENABLED WITH SODIUM AND POTASSIUM HYDROXIDES. Rozineide Boca Santa, Humberto Gracher Riel, Nivaldo Cabral Kuhnren
Ref: 5708
STUDY OF THE INCORPORATION OF MINERAL ADDITIVES AND CARBON FIBER ON THE DURABILITY AND PERFORMANCE OF A MORTAR FOR REHABILITATION WORKS. Djihen Benchilheub, Chahinez Amouri, Hacene Houari
Ref: 9737
OPTIMIZATION OF COMPOSITES FEEDSTOCKS WITH MWCNT NANOREINFORCENT. T.J. Ferreira, M.T. Vieira

**Symp: 5 & 26**
Ref: 5561
STUDY OF TRIBOLOGICAL BEHAVIOUR OF PEEK REINFORCED WITH DIFFERENT TYPES OF FIBRES. Enrique Casarejos, Miguel Castro, Antônio Collazo, Maria Perez, Abraham Segade, José Vilan

09:30-10:15 KEYNOTES SESSION - 2

**A**  
(Room: Serretta)  
Chair: Prof. Sergei Mileiko (RAS, Russia)

**B**  
(Room: Auditorium)  
Chair: Prof. S.A. Meguid (U. Toronto, Canada)

**Professor Peter Hess**  
(University of Heidelberg, Germany)
ON THE USE OF GUIDED WAVES IN NONDESTRUCTIVE DIAGNOSTICS AND FAILURE ANALYSIS

**Professor Ng Teng Yong**  
(NTU, Singapore)
EXTREME INSULATORS FOR EXTREME ENVIRONMENTS: UNDERSTANDING THE PROPERTIES OF ULTRALIGHT AEROGELS AND 2D MATERIALS
ANALYSES. Vinzenz AND NONLINEAR METHODS. Jorge Belinha, Lucia Dinis, Ref: 5571
FROM CAD MODELS TO NEIGHBOUR RADIAL INTERPOLATION FUNCTIONS FOR GEOMETRIC LINEAR AND NONLINEAR ANALYSES. Vinzenz Sattinger, Daniel Supanz

The NONLINEAR ANALYSIS OF PLATES USING THE NATURAL NEIGHOUR RADIAL POINT INTERPOLATION METHOD. Jorge Belinha, Lucia Dinis, Renato Jorge Ref: 5427
FROM CAD MODELS TO THE EMBEDDED SOLIDS IN THE EXTENDED FINITE ELEMENT METHOD. Frederic Dubouef, Eric Bechet Ref: 5427
THE NON-LINEAR NUMERICAL ANALYSIS USING MEHNESS METHODS. Jorge Belinha, Lucia Dinis, Renato Jorge Ref: 5571
THE NONLINEAR ANALYSIS OF PLATES BASED ON LAGRANGIAN AND BI-SPLINE INTERPOLATION FUNCTIONS FOR GEOMETRIC LINEAR AND NONLINEAR ANALYSES. Vinzenz Sattinger, Daniel Supanz Ref: 5398
A QUASI USER-INDEPENDENT MEHNESS METHOD FOR THE ANALYSIS OF PLATES. Carla Roque, Pedro Martins Ref: 5389

10:45-12:30
PAPERS SESSION - 4

10:45-12:30
PAPERS SESSION - 4

4A (Monchique-1) Symp-28 Chair Jorge Belinha Ref: 5349
4B (Monchique-2) Topic-I Chair D. Croccolo
4C (Urzelina-1) Symp-5 Chair Jorge Lino
4D (Urzelina-2) Symp-11 Chair J. Reis Campos
4E (Auditorium) Symp-17 Chair Yu Su
4F (Serreta-1) Topic-F Chair Klaus Kunze
4G (Serreta-2) Symp-26 Chair Mª José Abreu
## 15:45-16:15  
**COFFEE-BREAK**

## 16:15-18:00  
**PAPERS SESSION - 6**

### All Rooms

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<td>16:15</td>
<td>6A</td>
<td>(Auditorium)</td>
<td><strong>APPLICATIONS BASED AUTOMOBILE DESIGN PRINCIPLES: THE NEED FOR RESILIENCE.</strong></td>
<td>João Fradinho, António Santos, António Gonçalves-Coelho, António Mourão</td>
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<td>16:25</td>
<td>6B</td>
<td>(Monchique-1)</td>
<td><strong>SUSTAINABLE SOLUTIONS UNDER THE AXIOMATIC DESIGN PRINCIPLES: THE NEED FOR RESILIENCE.</strong></td>
<td>Carlos M.C.G. Martins, Carlos C. António, Luisa Hoffbauer</td>
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<td>16:35</td>
<td>6C</td>
<td>(Urzelina-1)</td>
<td><strong>MULTIOBJECTIVE DESIGN OF AUTOMOBILE COMPOSITE APPLICATIONS BASED ON FEASIBILITY ROBUSTNESS.</strong></td>
<td>Carlos C. António, Luisa Hoffbauer</td>
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<tr>
<td>16:45</td>
<td>6D</td>
<td>(Urzelina-1)</td>
<td><strong>ISOGEOOMETRIC CONFIGURATION DESIGN OPTIMIZATION OF HEAT CONDUCTION PROBLEMS USING BOUNDARY INTEGRAL EQUATION.</strong></td>
<td>Minho Yoon, Myung-Jin Choi, Seonho Cho</td>
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<td>16:55</td>
<td>6E</td>
<td>(Serreta-1)</td>
<td><strong>MECHANICAL BEHAVIOR THROUGH TRIAXIAL TEST OF SAND SLAG TREATED BY GRANULATED SLAG.</strong></td>
<td>Nayeon Chua, Nacera Saoudi, Khedidia Ait Mohkhtar, Abt. Esmiounim Younsi, François Duhaime</td>
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<tr>
<td>17:05</td>
<td>6F</td>
<td>(Serreta-2)</td>
<td><strong>SPARK PLASMA SINTERING OF ALPHA- AND BETA-SIALON.</strong></td>
<td>Kyotaka Matsuura, Toko Tokunaga</td>
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*Ref: 5644  MULTIOBJECTIVE OPTIMIZATION AS ALTERNATIVE SEARCH OF SUSTAINABLE COMPOSITE STRUCTURES. Carlos C. António. (Invited Paper)*

*Ref: 5597  THERMOPERFORMING OF THERMOPLASTIC WOVEN COMPOSITES: MODELLING AND VALIDATION. Martin Machado, Michael Fischerschegwer, Zoltan Major*  

*Ref: 5517  DESIGN AND SIMULATION OF A POLYMERIC 3D PRINTED FALL ARREST SYSTEM FOR CLIMBING. Martin Reiter, Matei Miron, Zoltan Major*  

*Ref: 5479  FINITE ELEMENT EVALUATION OF THE MECHANICAL BEHAVIOUR OF A DETAILED FOOT/FOOTWEAR MODEL. Zoi Koutsalaki, Panagiotis Papagannis, Filip Anzaridiadis, Paraskevas Papanos*  

*Ref: 5529  SUSTAINABLE SOLUTIONS UNDER THE AXIOMATIC DESIGN PRINCIPLES: THE NEED FOR RESILIENCE. João Fradinho, António Santos, António Gonçalves-Coelho, António Mourão*  

*Ref: 5501  THERMOELECTRICAL ANALYSIS OF SHAPE MEMORY POLYURETHANE PU-SMP. Elizaeta Pieczycka, Maria Siasouzak, Michal Maj, K. Kowalczyk, Gajewska, M. Cristina, H. Tobushi, S. Hayashi*  

*Ref: 5557  TESTS AND COMPUTER SIMULATIONS OF ELECTRIC BUSES. Mioslav Kepka, Stanislav Spirk*  

*Ref: 5630  PLASTICITY EFFECTS DURING THE 4-POINT BENDING OF INTRAMEDULLARY IMPLANTS WITH TELESCOPIC STRUCTURES. Mikko Kanerva, Zahra Beigharah, Ryan Livingston, Hart Hallia, Mark Rutland*  

*Ref: 5528  COST AND TECHNICAL PERFORMANCE AND ENVIRONMENTAL IMPACT AS SIMULTANEOUS CONSTRAINTS FOR THE SELECTION OF COMPOSITE MATERIALS IN THE EARLY DESIGN STAGES OF AIRCRAFT STRUCTURES. Ecin Calado, Marco Latte, Antino Silva*  

*Ref: 5712  APPLICATION OF BAYESIAN UPDATING AND STOCHASTIC FINITE ELEMENT METHOD TO THE LOAD AND RESISTANCE FACTOR DESIGN (LRFD) OF A ROUND BAR HAVING RANDOM GEOMETRY. Yuji Nakasone, Shun Miyazaki*  

*Ref: 5655  POROSITY AND MECHANICAL PROPERTIES OF ZIRCONIUM CERAMICS. Jorge N. Kukov, Ekaterina S. Kalatur, Svetlana P. Buyakova*  

*Ref: 5748  WIND TURBINE GEAR OILS PERFORMANCE EVALUATION. Ramiro Martins, Carlos M.C.G. Fernandes, Jorge H.O. Seabra*  

*Ref: 5602  MULTIOBJECTIVE DESIGN OF AUTOMOBILE COMPOSITE APPLICATIONS BASED ON FEASIBILITY ROBUSTNESS. Carlos C. António, Luisa Hoffbauer*  

*Ref: 5607  ANALYSIS OF THE STRESS FIELD IN PHOTOVOLTAIC MODULES DUE TO IMPACT LOADINGS. Mauro Corrado, Andrea Infuso, Marco Paggi*  

*Ref: 5768  AXIOMATIC DESIGN BASED ASSESSMENT OF OFFSHORE WIND TURBINE SUPPORT STRUCTURES. Konstantinos Salionitis, Athanasios Kolos*  

*Ref: 5773  BIOMECHANICS OF THE HUMAN STOMACH AFTER BARiatric SURGERY. Noor M. Shamlash, Roustem Miftahof*  

*Ref: 5707  MECHANICAL BEHAVIOR THROUGH TRIAXIAL TEST OF SAND SLAG TREATED BY GRANULATED SLAG. Nayeon Chua, Nacera Saoudi, Khedidia Ait Mohkhtar, Abt. Esmiounim Younsi, François Duhaime*  

*Ref: 5752  FORMULATION | RHEOLOGY AND THERMAL AGING OF POLYMER GREASES. David Gonzalves, Samuel Pinho, Armando Campos, Beatriz Graça, Jorge H.O. Seabra*  

*Ref: 5718  SPARK PLASMA SINTERING OF ALPHA- AND BETA-SIALON. Kyotaka Matsuura, Toko Tokunaga*  

*Ref: 5745  ROLLING BEARING WEAR IN WIND TURBINES. Beatriz Graça, Ramiro Martins, Jorge H.O. Seabra*  

*Ref: 5687  LEAN SOLUTIONS APPLIED IN THE BELVER HYDROELECTRIC CENTRAL. Pedro Gaspar, Tésira Morgado, Francisco Freitas*  

*Ref: 5618  A PRACICAL MODEL TO EVALUATE COMPETITIVENESS. Nuno Cavaco, Virgilio Machado*  

*Ref: 5815  TRIZ AS AN AMPLIFIER FOR CORPORATE CREATIVITY AND CORPORATE INNOVATION ABILITY. Barbara Gronauer*  

*Ref: 5769  INNOVATIVE APPROACH FOR CONTROL AND AUTOMATION OF MICROCLADDING PROCESS. Jorge M.S.P. Torres, Teresa Morgado, Helena V.G. Navas*  

*Ref: 5741  EVALUATE OF THE SIMULATION OF THE TRACK OF THE ROLLING BEARINGS. Inês Ferreira, Fatima M. Pires, Holger R. Steimer*  


*Ref: 5743  EVALUATION OF THE SIMULATION OF THE TRACK OF THE ROLLING BEARINGS. Fatima M. Pires, Inês Ferreira, Holger R. Steimer*  

*Ref: 5744  IMPROVEMENT OF THE SIMULATION OF THE TRACK OF THE ROLLING BEARINGS. Fatima M. Pires, Inês Ferreira, Holger R. Steimer*  

*Ref: 5745  EVALUATION OF THE SIMULATION OF THE TRACK OF THE ROLLING BEARINGS. Fatima M. Pires, Inês Ferreira, Holger R. Steimer*
14:00-19:00  POSTERS SESSION - 3  Lobby

**Topic: B**
- Ref: 5372  STUDY OF WELDING LINE UNRIPPING TEST OF METAL BELLOWS. Zhongbin Tang, Yulong Liu, Tao Suo, Qiong Deng
- Ref: 5456  ANALYSIS OF THE AIRCRAFT OPERATION IN THE CONTEXT OF SAFETY AND EFFECTIVENESS. Jozef Zurek, Antoni Jankowski, Jan Rajchel
- Ref: 5544  REMARKS TO TESTING OF STRENGTH AND FATIGUE LIFE. Miloslav Kepka, Jan Chvojnan
- Ref: 5581  INFLUENCE OF HEAT TREATMENT IN THE MECHANICAL PROPERTIES AT HIGH TEMPERATURES OF P91 STEEL-PIPE WELDED JOINTS. Tatiane Chuvas, António Correia da Cruz, Manuel Gomes, Maria Cindra Fonseca
- Ref: 5645  VANE SEGMENT CASTING GEOMETRY IMPACT ON THE STRESS IN THE AIRFOIL SURFACE LAYER. Paweł Kocurek, Pawel Rokicki, Rafal Cygan, Jacek Nawrocki, Andrzej Nowotnik, Jan Sieniawski

**Topic: G**
- Ref: 5352  SMALL-SCALE STRAIGHT-BLADED DARRIEUS VERTICAL AXIS WIND TURBINE. Rafael de Almeida Alves, Carlos Alberto Gallo
- Ref: 5454  LIFE CYCLE ANALYSIS (LCA) AND RELIABILITY TECHNIQUES IN INDUSTRIAL DESIGN PROJECTS. Justo Calcedo, David Salgado, Alfonso Gonzalez, Inocente Rivero, José Herrera

**Topic: H**
- Ref: 5554  INFLUENCE OF SUPERALLOY CASTING STRUCTURE ON PROPAGATION OF ULTRASONIC WAVE. Jacek Nawrocki, Kamil Gancarczyk, Wojciech Manaj, Robert Abrecht, Rafal Cygan, Krzysztof Krupa, Jan Sieniawski

**Symposium 6**
- Ref: 5618  NUMERICAL SIMULATION OF WALL DEFORMATION IN AN ANEURYSM MODEL. João Ribeiro, Rui Lima, Hernani Lopes, Mário Vaz, J.F. Silva Gomes

**Symposium 19**
- Ref: 5420  MEASUREMENT OF RESIDUAL STRESSES IN WELDED ELEMENTS AND STRUCTURES BY ULTRASONIC METHOD. Yuri Kudryavtsev, Jacob Kleiman, Lana Potapova
- Ref: 5447  MINIATURIZED SAMPLES CREEP TEST AS A NON DESTRUCTIVE SOLUTION. Heloisa Furtado, Fernanda Santos, Luiz Almeida, Luisa Coutino
- Ref: 5532  INFLUENCE OF SUPERALLOY CASTING STRUCTURE ON PROPAGATION OF ULTRASONIC WAVE. Jacek Nawrocki, Kamil Gancarczyk, Wojciech Manaj, Robert Abrecht, Rafal Cygan, Krzysztof Krupa, Jan Sieniawski

**Symposium 21**
- Ref: 5675  MACHINED SURFACE ANALYSIS AT HIGH CUTTING SPEED USING CARBIDE DRILL IN A AL-SI ALLOY. Paulo S. Martins, José R.G. Cameiro, Gilmar C. Silva, Pedro P. Brito

19:30-24:00  CONFERENCE BANQUET  Coliseu Micaelense
WEDNESDAY, 29 JULY 2015

08:00-12:00  POSTERS SESSION - 4  Lobby

TOPICS: L, M, N; SYMPOSIA: 3, 4, 13, 18, 20, 22, 24, 29, 31

Symp: L, M & N
Ref: 5378
CFD CONTRIBUTION TO OPTIMIZE THE LOCATION OF POLLUTANT EQUIPMENT IN VENTILATED ROOMS. Rui Pitarma, Miguel Lourenço, João Ramos
Ref: 5656
EVALUATION OF THE EFFECTS OF HIGH SPEED TRUCK CRASH INTO A BRIDGE COLUMN. Zdenek Vintr, Pavel Manas, Miroslav Vala
Ref: 5683
INTERACTION OF FLOWING LIQUID WITH DEFORMABLE BOUNDARY BY COUPLING SPH TO FE. Ludek Hyncik
Ref: 5657
NUMERICAL AND EXPERIMENTAL TESTING OF ANTI SHOCK PANELS. Grzegorz Slawinski, Tadeusz Niezgoda, Pawel Dziewulski, Pawel Bogusz, Marek Swirczewski
Ref: 5658
NUMERICAL AND EXPERIMENTAL TESTING OF SELECTED CRASH CUSHION AND ROAD BARRIER. Tadeusz Niezgoda, Pawel Dziewulski, Wieslaw Barnat, Andrzej Kiczko, Grzegorz Slawinski, Slawomir Dzienis
Ref: 5514
ANALYSIS ON DYNAMIC BALANCE OF SUSPENDED BASKET IN CENTRIFUGAL TEST WITH CUBICAL CONTAINER. Shenghai Chen, Changchun Zhu
Ref: 5515
MECHANICAL PROPERTY RESEARCH OF DIFFERENT MATERIAL AND DIFFERENT SECTION SHAPE SUPPORTING RING. Zhang-hua Tang, Sheng-tai Chen
Ref: 5570
QUALITATIVE ANALYSIS ON THE PROTECTION OF INDUSTRIAL DESIGN IN EUROPE. Lourdes Liso
Symp: 3 & 4
Ref: 5513
A PIEZOELECTRIC BERNOULLI-EULER BEAM THEORY CONSIDERING MODERATELY CONDUCTIVE AND INDUCTIVE ELECTRODES. Juergen Schoeftner, Gerda Buchberger
Ref: 5604
ANALYSIS OF UNSTEADY OPERATION OF AIRCRAFT ENGINES AFTER SUCTION OF GUNPOWDER COMBUSTION GAS FROM MISSILE ENGINES. Miroslaw Kowalski
Symp: 13 & 18
Ref: 5629
RECONSTRUCTING STENOTIC CAROTID MODELS FROM ULTRASOUND IMAGES. Helena Henriques, Catarina Castro, Luisa Costa, Carlos C. António, Rosa Santos, Pedro Castro, Elsa Azevedo
Ref: 5651
EFFECT OF ANNEALING ON THE CORROSION RATE OF A NOVEL METALLIC AMALGAMATE FOR BIODEGRADABLE STENTS. Jennifer Frattolin, Luca Gottelli, Ranjan Roy, Olivier Bertrand, Rosaire Mongrain
Ref: 5366
INTRINSIC MECHANICAL PARAMETER ANALYSIS IN DIFFERENT SCAFFOLDS FOR CARTILAGE TISSUE ENGINEERING. Cátia Bandeiras, António Completo, António Ramos
Ref: 5709
COMPOSITE MATERIALS AND BOVINE CORTICAL BONE DRILLING: THERMAL EXPERIMENTAL ANALYSIS. Maria Fernandes, Elza Fonseca, Renato N. Jorge, Mário Vaz, Maria Isabel Dias
Symp: 20 & 24
Ref: 5386
REPLACEMENT OF AN OLD CHP FOR A NEW ONE ON THE TOURISTIC SECTOR: ENERGETIC AND ECONOMIC ANALISYS. Clito Afonso
Ref: 5414
COMPARATIVE STUDY OF THE LEARNING PROCESS BETWEEN A COLD AND A HOT ENVIRONMENT. Mário Talaia, Marta Silva
Symp: 22, 29 & 31
Ref: 5393
NOVEL CERAMIC TILES PRODUCED WITH WOOD WASTE. Rui Novais, M.P. Seabra, João Labrincha
Ref: 5628
TENSILE STRENGTH OF PINE AND ASH WOODS - EXPERIMENTAL AND NUMERICAL STUDY. Débora Ferreira, Elza Fonseca, Cristina Pinto, Paula Borges
Ref: 5711
BALANCED SUMMATION MODEL FOR THE CALCULATION OF THE FIRE RESISTANCE OF PARTIALLY ENCASED STEEL SECTIONS: NEW PROPOSALS. Paulo Piloto, David Almeida, Ana Ramos-Gavilan, Luis Mesquita
Ref: 5743
TIMBER COVERED BRIDGES ON THE SLOVAK TERRITORY. Ivan Balaz, Zuzana Kamenicka, Yvona Kolekova

08:45-09:30  KEYNOTES SESSION - 3  Serreta & Auditorium

A  (Room: Serreta-1)
Chair: Prof. Mário Vaz (U.Porto, Portugal)
Professor J.C. Reis Campos
(University of Porto, Portugal)
MECHANICS AND MATERIALS APPLICATIONS IN PROSTHODONTICS AND DENTAL MEDICINE. CHALLENGES AND OPPORTUNITIES

B  (Room: Auditorium)
Chair: Prof. S.A. Meguid (U. Toronto, Canada)
Professor Han Xu
(University of Univeristy, China)
CONVEX-MODEL-BASED NON-PROBABILISTIC UNCERTAINTY ANALYSIS AND RELIABILITY DESIGN FOR COMPLEX STRUCTURES
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<td>PAPERS SESSION - 8</td>
<td>All Rooms</td>
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**8A** (Monchique-1)

**8B** (Monchique-2)

**8C** (Urzelina-1)

**8D** (Urzelina-2)

**8E** (Auditorium)

**8F** (Serreta-1)

**8G** (Serreta-2)

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**A PRELIMINARY INVESTIGATION ON THE FAILURE OF PRESTRESSED MEMBERS UNDER NATURAL FIRES. Natasa Kalaba, Patrick Bamonte, Roberto Felicetti**

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**13:00-15:00 LUNCH & CONFERENCE CLOSURE**

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**VIP Restaurant**
VIP Executive Azores Hotel
(Floor-2)
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<td>POSTERS SESSION (4)</td>
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<td>OPENING SESSION</td>
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