5th Meeting of the Young Researchers of

PROGRAM

Edited by:
Carlos Quental, Patrizia Paradiso, Carlos Fernandes, João Ferreira, Luísa Pereira, Carlos Viegas, Daniela Ribeiro

5-6 May 2022

Instituto Superior Técnico

Lisboa • **Portugal**

idmec IST engenharia mecânica
inegi
AEROG Aeronautics and Astronautics Research Center
APAI

Title:
PROGRAM
5th Meeting of the Young Researchers of LAETA

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First edition, **May 2022**

Avenida Rovisco Pais, 1
1049-001 LISBOA

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WELCOME MESSAGE

We are honored to welcome you to the 5th Meeting of the Young Researchers of LAETA (5EJIL), taking place at Instituto Superior Técnico (IST), Universidade de Lisboa, Portugal, from May 5 to May 6, 2022. The 5EJIL serves as a meeting point for the Young Researchers of LAETA and provides an opportunity to promote and encourage interdisciplinary discussions among the different units of LAETA. The 5EJIL is the fifth edition of this meeting series that started in 2010 in Lisboa, at IDMEC; and continued in 2012 in Porto, at INEGI; in 2015 in Coimbra, at Hotel Dom Luís; and in 2017 in Covilhã, at Hotel Tryp Covilhã D. Maria.

Initially planned for 2021, 5EJIL was postponed to 2022 due to the social restrictions imposed by the COVID-19 pandemic, the worst pandemic in 100 years. Although other types of formats were discussed, the decision to keep the meeting as a face-to-face event was clear given its nature and purpose. Thankfully, the evolution of the pandemic allowed our meeting to occur and to gather once again the Young Researchers of LAETA in Lisbon.

A total of 143 abstracts, 121 and 22 of which for oral and poster presentations, respectively, were submitted to 5EJIL, distributed over 5 topics, defined in accordance with LAETA's structure, namely: Structures and Mechanical Systems; Intelligent Systems and Control; Energy, Environment, and Sustainability; Biomechanics; and Materials and Manufacturing. For the first time, and to honor Professor Mário Costa for his national and international contributions to the field of combustion, this meeting will award the "Professor Mário Costa" Young Researcher Award to the best scientific work presented at the meeting.

We take this opportunity to express our appreciation to IST and Caixa Geral de Depósitos for their support; to the Board of Directors of LAETA and of its management institutions for their instrumental help in promoting the meeting; to all members of the "Professor Mário Costa" Young Researcher Award Jury for their thorough evaluation of the submitted papers; to all staff members, colleagues, and students for their dedication in putting together this meeting; and last, but not least, to all participants for submitting and sharing their work, making 5EJIL possible.

We wish you all a productive and pleasant meeting and hope that you feel rewarded for your participation in 5EJIL.

May 2022, Lisboa

Sincerely yours

Carlos Quental *(Chair)*, IDMEC

Patrizia Paradiso (1984-2021) *(Co-Chair)*, IDMEC

Carlos Fernandes, INEGI

João Ferreira, INEGI

Luísa Pereira, ADAI

Carlos Viegas, ADAI

Daniela Ribeiro, AEROG

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CONFERENCE ORGANIZATION

Executive Committee

- ***Carlos Quental*** *(Chair)***,** IDMEC
- ***Patrizia Paradiso*** (1984-2021) *(Co-Chair)***,** IDMEC
- ***Carlos Fernandes,*** INEGI
- ***João Ferreira,*** INEGI
- ***Luísa Pereira,*** ADAI
- ***Carlos Viegas,*** ADAI
- ***Daniela Ribeiro,*** AEROG

Organizing Institutions

- **LAETA**, Associate Laboratory of Energy, Transports and Aeronautics
- **IST**, Instituto Superior Técnico, Universidade de Lisboa
- **IDMEC**, Institute of Mechanical Engineering
- **INEGI**, Institute of Science and Innovation in Mechanical and Industrial Engineering
- **ADAI**, Association for the Development of Industrial Aerodynamics
- **AEROG**, Aeronautics and Astronautics Research Center
- **FCT**, Foundation for Science and Technology

Sponsors

- **IST**, Instituto Superior Técnico, Universidade de Lisboa
- **CGD**, Caixa Geral de Depósitos

CONFERENCE INFORMATION

Conference Venue

The 5th Meeting of the Young Researchers of LAETA (5EJIL) takes place at the Congress Center of Instituto Superior Tecnico (IST), located in the Civil Engineering and Architecture Building (Pavilhão de Civil):

Congress Center
(Civil Engineering and Architecture Building)
Instituto Superior Técnico
Av. Rovisco Pais 1
1049-001 Lisboa

Coffee-Breaks

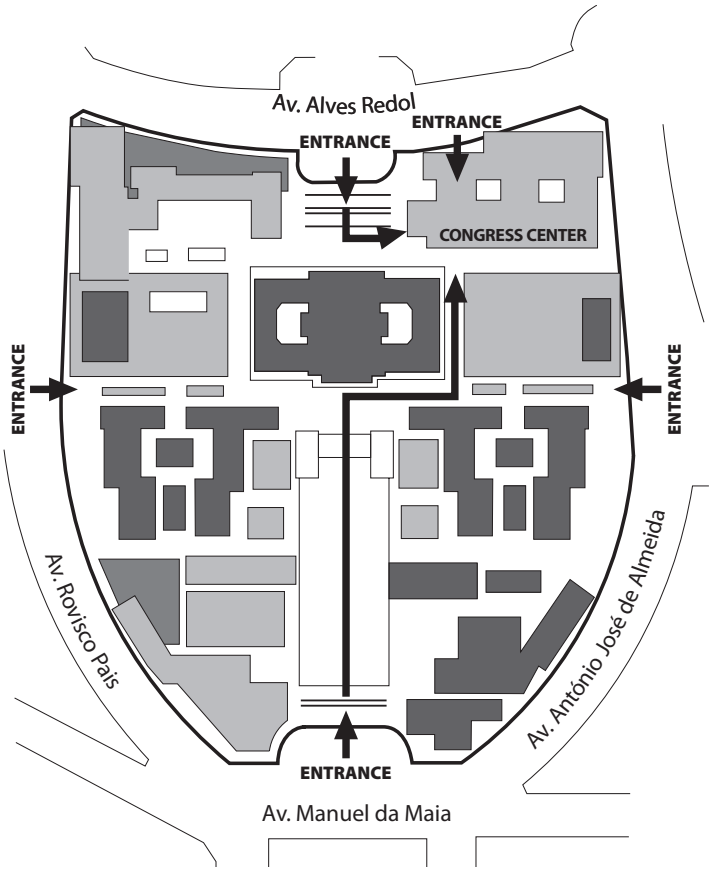
The coffee-breaks will take place in the hall 2 (2nd basement) of the Congress Center (see map) and will be open to all Participants. Kindly wear your Conference Badge.

Lunches

Lunch will be open to all participants. Kindly wear your conference badge. A few self-service choices will be offered for lunch, including a daily vegetarian option.

Secretariat Open Hours

- Thursday, May 5, 08:00 – 17:00
- Friday, May 6, 08:45 – 17:00



Congress Center Building
Floor -1 (1st Basement)

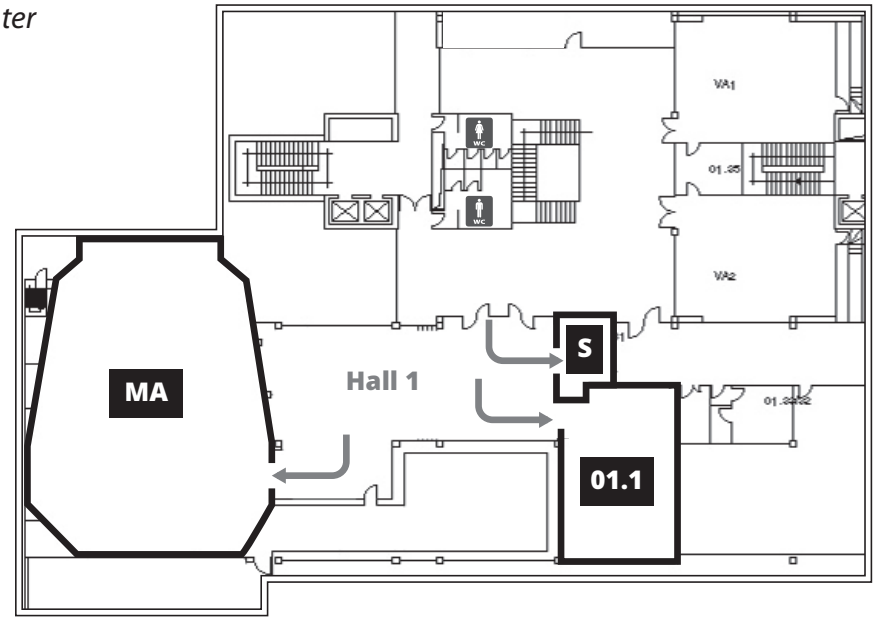
CONFERENCE INFORMATION

Congress Center Floor Plans

Congress Center

Floor -1

(1st Basement)



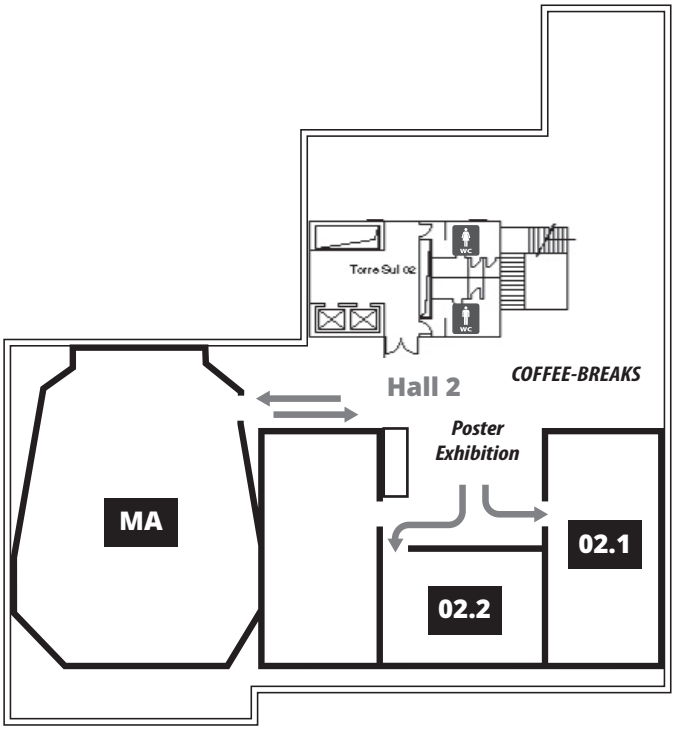
MA - *Main Auditorium*

S - *Secretariat*

01.1 - *Lecture Room*

02.1 - *Lecture Room*

02.2 - *Lecture Room*



Congress Center

Floor -2

(2nd Basement)

CONFERENCE INFORMATION

Instructions for Presenters

- Each Oral presentation will take 15 minutes: 12 minutes for presentation + 3 minutes for discussion.
- The files required for the presentation (PowerPoint or PDF) should be uploaded, and tested to ensure compatibility, during the coffee or lunch breaks before the beginning of the session.
- The lecture rooms contain a Windows PC, with Office and Acrobat PDF Reader, connected to a data projector. The use of personal computers is not recommended.
- Technical support will be provided on-site by the 5EJIL staff to ensure a smooth delivery of all oral presentations.
- Posters will be displayed on vertical boards with maximum dimensions of 900 mm (width) x 1200 mm (height), which corresponds approximately to a standard A0-portrait.
- Posters should be set before the beginning of the Poster session, on May 5 at 15:00, and should be removed by the end of the day. Posters remaining at the end of the day will be removed by the meeting staff.

Wireless Internet Access

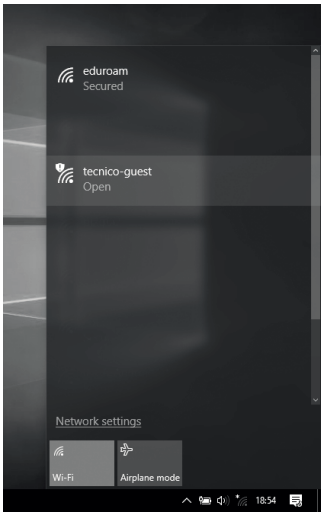
Participants without access to Eduroam should take the following steps:

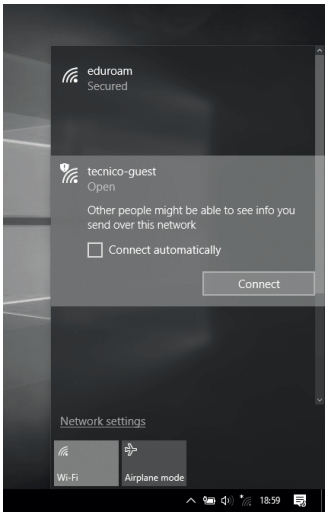
> **Step 1:** Browse available wireless networks and select "tecnico-guest".

> **Step 2:** Open your web browser and access the website "wifi.ist.utl.pt" (most computers will do it automatically).

> **Step 3:** Click on the (blue) button "Ligar".

> **Step 4:** Enter the following credentials: *Account name:* **LAETA**
Password: **ndHTr8**





SOCIAL PROGRAM

Conference Dinner – Thursday**, May 5, 20:00h**

The conference dinner will take place at the **Beer Museum (Museu da Cerveja)**, located in Terreiro do Paço – Ala Nascente nº 62 a 65, 1100-148 Lisboa. The best way to reach the Beer Museum is to take the **subway Blue line** to **"Terreiro do Paço**". If you wish to go for a walk, you can also take the **subway Green line** to **"Baixa-Chiado"**, and take a **7-minute walk** through Lisbon's downtown until you reach the **Beer Museum** (*see the map in this page*).
NOTE: Please do not forget to bring your dinner voucher.

At the Beer Museum, you will also have the opportunity to visit the Núcleo Museológico, which displays the heritage of beer in Portugal and other Lusophone Countries.

Moving around

Lisbon is served by an extensive network of public and private transportations that can take you anywhere in the city and to its surroundings.

Taxi:

Taxis can be called by phone, picked-up on taxi plazas or stopped on the street. The fare on the taxi meter should start at 3.25€ (daytime pickup) or 3.90€ (nighttime). Outside the city limits, city fares are charged per kilometer. 1.60€ is charged for the transportation of luggage or animals. Before taking a taxi, inquire about the fare.

Bus:

The bus routes cover all Lisbon and extend to its outskirts. The tickets can be pre-paid, at the counters of Carris, the surface transportation operator for Lisbon, or bought aboard the bus, electric cars or funiculars. For IST hop off on one of the following bus stops:

- *Av. Manuel da Maia*
- *Av. Rovisco Pais- Arco do Cego*

Metro:

The Lisbon Metro is a very comfortable and easy way to reach most of the city, from 6:30 to 1:00. The Metro stations close to IST are:

- ***Alameda*** (red and green line)
- ***Saldanha*** (red and yellow line)

Metro and Bus Fares:

Reusable card – 0.50 €
Metro/Carris (one ride) – 1.50 €
Carris Bus – 2.00 € (on board fare)
Tram – 3.00 € (on board fare)

Trains

Suburban trains to Estoril and Cascais depart from the Cais do Sodré train station; to the south of the river cities from Roma-Areeiro (Entrecampos) train station; and to Sintra from Rossio or Oriente train stations. For IST, the nearby train stations are:

- ***Roma-Areeiro***
- ***Entrecampos***

MAP OF LISBON

linha **Azul** Blue line

linha **Amarela** Yellow line

linha **Verde** Green line

linha **Vermelha** Red line

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SCIENTIFIC PROGRAM

5-6 May 2022

Instituto Superior Técnico

Lisboa • **Portugal**

PROGRAM AT A GLANCE

Hours	Thursday, **May 5**	Friday, **May 6**
08:00	**REGISTRATION**	
08:30		
09:00	**OPENING**	**PARALLEL SESSION IV**
09:30	**PARALLEL SESSION I**	
10:00		
10:30	*Coffee Break*	*Coffee Break*
11:00	**PARALLEL SESSION II**	**PARALLEL SESSION V**
11:30		
12:00		
12:30	*Lunch*	*Lunch*
13:00		
13:30		
14:00	**PLENARY SESSION I**	**PLENARY SESSION II**
14:30		
15:00	**POSTER SESSION**	**PARALLEL SESSION VI**
15:30	*Coffee Break*	
16:00	**PARALLEL SESSION III**	
16:30		*Coffee Break*
		CLOSING CEREMONY
17:00		
17:30		
20:00	**CONFERENCE DINNER**	

PARALLEL SESSION I

Thursday, **May 5, 9:30-10:30**

ROOM *MA*		CHAIR *CARLOS VIEGAS*	SMS01
TIME	**ID**	**PRESENTING AUTHOR**	**TITLE**
09:30	**40**	***Diogo Galhofo***	**WRINKLING IN PRE-TENSIONED SOLAR SAIL MEMBRANES** *Diogo Galhofo, Nuno Silvestre, António P. C. Duarte*
09:45	**89**	***A. Francisca C. Alves***	**FAST OPTIMIZATION-BASED PARAMETER IDENTIFICATION OF A FINITE STRAIN ELASTO-VISCOPLASTIC MODEL FOR AMORPHOUS POLYMERS** *A. Francisca C. Alves, Bernardo P. Ferreira, F. M. Andrade Pires*
10:00	**95**	***Igor A. Rodrigues Lopes***	**AN INVARIANT-BASED VISCOUS MODEL FOR POLYMER COMPOSITES AT FINITE STRAINS** *Igor A. Rodrigues Lopes, Pedro P. Camanho, Francisco M. Andrade Pires, Albertino Arteiro*
10:15	**143**	***Anatoli A. Mitrou***	**PHASE FIELD APPROACH OF FRACTURE FOR THIN-PLY LAMINATES** *Anatoli A. Mitrou, Albertino Arteiro, Pedro P. Camanho, José Reinoso*

ROOM *1.1*		CHAIR *ANDRÉ MARTA*	SMS02
TIME	**ID**	**PRESENTING AUTHOR**	**TITLE**
09:30	**92**	***Daniela Ribeiro***	**THE ROLE OF CROWN SHEET ANGLE EVOLUTION ON THE SINGLE DROPLET IMPACT UPON A THIN LIQUID FILM** *Daniela Ribeiro, Jorge Barata, André Silva*
09:45	**152**	***Inês Ferrão***	**MATHEMATICAL APPROACH FOR MODELING A SINGLE DROPLET COMBUSTION OF JET-A1 AND ALKANES** *Francisco Dias, Inês Ferrão, Miguel Mendes, Ana Moita, André Silva*
10:00	**104**	***Daniel Vasconcelos***	**DROPLET IMPACT DYNAMICS ON SUBCOOLED BOILING REGIMES: EFFECT OF DIMENSIONLESS TEMPERATURE AND IMPACT PARAMETERS** *Daniel Vasconcelos, André Silva, Jorge Barata*
10:15	**91**	***Daniela Ribeiro***	**COMPARISON BETWEEN DROPLET IMPACT ONTO DRY SMOOTH AND MICRO-STRUCTURED SURFACES WITH VARIABLE WETTABILITY** *Daniela Ribeiro, Patrick Foltyn, André SIlva, Grazia Lamanna, Bernhard Weigand*

ROOM *2.1*		CHAIR *JOÃO FERREIRA*	**BM01**
TIME	**ID**	**PRESENTING AUTHOR**	**TITLE**
09:30	**11**	***Daniel Santos Fidalgo***	**ON THE EFFECT OF UNCOORDINATE UTERINE ACTIVTY DURING A VAGINAL DELIVERY USING A ELECTRO-CHEMO-MECHANICAL CONSTITUTIVE MODEL** *Daniel Santos Fidalgo, Maria Vila Pouca, Dulce Alves Oliveira, Marco Parente, Renato Natal, Kristin Myers, Ewelina Malanowska*
09:45	**28**	***Elisabete Silva***	**EFFECT OF MESH ANCHORING TECHNIQUE IN POP REPAIR SURGERY: A COMPUTATIONAL ANALYSIS** *Elisabete Silva, Rita Rynkevic, Marco Parente, Teresa Mascarenhas, Renato Natal, António Augusto Fernandes*
10:00	**122**	***Margarida Gomes Chiote***	**SHAPE MORPHING TECHNIQUES TO ADAPT PELVIC STRUCTURES** *Margarida Gomes Chiote, Marco Parente, Elisabete Silva, António Augusto Fernandes*
10:15	**130**	***Pedro Agostinho***	**ADAPTATION OF AN INVERSE FINITE ELEMENT ANALYSIS TO ESTIMATE THE BIOMECHANICAL PROPERTIES OF THE BLADDER** *Pedro Agostinho, Rita Rynkevic, Sofia Brandão, Marco Parente, Elisabete Silva*

ROOM *2.2*		CHAIR *CARLOS ALVES DA SILVA*	**MMP01**
TIME	**ID**	**PRESENTING AUTHOR**	**TITLE**
09:30	**23**	***Rui Filipe Vieira Sampaio***	**EXPANDING THE FRACTURE LIMITS IN BULK METAL FORMING TO BIAXIAL TENSION STATES** *Rui Filipe Vieira Sampaio, João Pedro da Fonseca Matos Pragana, Ivo Manuel Ferreira de Bragança, Carlos Manuel Alves da Silva, Paulo António Firme Martins*
09:45	**124**	***Daniel Cruz***	**COMPARISON OF HARDENING CURVES OF METALLIC SHEETS BY TENSILE TESTS AND SHEAR TESTS, WITH REVERSE LOADING** *D. J. Cruz, A. F. G. Pereira, V. M. Simões, R. L. Amaral, A. D. Santos, M. C. Oliveira*
10:00	**147**	***Manuel Jimenez***	**MODELLING OF EXTENDED FINITE ELEMENT METHOD FOR FRACTURE PREDICTION OF ADVANCED HIGH STRENGTH STEELS** *M. Jimenez, A. D. Santos, R. Amaral, J. Cesar de Sa*

PARALLEL SESSION II

Thursday, **May 5, 11:00-12:30**

ROOM *MA*		CHAIR *NUNO BAÍA SARAIVA*	**EES01**
TIME	**ID**	**PRESENTING AUTHOR**	**TITLE**
11:00	**53**	***Ricardo Filipe Gomes Duarte***	**OPTIMAL CONTROL OF A TIDAL DAM SOLVING PMP EQUATIONS** *Ricardo Filipe Gomes Duarte, Duarte Valério, João C. C. Henriques*
11:15	**59**	***Mafalda Valente***	**A COMPARATIVE DESIGN OF SODIUM-BASED SOLID-STATE COAXIAL STRUCTURAL BATTERIES FOR HIGH-PERFORMANCE APPLICATIONS** *Mafalda Valente, Federico Danzi, Nuno Guerreiro, Maria Helena Braga*
11:30	**79**	***Karla Gonçalves***	**1D ANALYSIS OF TRANSCRITAL R744 EJECTOR AND COOLING CYCLE PERFORMANCE** *Karla Gonçalves, Szabolcs Varga, Tomás Freitas Rocha*
11:45	**82**	***Eduardo Abdon Sarquis Filho***	**PV SYSTEMS OPERATION AND MAINTENANCE OPTIMIZATION THROUGH AUTOMATIC FAULT DETECTION** *Eduardo Abdon Sarquis Filho, Paulo J. Costa Branco, Klaus Kiefer*
12:00	**132**	***Nuno Baía Saraiva***	**SPATIAL MONITORING OF PARTICULATE MATTER IN A BAROQUE LIBRARY: A PREVENTIVE CONSERVATION PERSPECTIVE** *Nuno Baía Saraiva, Adélio Rodrigues Gaspar, José Joaquim Costa*
12:15	**157**	***Ailton Moniz Tavares***	**ESTIMATION AND ASSESSMENT OF DIRECT NORMAL IRRADIANCE FROM METEOROLOGICAL DATA: COMPLETE METHODOLOGY AND APPLICATION TO PORTUGAL** *Ailton M. Tavares, Ricardo Conceição, Francis M. Lopes, Hugo G. Silva*

ROOM *1.1*		CHAIR *VIRGÍNIA INFANTE*	**MMP02**
TIME	**ID**	**PRESENTING AUTHOR**	**TITLE**
11:00	**33**	***Arménio Correia***	**FRICTION STIR WELDING OF AN HYBRID ALUMINUM - GLASS FIBRE REINFORCED POLYMER JOINT** *Arménio Correia, Francisco Dias, Daniel Braga, Gonçalo Cipriano, Virginia Infante, Pedro Moreira*
11:15	**34**	***Rúben Santos***	**CU ELECTROPLATING ON RU-W THIN FILMS FOR SEEDLESS METALLIZATION OF ADVANCED INTERCONNECTS** *R. F. Santos, Bruno M. C. Oliveira, Liliane C. G. Savaris, P. J. Ferreira, M. F. Vieira*
11:30	**99**	***Catarina SP Borges***	**EFFECT OF SURFACTANT CONTAMINATION ON A SILICONE ADHESIVE AND ADHESIVE JOINTS WITH ALUMINUM SUBSTRATES** *C. S. P. Borges, R. Brandão, A. Akhavan-Safar, E. A. S. Marques, R. J. C. Carbas, C. Ueffing, P. Weissgraeber, L. F. M. da Silva*
11:45	**113**	***J. Pimenta***	**DETONATION PERFORMANCE OF LOW DENSITY EMULSION EXPLOSIVES** *J. Pimenta, J. Ribeiro, R. Mendes*

ROOM *2.1*		CHAIR *MARCO PARENTE*	**BM02**
TIME	**ID**	**PRESENTING AUTHOR**	**TITLE**
11:00	**22**	***Ana Pais***	**MECHANICAL PROPERTIES OF GYROID UNIT CELLS FOR STRUCTURAL FOAMS AND BIOMEDICAL PROSTHESIS** *Ana Pais, Jorge Lino Alves, Jorge Belinha*
11:15	**54**	***Jorge E. Santos***	**DESIGN OF TPMS SCAFFOLDS FOR OSTEOCHONDRAL INTERFACE** *Jorge E. Santos, P. S. Martins, P. R. Fernandes, A. P. G. Castro*
11:30	**73**	***André P. G. Castro***	**OPTIMIZATION OF BTE SCAFFOLDS USING CFD ANALYSIS** *Tiago Pires, André P. G. Castro, Paulo R. Fernandes*
11:45	**123**	***D. Pinheiro***	**SANDWICH 3D PRINTED MELT ELECTROSPUN BIODEGRADABLE IMPLANTS FOR PELVIC ORGAN PROLAPSE REPAIR** *D. Pinheiro, J. Alves, A. A. Fernandes, T. Mascarenhas, M. Silva, R. Rynkevic*
12:00	**149**	***José Afonso***	**TOP ATHLETES: PROCEDURES TOWARDS THE BEST PERFORMANCE – THE CASE OF THE TOKYO OLYMPIC GAMES** *José M. S. Afonso, Amândio M. C. Santos, A. Virgílio M. Oliveira, Gonçalo J. V. N. Brites, Adélio R. Gaspar, Manuel C. Gameiro Da Silva*
12:15	**150**	***José Afonso***	**CORE TEMPERATURE OF RACE WALKING ATHLETES: THE CASE OF THE TOKYO 2020 OLYMPIC GAMES** *José M. S. Afonso, Amândio M. C. Santos, A. Virgílio M. Oliveira, Gonçalo J. V. N. Brites, Adélio R. Gaspar, Manuel C. Gameiro Da Silva*

ROOM *2.2*		CHAIR *ANTÓNIO ANDRADE*	**SMS03**
TIME	**ID**	**PRESENTING AUTHOR**	**TITLE**
11:00	**37**	***Joaquim A. P. Braga***	**A DATA-DRIVEN FRAMEWORK TO SUPPORT THE MAINTENANCE DECISION-MAKING OF A RAILWAY COMPONENT** *Joaquim A. P. Braga, António R. Andrade*
11:15	**39**	***João Pagaimo***	**STRUCTURAL HEALTH MONITORING OF A BOGIE FRAME USING A FLEXIBLE MULTIBODY METHODOLOGY** *João Pagaimo, Jorge Ambrósio, Hugo Magalhães*
11:30	**42**	***Rogério Lopes***	**FEM MODELLING OF PASSIVE SAFETY SOLUTIONS FOR BUSES** *Rogério Lopes, Behzad V. Farahani, Marco L. Parente, Nuno Viriato, Pedro M. G. P. Moreira, Rafael Cunha, André Costa, Ricardo Maia, Rui M. Rodrigues*
11:45	**43**	***Pedro Millan***	**MODELLING OF FRICTION MECHANISMS FOR MULTIBODY SIMULATIONS WITH FREIGHT TRAINS** *Pedro Millan, João Pagaimo, Hugo Magalhães, Jorge Ambrósio*
12:00	**76**	***Vítor Gomes***	**STRUCTURAL RESPONSE OF PARABOLIC LEAF SPRINGS UNDER MONOTONIC AND CYCLIC LOADINGS** *Vítor M. G. Gomes, Abílio de Jesus, Miguel Figueiredo, Rui Calçada*

PLENARY LECTURE I

Thursday, **May 5, 14:00-15:15**

ROOM *MA*		CHAIR *PEDRO CAMANHO*	**Plenary Lecture I**
TIME	**ID**	**PRESENTING AUTHOR**	**TITLE**
14:00	**PL1**	*Paulo Tavares de Castro*	**ENGINEERING AND SOCIETY: PROSPECTIVE REMARKS** *Paulo Tavares de Castro*

POSTER SESSION

Thursday, **May 5, 15:15-16:00**

Poster Session		
ID	**PRESENTING AUTHOR**	**TITLE**
44	*Bruna Ferreira*	**SUSTAINABLE DECISION MAKING FOR ADDITIVE MANUFACTURING IN AERONAUTICS** *Bruna Ferreira, Inês Ribeiro, Marco Leite*
47	*Beatriz Arouca Maia*	**DEVELOPMENT OF ENHANCED ELECTRODES FOR LI-ION STRUCTURAL BATTERY APPLICATIONS** *Beatriz Arouca Maia, Natália Magalhães, Eunice Cunha, Raquel M. Santos, Maria Helena Braga*
48	*Cátia Guarda*	**ALUMINUM NANOCOMPOSITES REINFORCED WITH HOLEY-GRAPHENE: INTERFACIAL INTERACTIONS AND MECHANICAL BEHAVIOR BY MOLECULAR DYNAMICS** *Cátia Guarda, Bruno Faria, Nuno Silvestre, José N. C. Lopes*
55	*Alexandra Moutinho*	**DECENTRALIZED INTELLIGENT SENSOR NETWORKS FOR WILDFIRE DETECTION AND MONITORING SYSTEMS** *Maria João Sousa, Alexandra Moutinho, Miguel Almeida*
62	*Ana Rita Reis*	**3D SCAFFOLD OPTIMIZATION FOR LARGE MANDIBULAR DEFECT REGENERATION: A FINITE ELEMENT STUDY** *Ana Rita Reis, Vincenzo Orassi, Sara Checa, Renato Natal, Marco Parente*
66	*Ana Guerra*	**DEVELOPMENT OF COMPUTATIONAL TECHNIQUES TO EXPLICITLY SIMULATE ANGIOGENESIS** *Tomás Sousa, Ana Guerra, Jorge Belinha*
67	*Mariana R. Carvalho*	**GASTROINTESTINAL TRACT CHYME PROPULSION IN PATIENTS WITH GASTROINTESTINAL LIMITATIONS** *M. R. Carvalho, J. P. S. Ferreira, M. P. L. Parente, R. M. Natal Jorge*
70	*Sara Vieira Escadas*	**SAFEBLADDER - DEVICE FOR THE CONTROL OF THE NEUROGENIC BLADDER** *Sara Vieira Escadas*
75	*Eduardo da Silva Carvalho*	**RIB CAGE: FROM CT SCAN IMAGES TO FINITE ELEMENT ANALYSIS** *Eduardo da Silva Carvalho, Dulce Oliveira, Marco Parente, Renato Manuel Natal Jorge, João Ferreira*

85	*Luís Lopes Pacheco*	**MODELING ADHESION PROPERTIES OF SMOOTH MUSCLE CELLS DURING ATOMIC FORCE MICROSCOPY** *Luís Lopes Pacheco, Marco Marques, Marco Parente, João Ferreira, Renato Natal Jorge*
87	*Joana Gouveia*	**LIFE CYCLE ASSESSMENT OF A HYBRID ADDITIVE MANUFACTURING SYSTEM FOR REINFORCED THERMOPLASTICS** *Joana Gouveia, Sara Campos, João Sobral, Luís Oliveira*
88	*Luís Rodrigues*	**PREDICTING THE MECHANICAL RESPONSE OF BIOLOGICAL TISSUES UNDER TENSION USING MACHINE LEARNING** *Luís Rodrigues, João P. S. Ferreira*
114	*Miguel Silva*	**AVIATION'S APPROACH TOWARDS PILOT'S MENTAL HEALTH: A SYSTEMATIC REVIEW** *Luís Santos, Miguel Filipe Silva*
115	*Carlos M. C. G. Fernandes*	**ANALYTICAL VS. FEM BULK TEMPERATURE MODELS FOR POLYMER SPUR GEARS DESIGN** *Carlos M. C. G. Fernandes, Victor Roda-Casanova*
117	*João P. Sousa*	**A METHOD FOR LBAM TESTING AND DYNAMIC ANGLE COMPENSATION WITH DIGITAL TWIN ROBOT SIMULATION** *João P. Sousa, Jorge Gil, André A. Ferreira, Rui L. Amaral, Gonçalo N. Rodrigues, Ana Reis*
118	*João Madeiras*	**TRAJECTORY TRACKING OF A QUADROTOR ON THE SENSOR SPACE** *João Madeiras, Carlos Cardeira, Paulo Oliveira*
120	*Joana Gouveia*	**SYMBIOSPOTS: A FRAMEWORK FOR THE SUSTAINABLE DEVELOPMENT OF INDUSTRIAL SYMBIOSIS IN THE PORTUGUESE AGRI-FOOD INDUSTRY** *Joana Gouveia, Sara Campos, João Paupério, António Baptista, Alcibíades Guedes*
121	*João Silva Pereira*	**ANALYSIS OF A RESIDENTIAL-SCALE TOPPING/BOTTOMING CHP SYSTEM BASED ON ORC TECHNOLOGY AND USING A NEW CONCEPT OF EVAPORATORS** *João Silva Pereira*
127	*Filipe Santos*	**ADVANCEMENTS IN AUTONOMOUS LEARNING MULTI-MODEL SYSTEMS** *Filipe Santos, João Sousa, Susana Vieira*
136	*Paulo Jorge R. O. Nóvoa*	**MODELLING VISCOELASTIC BEHAVIOR OF UNSATURATED POLYESTER RESINS AND THEIR GLASS REINFORCED COMPOSITES FROM DYNAMIC MECHANICAL ANALYSIS DATA** *Paulo Jorge R. O. Nóvoa, António Torres Marques, A. G. Gibson*
138	*J. N. Nhanga*	**DIRECT LASER DEPOSITION OF DIAMALLOY 4006** *J. N. Nhanga, A. A. Ferreira*
161	*João Pedro Marques*	**DAMAGE DETECTION USING WAVELET PACKET TRANSFORM ON SANDWICH COMPOSITE SUBJECTED TO RANDOM VIBRATION** *João Pedro Ribeiro Marques*

PARALLEL SESSION III

Thursday, **May 5, 16:00-17:30**

ROOM *MA*		CHAIR *MIGUEL T. SILVA*	BM03
TIME	**ID**	**PRESENTING AUTHOR**	**TITLE**
16:00	**52**	***Luís Quinto***	**DEVELOPMENT AND ANALYSIS OF AN ANKLE PASSIVE EXOSKELETON FOR REDUCING METABOLIC COSTS DURING WALKING** *L. Quinto, P. Pinheiro, S. B. Gonçalves, I. Roupa, M. Tavares da Silva*
16:15	**57**	***Ivo Fialho Roupa***	**EZMOTION – A COMPUTATIONAL TOOL TO PERFORM DYNAMIC ANALYSIS OF PLANAR (BIO) MECHANICAL SYSTEMS** *Ivo Fialho Roupa, Sérgio Gonçalves, Miguel Tavares da Silva*
16:30	**78**	***Sérgio B. Gonçalves***	**DYNAMIC ANALYSIS OF THREE-DIMENSIONAL MULTIBODY SYSTEMS USING FULLY CARTESIAN COORDINATES** *Sérgio B. Gonçalves, Ivo Roupa, Miguel Tavares da Silva*
16:45	**109**	***Gonçalo Marta***	**GROUND REACTION FORCE PREDICTION DURING RUNNING** *Gonçalo Marta, Carlos Quental, João Folgado, Francisco Guerra Pinto*
17:00	**135**	***José Carlos Rodrigues***	**REALIDADE VIRTUAL / REALIDADE AUMENTADA EM PROCESSOS TERAPÊUTICOS** *José Carlos Rodrigues, Paulo Menezes, Maria Teresa Restivo*

ROOM *1.1*		CHAIR *DUARTE VALÉRIO*	ISC01
TIME	**ID**	**PRESENTING AUTHOR**	**TITLE**
16:00	**65**	***Ricardo Magalhães***	**PRIORITIZED RESOURCE ALLOCATION AND SCHEDULE ENCODING FOR MAKESPAN MINIMIZATION** *Ricardo Magalhães*
16:15	**133**	***Kawser Ahmed***	**AIRCRAFT FUEL FLOW RATE PREDICTION USING RADIAL BASIS FUNCTION NEURAL NETWORK** *Kawser Ahmed, Milca de Freitas Coelho, Kouamana Bousson*
16:30	**151**	***Filipe Senra***	**NEURAL NETWORK BASED ORBITAL TRAJECTORY PREDICTION** *Filipe Senra, Kouamana Bousson, Milca de Freitas Coelho*

ROOM *2.1*		CHAIR *NUNO ROSA*	**EES02**
TIME	**ID**	**PRESENTING AUTHOR**	**TITLE**
16:00	**32**	*Mateus C. Guimarães*	**TURBULENT WAKES AND JETS WITH VISCOELASTIC FLUIDS STUDIED BY DIRECT NUMERICAL SIMULATIONS AND DESCRIBED BY THE SIMILARITY THEORY** *Mateus C. Guimarães, Fernando T. Pinho, Carlos B. da Silva*
16:15	**58**	*Nuno Rosa*	**CFD SIMULATION DESIGN OF A NOVEL AIR-CURTAIN-SEALED PERSONAL PROTECTIVE EQUIPMENT FOR MEDICAL CARE** *Nuno Rosa*
16:30	**93**	*Renato H. Morais*	**APOPHIS DEEP OCEAN IMPACT AND THE SHORT-TERM CONSEQUENCES TO THE PORTUGUESE TERRITORY AND POPULATION** *Renato H. Morais, Luís F. F. M. Santos, André R. R. Silva, Rui Melicio*
16:45	**107**	*Miguel R. Clemente*	**SVELTNESS: A PARAMETER OR A TOOL FOR CONSTRUCTAL DESIGN?** *Miguel R. Clemente, Miguel R. Oliveira Panão*
17:00	**159**	*John Ogundiran*	**EVALUATION OF NOISE LEVELS IN TRANSPORT CABINS OF DEVELOPING TROPICAL COUNTRIES, A CASE OF LAGOS METROPOLITAN CITY, NIGERIA** *John Omomoluwa Ogundiran*

ROOM *2.2*		CHAIR *AURÉLIO ARAÚJO*	**SMS04**
TIME	**ID**	**PRESENTING AUTHOR**	**TITLE**
16:00	**35**	*Miguel Lino*	**METODOLOGIA E MODELAÇÃO NUMÉRICA PARA PROJETO AO IMPACTO DE JANTES EM MATERIAIS COMPÓSITOS** *Miguel Lino, Pedro Mendonça, Luís Sousa, Luís Reis, Virgínia Infante, Luís Faria, Luís Simões*
16:15	**60**	*Nelson Matos*	**ADVANCED COMPOSITES FOR AERONAUTIC STRUCTURES – HIGH ENERGY IMPACT SIMULATION AND VALIDATION** *Nelson Matos, Virgínia Infante, Manuel Gomes, Ricardo Rocha, Juan Tomas Viana Lozoya, José Pedro Sousa*
16:30	**74**	*Daniel Rodrigues*	**USING A MESHLESS METHOD IN THE NUMERICAL SIMULATION OF THE EXTRUSION PROCESS OF VISCOPLASTIC MATERIALS** *Daniel Rodrigues, Jorge Belinha, Renato Natal Jorge*

PARALLEL SESSION IV

Friday, **May 6, 9:00-10:30**

ROOM *MA*		CHAIR *RODRIGO CARVALHO*	**MMP03**
TIME	**ID**	**PRESENTING AUTHOR**	**TITLE**
09:00	**45**	*Alexandre Correia*	**RVE OPTIMIZATION FOR HYBRID COMPOSITE MATERIALS FOR MODELING PSEUDO-DUCTILE BEHAVIOR** *Alexandre Correia, H. C. Rodrigues, J. M. Guedes*
09:15	**63**	*Jhonny de Sá Rodrigues*	**COMPOSITE MATERIAL THERMAL CHARACTERIZATION WITH CONVENTIONAL AND NON-CONVENTIONAL TESTS** *Jhonny de Sá Rodrigues, Paulo Teixeira Gonçalves, Susana Sousa*
09:30	**96**	*Paulo Teixeira Gonçalves*	**NUMERICAL ANALYSIS OF CURE INDUCED STRESSES IN POLYMERIC COMPOSITE MATERIALS USING A MICROMECHANICS APPROACH.** *Paulo Teixeira Gonçalves, Albertino Arteiro, Nuno Rocha, Jhonny de Sá Rodrigues*
09:45	**98**	*Juan Macías*	**MICROMECHANICAL ANALYSIS OF A REPRESENTATIVE VOLUME ELEMENT OF A LONG FIBRE REINFORCED THERMOSET USING THE PHASE-FIELD APPROACH OF FRACTURE.** *Juan Macías, Albertino Arteiro, José Reinoso, Pedro Camanho, Fermín Otero*
10:00	**110**	*Miguel Vieira de Carvalho*	**COMPUTATIONAL TREATMENT OF A FULLY COUPLED SLIP PLASTICITY AND MARTENSITIC TRANSFORMATION MODEL** *Miguel Vieira de Carvalho, Rui Pedro Cardoso Coelho, Francisco Manuel Andrade Pires*
10:15	**111**	*Rui Pedro Cardoso Coelho*	**CONSTITUTIVE MODELLING AND VALIDATION OF CRYSTAL AND TRANSFORMATION-INDUCED PLASTICITY IN TRIP ALLOYS** *Rui Pedro Cardoso Coelho, Miguel Vieira de Carvalho, Francisco Manuel Andrade Pires*

ROOM *1.1*		CHAIR *JOSÉ AGUILAR MADEIRA*	**SMS05**
TIME	**ID**	**PRESENTING AUTHOR**	**TITLE**
09:00	**18**	***Filipe José Sequeira Leal***	**MINIMIZATION OF MAXIMUM FAILURE CRITERIA FOR LAMINATED COMPOSITE SHELL STRUCTURES BY DISCRETE MATERIAL OPTIMIZATION** *Filipe José Sequeira Leal, Alexandre Miguel Monteiro Correia, Hélder Carriço Rodrigues, José Arnaldo Pereira Leite Miranda Guedes*
09:15	**20**	***Fábio Conde***	**STRESS-BASED TOPOLOGY OPTIMIZATION OF MULTI-MATERIAL PERIODIC MICROSTRUCTURES** *Fábio Conde, Pedro Coelho, José Guedes*
09:30	**49**	***Marta Filipa Abreu Tomé***	**OPTIMAL SHUNTED DAMPING CONFIGURATIONS FOR NOISE REDUCTION IN LAMINATED COMPOSITE SANDWICH PANELS: A MESH DEPENDENCY STUDY** *Marta Filipa Abreu Tomé, Aurélio Araújo, José Aguilar Madeira*
09:45	**83**	***Alain Souza***	**ON THE MULTIDISCIPLINARY ANALYSIS AND DESIGN OPTIMIZATION OF HYBRID ROCKET LAUNCHERS** *Alain Souza, Miguel Morgado, Frederico Afonso, Fernando Lau, Afzal Suleman*
10:00	**105**	***Bruno Ribeiro Cotrim***	**OPTIMAL RESISTIVE SHUNTED DAMPING CONFIGURATIONS FOR REDUCTION IN SANDWICH PANELS** *Bruno Ribeiro Cotrim, Aurélio Lima Araújo, José Firmino Aguilar Madeira*
10:15	**144**	***Gonçalo das Neves Carneiro***	**DIMENSIONAL REDUCTION OF PROBABILITY SPACES IN RELIABILITY-BASED ROBUST DESIGN OPTIMIZATION** *Gonçalo das Neves Carneiro, Carlos Conceição António*

ROOM *2.1*		CHAIR *RENATO NATAL JORGE*	**BM04**
TIME	**ID**	**PRESENTING AUTHOR**	**TITLE**
09:00	**12**	***Pedro Nogueira***	**METAPHYSEAL SLEEVES AND BONE CEMENT IN REVISION TOTAL KNEE ARTHROPLASTIES: COMPUTATIONAL ANALYSIS OF BONE REMODELING** *Pedro Nogueira, Joao Folgado, Carlos Quental, João Gamelas*
09:15	**15**	***Rita Moura***	**BIOMECHANICAL ANALYSIS OF THE MATERNAL-FETAL INTERACTION DURING A MALPOSITION CHILDBIRTH** *Rita Moura*
09:30	**16**	***Madalena Antunes***	**POSIÇÃO DA FIXAÇÃO DO ENXERTO NA RECONSTRUÇÃO CAPSULAR SUPERIOR: ANÁLISE COMPUTACIONAL DA INTEGRIDADE DO ENXERTO E DA ESTABILIDADE DO OMBRO** *Madalena Antunes, Carlos Quental, João Folgado, Clara de Campos Azevedo, Ana Ângelo*
09:45	**17**	***Ana Guerra***	**ANGIOGENESIS MECHANICAL EFFECT: A NUMERICAL ANALYSIS** *Ana Guerra, Jorge Belinha, Renato Natal Jorge*
10:00	**19**	***Bruno Areias***	**STUDY OF SEVERAL PARAMETERS ASSOCIATED WITH THE COCHLEAR IMPLANT SURGERY, A FINITE ELEMENT ANALYSIS** *Bruno Areias, Marco Parente, Fernanda Gentil, Cristina Caroça, João Paço, Renato Natal*
10:15	**84**	***Leonor Jud***	**FINITE ELEMENT MODELLING OF THE CRYSTALLINE LENS COMPLEX UNDER HEALTHY AND PROGRESSIVE PSEUDOEXFOLIATIVE CONDITIONS** *Leonor Jud, Filomena J. Ribeiro, Paulo R. Fernandes, André P. G. Castro*

ROOM *2.2*		CHAIR *ANDRÉ SILVA*	**EES03**
TIME	**ID**	**PRESENTING AUTHOR**	**TITLE**
09:00	**14**	*Mariana Gonçalves*	**AN ASSESSMENT OF CIRCULARITY AND EFFICIENCY INDICATORS FOR FOREST BIOMASS IN PORTUGAL THROUGH MATERIAL FLOW ANALYSIS** *Mariana Gonçalves, Fausto Freire, Rita Garcia*
09:15	**36**	*Inês Ferrão*	**HOW DO NANOPARTICLES AFFECT THE COMBUSTION OF A BIOFUEL?** *Inês A. S. Ferrão, Miguel A. A. Mendes, Ana. S. O. H. Moita, André R. R. Silva*
09:30	**77**	*Márcio Santos*	**EVALUATION OF ELECTRIC ENERGY STORAGE BASED ON CONCENTRATION SOLAR THERMAL COLLECTORS AND CARNOT BATTERIES** *Márcio Santos, Jorge André, Ricardo Mendes, José Baranda Ribeiro*
09:45	**125**	*Diogo Miguel Sá Pinto*	**SISTEMA DE ACUMULAÇÃO DE ENERGIA TÉRMICA SOLAR COM MÓDULO DE ADSORÇÃO: COMPARAÇÃO DO DESEMPENHO EM EDIFÍCIOS DE DIFERENTES DIMENSÕES** *Leonardo Dias de Albuquerque, Diogo Miguel Sá Pinto, Marco Alexandre dos Santos Fernandes, Adélio Manuel Rodrigues Gaspar*
10:00	**141**	*Diogo Miguel Sá Pinto*	**SEASONAL THERMAL ENERGY STORAGE SYSTEM PROVIDED WITH AN ADSORPTION MODULE** *Diogo Miguel Sá Pinto, Marco Alexandre dos Santos Fernandes, Adélio Manuel Rodrigues Gaspar, Leonardo Dias de Albuquerque*
10:15	**158**	*Ana F. Ferreira*	**EVALUATION OF BIOENERGY, BIOPRODUCTS AND HYDROGEN PRODUCTION – CHARACTERIZATION, LIFE CYCLE ASSESSMENT AND TECHNOECONOMIC ANALYSIS** *Ana F. Ferreira*

PARALLEL SESSION V

Friday, **May 6, 11:00-12:30**

ROOM *MA*		CHAIR *ANDRÉ CASTRO*	**BM05**
TIME	**ID**	**PRESENTING AUTHOR**	**TITLE**
11:00	**13**	*António André*	**INFLUENCE OF PVDF CONCENTRATION ON THE MECHANICAL PROPERTIES OF A COMPOSITE SMART MATERIAL** *António André, Ana Margarida Teixeira, Pedro Martins*
11:15	**31**	*Maria C.P. Vila Pouca*	**LOW-CYCLE FATIGUE OF THE OVINE PUBOVISCERAL MUSCLE: INVESTIGATING THE BIRTH-RELATED MATERNAL PELVIC FLOOR INJURY** *Maria C. P. Vila Pouca, Marco P. L. Parente, Renato M. Natal Jorge, James A. Ashton-Miller*
11:30	**69**	*Ana Margarida Teixeira*	**A BRIEF STUDY ON THE MECHANICAL BEHAVIOR OF NORMAL BREAST TISSUES USING INDENTATION** *Ana Margarida Teixeira, António Diogo André, Maria da Luz Barroso, Horácio Costa, Pedro Martins*
11:45	**116**	*Rita Rynkevic*	**IMMEDIATE STRENGTHENING EFFECT OF COG THREAD APPLICATION IN POSTERIOR COMPARTMENT PROLAPSE REPAIR** *Rita Rynkevic, Catarina Soares, Maria Elisabete Silva, Teresa Mascarenhas, António Augusto Fernandes*
12:00	**129**	*Micaela Pinto*	**ANÁLISE MECÂNICA DE IMPLANTES POLYCAPROLACTONE (PCL) USADOS NA CORREÇÃO DO PROLAPSO DOS ÓRGÃOS PÉLVICOS** *Micaela Pinto, Rita Rynkevic, Elisabete Silva, António Augusto Fernandes*
12:15	**131**	*Rita Rynkevic*	**MECHANICAL CHARACTERIZATION OF THE VAGINA THROUGH THE FORCE SENSORS: PROTOTYPE VALIDATION** *Rita Rynkevic, Maria Luciana Beirão, Maria Elisabete Silva, Mário Vaz, Teresa Mascarenhas, António Augusto Fernandes*

ROOM *1.1*		CHAIR *LUÍSA PEREIRA*	**EES04**
TIME	**ID**	**PRESENTING AUTHOR**	**TITLE**
11:00	**86**	*Babak B. Chehreh*	**AD-HOC FRAMEWORK FOR HIGH RESOLUTION SEMANTIC 3D LAND MAPPING** *Babak B. Chehreh, Alexandra Moutinho, Carlos Viegas*
11:15	**128**	*Daniela Alves*	**ANALYSIS OF THE RELATIONSHIP BETWEEN THE FOREST FUEL MOISTURE CONTENT AND SOIL MOISTURE WITH THE FIRE WEATHER INDEX (FWI)** *Daniela Alves, Miguel Almeida, Domingos Xavier Viegas*
11:30	**139**	*Pegah Mohammadpour*	**FOREST VEGETATION MAPPING BY FUSION OF SATELLITE AND DRONE DATA FOR FUEL MANAGEMENT AND WILDFIRE RISK REDUCTION** *Pegah Mohammadpour, Emilio Chuvieco, Xavier Viegas, Carlos Viegas*
11:45	**140**	*Mohammad Reza Modarres*	**MODELING WILDLAND URBAN INTERFACE (WUI) FIRE BEHAVIOUR USING FDS** *Mohammad Reza Modarres*

ROOM *2.1*		CHAIR *INÊS PIRES*	**MMP04**
TIME	**ID**	**PRESENTING AUTHOR**	**TITLE**
11:00	**29**	***Fátima Zorro***	**IN-SITU TEM FLASH SINTERING OF OXIDE MATERIALS** *Fátima Zorro, Enrique Carbo-Argibay, Paulo Ferreira*
11:15	**41**	***Jorge Wolfs Gil***	**PARAMETER OPTIMISATION AND MECHANICAL CHARACTERISATION OF 18NI300 MARAGING STEEL FABRICATED BY DIRECT ENERGY DEPOSITION** *Jorge Wolfs Gil, Abílio de Jesus, Ana Reis, Fátima Vaz, Beatriz Silva, Omid Emadinia, Rui Amaral, Ricardo Seca*
11:30	**64**	***Felipe Klein Fiorentin***	**FATIGUE BEHAVIOUR OF INCONEL 625 PRODUCED BY DIRECTED ENERGY DEPOSITION** *Felipe Klein Fiorentin*
11:45	**80**	***Natacha Rosa***	**FINITE ELEMENT MODELLING AS A TOOL FOR MECHANICAL BEHAVIOUR PREDICTION OF HATCP BONE SCAFFOLDS AND ADDITIVE MANUFACTURING DESIGN OPTIMIZATION** *N. Rosa, S. M. Olhero, P.M.C. Torres, Renato Natal, Marco Parente*
12:00	**100**	***Aida B. Moreira***	**CHARACTERIZATION OF AUSTENITIC STAINLESS STEEL LOCALLY REINFORCED WITH WC PARTICLES** *Aida B. Moreira, Pedro Lacerda, Laura M. M. Ribeiro, Manuel F. Vieira*
12:15	**126**	***G. M. Gorito***	**EFFECT OF SOLUTION HEAT TREATMENT ON THE MICROSTRUCTURE AND MECHANICAL PROPERTIES OF NISI3B2 ALLOY** *G. M. Gorito, M. F. Vieira, Laura M. M. Ribeiro*

ROOM *2.2*		CHAIR *PEDRO MARQUES*	**SMS06**
TIME	**ID**	**PRESENTING AUTHOR**	**TITLE**
11:00	**38**	***Francisco Vieira***	**NON-ORDINARY STATE-BASED PERIDYNAMICS: NUMERICAL CONVERGENCE AND QUASI-STATIC CRACK PROPAGATION ANALYSES** *Francisco Vieira, Aurélio Araújo*
11:15	**51**	***Tomás de Oliveira Barros***	**APPLICATION OF MACHINE LEARNING ALGORITHMS FOR FATIGUE DAMAGE AND CRACK GROWTH – THE CASE STUDY OF THE PORTUGUESE AIR FORCE EPSILON TB30 FLEET** *Tomás de Oliveira Barros*
11:30	**56**	***João D. M. Marafona***	**GEAR MESH STIFFNESS: COMPARATIVE REVIEW AND MODELING** *João D. M. Marafona, Pedro M. T. Marques, Ramiro C. Martins, Jorge H. O. Seabra*
11:45	**108**	***Carlos M. C. G. Fernandes***	**PRELIMINARY VALIDATION OF A HYBRID POLYMER GEAR CONCEPT** *James Hooton, Carlos M. C. G. Fernandes, David E. P. Gonçalves, Jorge H. O. Seabra*
12:00	**134**	***Pedro Romio***	**ASSESSMENT OF THE ROLLING CONTACT FATIGUE PERFORMANCE OF DISCS REPAIRED VIA DIRECT LASER DEPOSITION** *Pedro Romio, Pedro M. T. Marques, Carlos M. C. G. Fernandes, João M. B. Cruz, Jorge H. O. Seabra*
12:15	**148**	***Bruno Ribeiro et João Ribeiro***	**SURROGATE MODELING OF STRUCTURAL DETAILS - PLATE WITH HOLES DATASET** *Bruno Ribeiro, João Ribeiro, David Carvalho, Hugo Penedones, Jorge Belinha, Luís Sarmento, Rui Abreu, Sérgio Tavares*

PLENARY LECTURE II

Friday, **May 6, 14:00-15:00**

ROOM *MA*		CHAIR *PAULO OLIVEIRA*	Plenary Lecture II
TIME	**ID**	**PRESENTING AUTHOR**	**TITLE**
14:00	**PL2**	***Joaquim Martins***	**MULTIDISCIPLINARY DESIGN OPTIMIZATION OF ENGINEERING SYSTEMS** *Joaquim Martins*

PARALLEL SESSION VI

Friday, **May 6, 15:00-16:30**

ROOM *MA*		CHAIR *IGOR LOPES*	SMS07
TIME	**ID**	**PRESENTING AUTHOR**	**TITLE**
15:00	**21**	***Justino A. O. Cruz***	**MAIN POWER LOSS CONTRIBUTORS IN A REAR AXLE GEAR TRANSMISSION UNDER NO-LOAD CONDITIONS** *Justino A. O. Cruz, Pedro M. T. Marques, David Gonçalves, Jorge H. O. Seabra*
15:15	**94**	***António M. Couto Carneiro***	**COMPUTATIONAL METHODS FOR THE SIMULATION OF DYNAMICAL IMPACT IN IMPLICIT TIME INTEGRATION** *António Manuel Couto Carneiro, Rodrigo Pinto Carvalho, Francisco Manuel Andrade Pires*
15:30	**97**	***Pedro M. T. Marques***	**AN IMPROVED SETUP FOR THE MEASUREMENT OF ROLLING BEARING TORQUE LOSS IN A MODIFIED FOUR-BALL MACHINE** *Pedro M. T. Marques, Jorge H. O. Seabra, Ramiro C. Martins*
15:45	**101**	***Tiago Silva Sabino***	**IMPACT OF NON-GAUSSIAN HEIGH DISTRIBUTIONS IN THE ELASTIC CONTACT OF ROUGH SURFACES** *Tiago Silva Sabino, António Couto Carneiro, Rodrigo Pinto Carvalho, Francisco Andrade Pires*
16:00	**102**	***Pedro Areias***	**GENERALIZED DISCRETIZATION METHODS FOR LARGE-SCALE APPLICATIONS** *Pedro Areias*
16:15	**119**	***Rodrigo Carvalho***	**THE DUAL MORTAR CONTACT METHOD AND A ROBUST FORMULATION FOR QUADRATIC FINITE ELEMENTS** *Rodrigo Pinto Carvalho, António M. Couto Carneiro, Francisco M. Andrade Pires*

ROOM *1.1*		CHAIR *ALEXANDRA MOUTINHO*	**ISC02**
TIME	**ID**	**PRESENTING AUTHOR**	**TITLE**
15:00	**24**	*António José Arsénio Costa*	**CONCEPTION, STUDY, OPTIMIZATION, AND PROTOTYPING OF A HORIZONTAL AXIS HTS ZFC RADIAL LEVITATION BEARING** *António José Arsénio Costa*
15:15	**30**	*Rodrigo Bernardo*	**ONTOLOGIES: INCREASING THE KNOWLEDGE OF ROBOTIC AGENTS** *Rodrigo Bernardo, João M. C. Sousa, Paulo J. S. Gonçalves*
15:30	**50**	*Tiago Coito*	**INTELLIGENT AUTOMATION FOR REAL-TIME DECISION-MAKING** *Tiago Coito*
15:45	**81**	*Pedro Outeiro*	**MULTIPLE-MODEL ADAPTIVE CONTROL ARCHITECTURE FOR A QUADROTOR WITH CONSTANT UNKNOWN MASS AND INERTIA** *Pedro Outeiro, Carlos Cardeira, Paulo Oliveira*
16:00	**112**	*Luís Martins*	**GLOBAL TRAJECTORY TRACKING FOR QUADROTORS: AN MRP-BASED HYBRID BACKSTEPPING STRATEGY** *Luís Martins, Carlos Cardeira, Paulo Oliveira*
16:15	**154**	*Tomás Pedro Homem Ribeiro da Silva Hipólito*	**SUSTAINABILITY-ORIENTED FRAMEWORK TO PERFORM LOGISTICS MANAGEMENT OF PERISHABLE GOODS BASED ON MODEL PREDICTIVE CONTROL** *Tomás Pedro Homem Ribeiro da Silva Hipólito*

ROOM *2.1*		CHAIR *JOSÉ MIRANDA GUEDES*	**MMP05**
TIME	**ID**	**PRESENTING AUTHOR**	**TITLE**
15:00	**46**	*Rafael Ferreira*	**ATOMIC-SCALE MEASUREMENTS OF CHARGE DISTRIBUTION IN 2D MOSE2** *Rafael Ferreira*
15:15	**137**	*Íris Carneiro*	**STRENGTHENING AND DEFORMATION MECHANISMS OF NON-FERROUS METAL MATRIX NANOCOMPOSITES** *Íris Carneiro, José Valdemar Fernandes, Sónia Simões*
15:30	**145**	*Tomás Oliveira*	**COMPARISON OF VIBRATION-BASED INDICES FOR DAMAGE DETECTION IN LAMINATED COMPOSITE PLATES** *Tomás Oliveira, José V. Araújo dos Santos, Hernâni Lopes*
15:45	**153**	*João Machado*	**TRANSVERSE PERMEABILITY OF A FIBRE-TOW: A COMBINED EXPERIMENTAL AND NUMERICAL APPROACH TOWARDS UNCERTAINTY QUANTIFICATION** *João Machado, Pedro Camanho, Nuno Correia*
16:00	**156**	*David Esteves*	**LOW ELECTRICAL PERCOLATION THRESHOLD MWCNT/PDMS STRUCTURES USING MAGNETIC FIELDS** *David Esteves, Elsa Sequeiros, Maria Paiva, André Pinto*

ROOM *2.2*		CHAIR *PAULO BRANCO*	**EES05**
TIME	**ID**	**PRESENTING AUTHOR**	**TITLE**
15:00	**25**	***Pedro Bhagubai***	**HIGH TORQUE DENSITY SYNCHRONOUS MOTOR USING ADVANCED MAGNETIC MATERIALS FOR HIGH PERFORMANCE ELECTRIC VEHICLES** *Pedro Bhagubai, João Fernandes*
15:15	**26**	***Francisco Ferreira da Silva***	**DESIGN OF A SUPERCONDUCTING MACHINE WITH CORC WINDINGS FOR AIRCRAFT PROPULSION** *Francisco Ferreira da Silva*
15:30	**27**	***F. Ferreira da Silva***	**APPLYING AN EQUIVALENT MAGNETIC PERMEABILITY MODEL FOR THE SUPERCONDUCTING BULKS COMBINED WITH GENETIC OPTIMIZATION ALGORITHMS** *Inês S. P. Peixoto, F. Ferreira da Silva, João F. P. Fernandes, P. J. da Costa Branco*
15:45	**72**	***Andrés A. Zúñiga***	**RELIABILITY ANALYSIS OF HIGH-TEMPERATURE SUPERCONDUCTING-BASED AIRCRAFT TURBOELECTRIC PROPULSION SYSTEM** *Andrés A. Zúñiga, João F. P. Fernandes, Paulo J. Costa Branco*
16:00	**103**	***Hélia Fernandes***	**DEVELOPING A SDGS-BASED FRAMEWORK FOR ASSESSING THE SOCIO-ECONOMIC IMPACT OF ELECTRIC AIRCRAFT – A LITHIUM MINERAL EXTRACTION PERSPECTIVE** *Hélia Fernandes, Luís Santos*