

# Conference Information

## Endorsed by

- IDMEC Instituto de Engenharia Mecânica
- Técnico Lisboa – Instituto Superior Técnico
- Câmara Municipal de Lisboa
- Museu de Lisboa

## Conference Venue

The 10<sup>th</sup> International Conference on Composite Science and Technology (ICCST/10) takes place in Instituto Superior Técnico (IST) Congress Center, situated at the Civil Engineering Building (Pavilhão de Civil) with the address:

### Congress Center

*(Civil Engineering Building)*

Instituto Superior Técnico

Av. Rovisco Pais 1

1049-001 Lisboa

## Secretariat Open Hours

- Tuesday, September 01, 16:00 -19:00
- Wednesday, September 02, 08:00 -17:00
- Thursday, September 03, 09:00 -17:00
- Friday, September 04, 09:45 -12:30

## Coffee-Breaks

The coffee-breaks will take place in the hall -2 (2nd Basement) of the conference center (see map of the conference center) and will be open to all participants. Kindly wear your Conference Badge.

## Lunches

The Lunch tickets included in the package received during the registration will be accepted at the two restaurants marked in the map below. Both restaurants offer a few choices for lunch in self-service. Restaurant 2 has a daily vegetarian option. Note that the lunch tickets have different colors for the different days and are valid only for the day printed in the front.

### 1- Restaurant 1

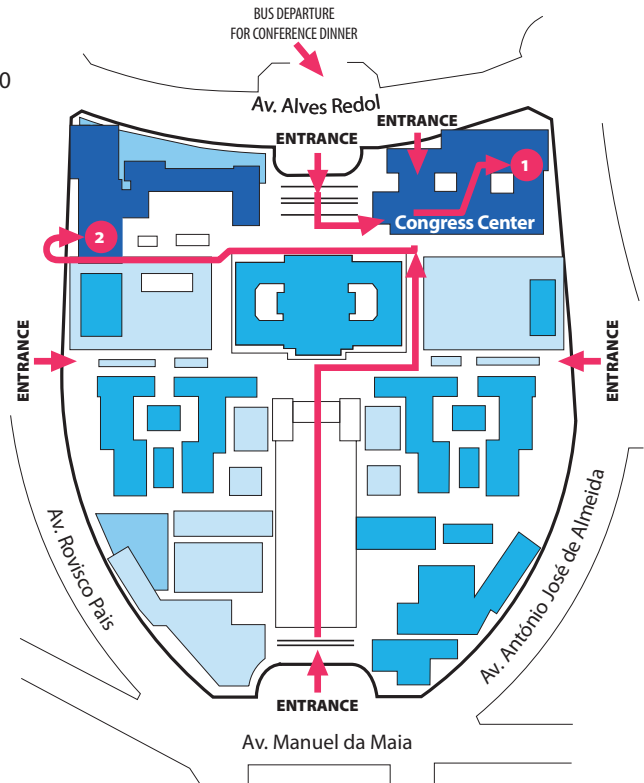
**Congress Center Building**

Floor 0 (Ground Floor)

### 2- Restaurant 2

**Post Graduation Building**

Floor -1 (1<sup>st</sup> Basement)



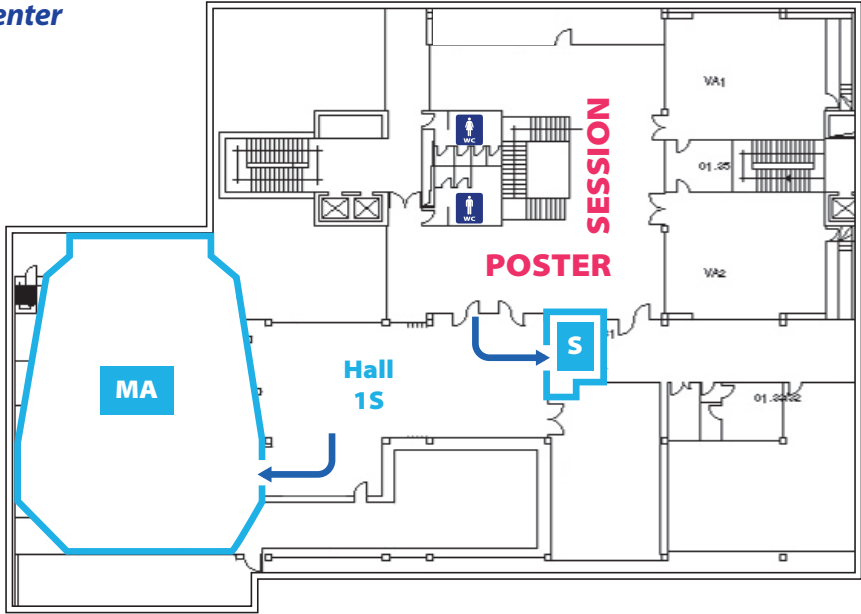
# Conference Information

## Congress Center Floor Plans

### Congress Center

#### Floor -1

(1<sup>st</sup> Basement)

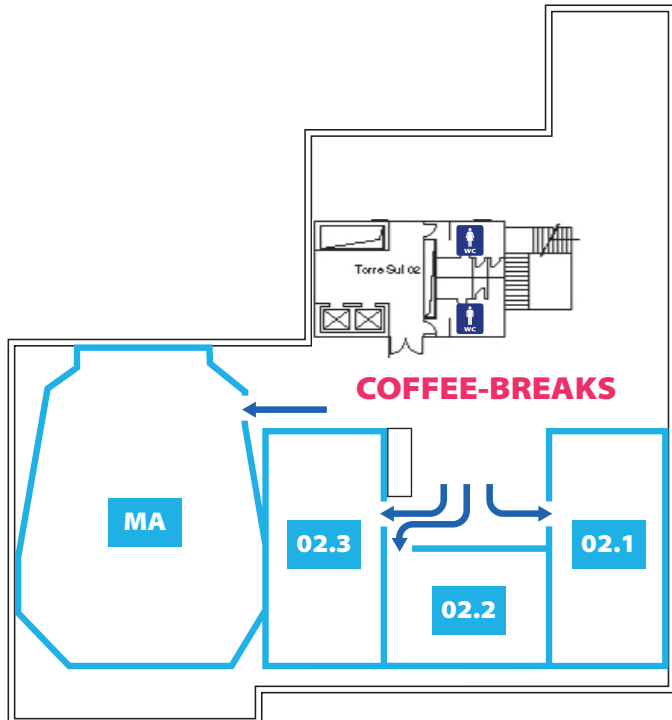


- MA - Main Auditorium
- S - Secretariat
- 02.1 - Session Room
- 02.2 - Session Room
- 02.3 - Session Room

### Congress Center

#### Floor -2

(2<sup>nd</sup> Basement)

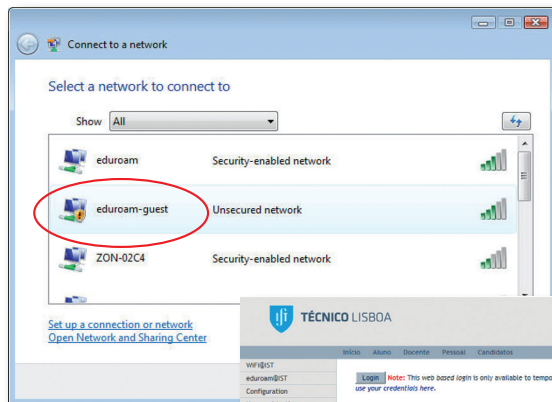


# Conference Information

## Wireless Internet Access

### Step 1:

Select the eduroam-guest network



### Step 2:

Open your web access program (Microsoft Explorer or other) and select **WEB BASED LOGIN**.

**icst10  
G8vcBJ**

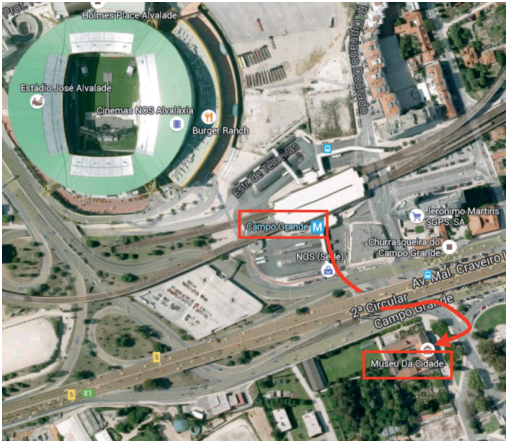
### Step 3:

Enter user: **icst10**  
Password: **G8vcBJ**

## Instructions for Presenters

- Each Oral presentation will take 20 minutes including discussion.
- The files required for the presentation (PowerPoint or PDF) must be uploaded and tested in the computer of the room where the presentation will take place before the beginning of the respective session. Conference computers run Windows 7 and have installed Office 2010 and Acrobat PDF reader.

## Social Programme



### Welcome Reception - Wednesday, September 02, 18:30-20h

The Welcome Reception, hosted by the City Hall, will be held at the Lisbon City Museum. The best way to reach the Museum is to take the **subway (yellow or green line)** to **'Campo Grande'**. In this museum, the history of Lisbon since ancient times until the 19th century is described. It is housed in an 18th century palace (Palácio Pimenta) built during the reign of king D. João V of Portugal. The museum has paintings, watercolours, tile panels, historical documents and even a model of the city of Lisbon before the destruction caused by the 1755 earthquake.



### Conference Banquet - Thursday, September 03, 19:30h

The conference dinner will take place at the Olisippo Lapa Palace at Rua do Pau de Bandeira, 4, Lisbon. Buses will depart from IST (Rua Alves Redol) at 19:45. Please don't forget to bring your Dinner Vouchers.

#### A Palace in Lapa - Palace History

Right after the earthquake in 1755, the first Baron of Porto Covo, Jacinto Fernandes Bandeira, built his house in S. Domingos Street, starting the creation of the Lapa district. Lapa means Moorish rock, from the original name "Lapa das Mouras". Approximately 115 years later, in 1870, the succeeding Viscount built for one of his sons a beautiful house in the Lapa District. Very disappointed that his son didn't like it, the house was later sold to the Count of Valenças, who in 1883 decided to transform it into a Palace.

## General Tourist Information



### Getting to Lisbon by air

Direct flights from most of European cities, North or South America and Africa land at the Portela Airport, terminal 1. A taxi ride from the airport to IST is about 4-5 km that takes 10-15 min, depending on traffic, and should cost around 8€. To downtown the taxi ride is about 7 km and should cost around 10€. 1.60€ is charged for the transportation of luggage or animals. A sure option is the "Taxi Voucher" a prepaid taxi service starting at 16.40€, on sale at the "Information Desk" in the arrival terminal. Lisbon Airport has its own Metro Station, Aeroporto - red line (see map of Lisbon with subway lines). Other options are the AeroBus and the Aeroshuttle (3.5€).

### Getting to Lisbon by car

Drivers coming from the north use highway A1 while those coming from East and South use highway A2, entering in Lisbon through the 25 de Abril bridge or use A12 and enter by the Northeast of Lisbon through the Vasco da Gama bridge. The speed limits in Portugal are 120 km/h on highways, 90 km/h on roads and 50 km/h in urban areas, unless marked otherwise.

### Getting to Lisbon by train

The St. Apolónia station is the terminal for trains arriving from the North of Portugal. Another option is to use the train station Oriente. From the South of Portugal an option is to use the train station Oriente. Connections to the metro lines exist at both stations (St. Apolónia - blue line, Oriente - red line).

### Moving around

#### Taxi:

Lisbon is served by an extensive network of public transportation that can take you anywhere in the city and to its surroundings. Taxis (black and green or beige) are cheap when comparing to most of the European countries. They 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 pick-up) 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.

#### 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 lines reach most of the city being the Metro stations close to IST:

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

#### 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 and Bus Fares:

Reusable card – 0.50 €

METRO/CARRIS – 1.40 €

CARRIS Bus – 1.80€ (on board fare)

Tram – 2.85 (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) while to Sintra the trains depart from Rossio train station or Oriente (Entrecampos). The ride to Cascais or to Sintra should take about 35-45 min, each way. The train ride to south of the river is a highlight as the train will cross the 25 de Abril bridge with magnificent views of Lisbon.

For IST the nearby train stations are:

- Roma-Areeiro
- Entrecampos

## National emergency number: 112

### Other general information

- Time zone: GMT +1 summer time
- Electricity: 220V, 50 Hz with standard European power sockets
- Currency: Euro (€)
- Banks: working hours are 8:30 – 15:00 (*Monday-Friday*)
- Pharmacies: 9:00 – 19:00
- Shops: 9:00 – 19:00
- Shopping Malls: 10:00 – 23:00
- Temperature: Average high 28°C, Average low 18°C



### Main Museums in Lisbon:

- Centro de Arte Moderna  
(*Modern Art Museum*)
- Museu do Oriente  
(*Oriente Museum*)
- Museu Calouste Gulbenkian  
(*Calouste Gulbenkian Museum*)
- Museu dos Coches  
(*Coach Museum*)
- Museu Nacional de Arte Antiga  
(*National Museum for Ancient Art*)
- Coleção Berardo  
(*The Berardo Collection*)
- Museu do Azulejo  
(*Tile Museum*)

### Main Monuments in Lisbon:

- Aqueduto das Águas Livres  
(*Águas Livres' Aqueduct*)
- Basílica da Estrela  
(*Estrela Basilica*)
- Castelo de São Jorge  
(*Saint George's Castle*)
- Sé Patriarcal  
(*Patriarchal Church*)
- Mosteiro dos Jerónimos  
(*Jerónimos Monastery*)
- Padrão dos Descobrimentos  
(*Monument to the Overseas Discoveries*)
- Torre de Belém  
(*Belém Tower*)

# Map of Lisbon




**linha Azul**  
 Blue line


**linha Amarela**  
 Yellow line


**linha Verde**  
 Green line


**linha Vermelha**  
 Red line





# **ICCST/10**

**10<sup>th</sup> International Conference on  
Composite Science and Technology**

## **Scientific Programme**

**2-4 September, 2015**

**Instituto Superior Técnico • Lisboa • Portugal**

# Programme at a Glance

## ICCST/10 – General Programme

Hour	September 1 Tuesday			September 2 Wednesday			September 3 Thursday			September 4 Friday			
	Auditorium	02.1	02.2	02.3	Auditorium	02.1	02.2	02.3	Hall	Auditorium	02.1	02.2	02.3
08:00 – 08:45		Registration											
08:45 – 09:00		Opening Session											
09:00 – 09:45		Plenary Lecture 1 – <i>J.M. Reddy</i>											
09:45 – 10:30		Plenary Lecture 2 – <i>Z. Gardal</i>											
10:30 – 10:50		Coffee Break											
10:50 – 12:30	MC1	Ap1	CM1	DF1	MC4	CM3	DF2	CMm					
	12	13	21	23	207	83	75	138					
	190	19	38	27	60	128	76	174					
	28	30	62	52	87	129	130	181					
	143	79	63	55	117	139	170	209					
	58	90	74	71	179	14	193	35					
12:30 – 14:00		Lunch											
14:00 – 14:45		Plenary Lecture 3 – <i>A. Elmarakbi</i>											
14:50 – 15:50	MC2	Ap2	CM2	MM	TC	RSh	GB1	NC1					
	105	92	80	24	91	176	18	20					
	109	165	81	42	108	192	25	64					
	112	187	82	136	175	50	50	88					
15:50 – 16:10		Coffee Break											
	MC3	Ap3	ID	AC	MC5	SM	GB2	NC2					
	100	191	44	22	8	3	161	158					
	46	202	113	31	249	59	168	171					
	153	220	134	39	254	172	189	180					
	154	251	246	131	256	253	226						
17:30 – 18:30					84	53							
18:30 – 19:00		Registration (16:00 – 19:00)											
19:00 – 20:00		Welcome Reception											
20:00 – 24:00		Conference Dinner											

MC - Mechanics of Composites  
 AC - Automotive Composites  
 Ap - Applications of Composites

CM - Composites Manufacturing  
 DF - Damage, Fatigue and Fracture  
 GB - Green and Bio-Composites

HC - Hybrid Composites  
 NC - Nanocomposites  
 CMm - Ceramic and Metal-matrix Composit

ID - Impact and Dynamic Response  
 MM - Multiscale Modeling  
 RSh - Repair and Self-Healing

TC - Textile Composites  
 SM - Smart Materials and Structures  
 NDE - NDE and Structural Health Monitoring



## Sessions

Wednesday, September 02

08:45 – 09:00	Auditorium		Opening Session	
Auditorium	Plenary Lectures		Chair: Pauli Pedersen	
09:00 – 09:45	Large Deformation Analysis of Laminated Composite and Functionally Graded Structures: Recent Developments		J.N. Reddy	
09:45 – 10:30	Nonconventional Composite Laminates		Zafer Gurdal	
10:30 – 10:50	Coffee Break			
Auditorium	MC1	Mechanics of Composites	Chair: António Ferreira	
	N.	Paper	Authors	Presenter
10:50 – 11:10	12	On design of anisotropy distributions, applying lamina formulas for result visualization	Pauli Pedersen and Niels Pedersen	Pauli Pedersen
11:10 – 11:30	190	Multi-material Stacking Sequence and Fibre Orientation Optimization of Vibrating Laminated Composite Plates for Minimum Sound Emission	Niels Olhoff and Bin Niu	Niels Olhoff
11:30 – 11:50	28	The identification of elastic properties of composite materials by modal analysis approach	Nan Li, Mabrouk Ben Tahar, Zoheir Aboura and Kamel Khellil	Nan Li
11:50 – 12:10	143	Structural and economical optimization of the stacking sequences of hybrid composite structures under varying loading conditions	Vinay Madhavan, Samih Zein and David Dumas	Vinay Madhavan
12:10 – 12:30	58	Optimization of fibers orientation in a composite specimen	Sara Monte, Virginia Infante, J F A Madeira, F Moleiro	Sara Monte

Room 02.1	Ap1	Applications of Composites	Chair: Basim Abu-Jdayil	
	N.	Paper	Authors	Presenter
10:50 – 11:10	13	<b>Flame retardants nanocomposites on based thermoset resins. Synergy effect of combining conventional phosphorus/nitrogen antyirenes with nanofillers on the level of flammability</b>	<i>Ewa Kicko-Walczak and Grazyna Rymarz</i>	<i>Ewa Kicko-Walczak</i>
11:10 – 11:30	19	<b>Research on CEAC long-life composite pavement</b>	<i>Jun Fu, Yanqing Yang, Yonggang Gou, Jiabiao Huang, Yaofang Wan and Huarong Shu</i>	<i>Jun Fu</i>
11:30 – 11:50	30	<b>Characterization of cement-based piezoelectric composite smart material</b>	<i>Raissa Pivetta, Isadora Monzini, Alex Sanches, Haroldo Nagashima, Darcy Kanda, Guilhermina Teixeira, Maria Zaghete and Walter Sakamoto</i>	<i>Walter Sakamoto</i>
11:50 – 12:10	79	<b>Mechanics Analysis on the composite flywheel stacked from circular twill weave fabric rings</b>	<i>Xingjian Dai, Yong Wang, Changliang Tang and Xingfeng Guo</i>	<i>Xingjian Dai</i>
12:10 – 12:30	90	<b>Design, analysis and testing of a composite integral sandwich structure of the offset mirror space antenna</b>	<i>Evgeny Morozov, Alexander Lopatin and Vitaly Taygin</i>	<i>Evgeny Morozov</i>

Room 02.2	CM1	Composites Manufacturing	Chair: Philippe Boisse	
	N.	Paper	Authors	Presenter
10:50 – 11:10	21	<b>Evaluation and calibration of mold independent cure monitoring systems for epoxy resins</b>	<i>Jochen Schmidt, Nico Liebers and Mark Opitz</i>	<i>Jochen Schmidt</i>
11:10 – 11:30	38	<b>Construction of a 3-D droplet array in a metabolic elastomer</b>	<i>Mitsunori Saito and Takuya Morigami</i>	<i>Mitsunori Saito</i>
11:30 – 11:50	62	<b>Prestressed polymeric composites: an alternative approach</b>	<i>Kevin Fancey</i>	<i>Kevin Fancey</i>
11:50 – 12:10	63	<b>Techniques to investigate viscoelastically generated prestress in polymeric composites</b>	<i>Chao Ge, Kevin Fancey and Bing Wang</i>	<i>Chao Ge</i>
12:10 – 12:30	74	<b>Composite Material Contamination of Electrical Equipment</b>	<i>Kurt Olofsson, Runar Langstram, Jon Bergman and Patrik Fernberg</i>	<i>Kurt Olofsson</i>

Room 02.3	DF1	Damage, Fatigue and Fracture	Chair: Pedro Camanho	
	N.	Paper	Authors	Presenter
10:50 – 11:10	23	<b>Acoustic emission detection of microcrack initiation in CFRP under shear stress</b>	<i>Ireneusz Baran, Marek Nowak, Jan Chlopek and Krzysztof Konsztowicz</i>	<i>Krzysztof Konsztowicz</i>
11:10 – 11:30	27	<b>Fatigue evaluation and enhanced shear strain measurements of bonded composite joints</b>	<i>Thomas Löbel, Heike Sonnenberg, Dirk Holzhüter and Christian Hühne</i>	<i>Thomas Löbel</i>
11:30 – 11:50	52	<b>Progressive Failure of Impact-Damaged Composite Omega Stiffeners</b>	<i>Muhammad Ridha, Tong-Earn Tay, Sven Werner, Paul Joem and Vincent B.C. Tan</i>	<i>Tong-Earn Tay</i>
11:50 – 12:10	55	<b>Mechanical and fracture properties of carbon fiber reinforced self-compacting concrete composites</b>	<i>Erhan Güneysisi, Mehmet Gesoğlu, Mustafa Fahmi and Süleyman İpek</i>	<i>Erhan Güneysisi</i>
12:10 – 12:30	71	<b>Influence of notch on progressive damage of multi-layer composite laminates</b>	<i>Bibekananda Mandal and Anupam Chakrabarti</i>	<i>Anupam Chakrabarti</i>

12:30 – 14:00

Lunch

Auditorium	Plenary Lecture		Chair: <i>Gennady Kulikov</i>	
14:00 – 14:45	<b>Novel Composite Materials for Automotive Applications: Concepts and Challenges for Energy-Efficient and Safe Vehicles</b>		<i>Ahmed Elmarakbi</i>	

Auditorium	MC2	Mechanics of Composites	Chair: <i>M.A. Ramos Loja</i>	
	N.	Paper	Authors	Presenter
14:50 – 15:10	105	<b>Flexural behavior of concrete filled seamless steel tube (CFST) beams</b>	<i>Farid Abed, Mohamad Najib and A. Kerim Ilgun</i>	<i>Farid Abed</i>
15:10 – 15:30	109	<b>Structural properties of stitched T-Stiffeners: web tear-off and column buckling</b>	<i>Scott Morin and Simon Joncas</i>	<i>Scott Morin</i>
15:30 – 15:50	112	<b>A General Solution for Anti-plane Elastic Field in Anisotropic Media containing an Eshelby's Elliptic Inhomogeneity</b>	<i>C.K. Chan, Z.Q. Huang and G.H. Nie</i>	<i>G.H. Nie</i>

Room 02.1	Ap2	Applications of Composites	Chair: <i>Kevin Fancey</i>	
	N.	Paper	Authors	Presenter
14:50 – 15:10	92	<b>Effect of the ZnO star-like particles on the physical properties of the poly(vinylidene fluoride) composite films</b>	<i>Mariam Al Ali Al Maadeed, Miroslav Mrlik, Mariem Mohamed Chamakh, Pavel Bazant and Ivo Kuritka</i>	<i>Mariam Al Ali Al Maadeed</i>
15:10 – 15:30	165	<b>Viscoelastic Energy Dissipation of Deployable Composite Structures</b>	<i>Arafat Khan, Elisa Borowski, Eslam Soliman and Mahmoud Taha</i>	<i>Arafat Khan</i>
15:30 – 15:50	187	<b>Date pits and date palm wood-based heat insulator composites</b>	<i>Basim Abu-Jdayil, Abdel-Hamid Mourad and Atif Hussain</i>	<i>Basim Abu-Jdayil</i>

Room 02.2	CM2	Composites Manufacturing	Chair: <i>José Aguilar Madeira</i>	
	N.	Paper	Authors	Presenter
14:50 – 15:10	80	<b>Peeling Force of Fluororesin/PDMS Laminated Sheet Assisted by Homogeneous EB-Irradiation under High Temperature of 363 K</b>	<i>Chisato Kubo, Masae Kanda and Yoshitake Nishi</i>	<i>Chisato Kubo</i>
15:10 – 15:30	81	<b>Electroactive Polymer Film</b>	<i>Masae Kanda, Kaori Yuse, Daniel Guyomar and Yoshitake Nishi</i>	<i>Masae Kanda</i>
15:30 – 15:50	82	<b>Adhesion between Metal/Polymer-Composites Irradiated by electron beam Prior to Hot-press</b>	<i>Akiko Minegishi, Masae Kanda and Yoshitake Nishi</i>	<i>Akiko Minegishi</i>

Room 02.3	MM	Multiscale Modeling	Chair: <i>José M. Guedes</i>	
	N.	Paper	Authors	Presenter
14:50 – 15:10	24	<b>Modeling of high pressure composite vessels</b>	<i>Grazyna Zietek, Tomasz Czaplirski and Łukasz Maciejewski</i>	<i>Tomasz Czaplirski</i>
15:10 – 15:30	42	<b>Mechanical Properties of Fibre-Reinforced Lattice Materials</b>	<i>Carlo Zscherneck and Christina Völlmecke</i>	<i>Carlo Zscherneck</i>
15:30 – 15:50	136	<b>Multi-scale Numerical Simulation of the Thermal-Mechanical behaviors for Ceramic Composites Reinforced with Nano-fiber</b>	<i>Luo Dongmei, Zhou Yinglong and Pu Yijie</i>	<i>Luo Dongmei</i>

15:50 – 16:10	<b>Coffee Break</b>			
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Auditorium	MC3	Mechanics of Composites	Chair: Farid Abed	
	N.	Paper	Authors	Presenter
16:10 – 16:30	100	<b>Towards Aeroacoustic-Structural Optimization of Composite Wind Turbine Blades</b>	<i>João Mascarenhas, André Marta and Virginia Infante</i>	<i>João Mascarenhas</i>
16:30 – 16:50	46	<b>Thermoelectroelasticity of a defective bimaterial with thermally imperfect interface</b>	<i>Hearhiy Sulym, Iaroslav Pasternak and Grazyna Zietek</i>	<i>Hearhiy Sulym</i>
16:50 – 17:10	153	<b>Influence of the Property of Hole on Stress Concentration Factor for Isotropic Plates</b>	<i>Zhuang Lican, Bixin Su, Minghao Lin, Yiyuan Liao, Yafang Peng, Yinglong Zhou and Luo Dongmei</i>	<i>Zhuang Lican</i>
17:10 – 17:30	154	<b>Computational investigation of failure modes in composite layered plates</b>	<i>Faranak Bakhtiari and Mohammad Zaman Kabir</i>	<i>Faranak Bakhtiari</i>

Room 02.1	Ap3	Applications of Composites	Chair: João R. Correia	
	N.	Paper	Authors	Presenter
16:10 – 16:30	191	<b>On the estimates of durability of glass fibre reinforced polymers subjected to hot/wet aging</b>	<i>Sotirios Grammatikos and Mark Evernden</i>	<i>Sotirios Grammatikos</i>
16:30 – 16:50	202	<b>Finite element modeling of underground glass-reinforced composite pipe under different loading scenarios</b>	<i>Long Bin Tan, Kwong Ming Tse, Vincent Beng Chye Tan and Heow Pueh Lee</i>	<i>Long Bin Tan</i>
16:50 – 17:10	220	<b>Development of testing facility to investigate GRE pipes behavior in harsh environment</b>	<i>Edris Hassan and Jamil Abdo</i>	<i>Edris Hassan</i>
17:10 – 17:30	251	<b>Effect of geometrical structure and properties of composite components on drilling of various composite materials</b>	<i>Romana Sliwa and Piotr Tyczynski</i>	<i>Romana Sliwa</i>

Room 02.2	ID	Impact and Dynamic Response	Chair: Victor Franco Correia	
	N.	Paper	Authors	Presenter
16:10 – 16:30	44	<b>Effectiveness of FRP composites for upgrading the dynamic response of a reinforced concrete building</b>	<i>Esra Mete Güneyisi, Muthna Jubair and Aysegül Gültekin</i>	<i>Esra Mete Güneyisi</i>
16:30 – 16:50	113	<b>Impact Performance of Biomimetic Helicoidal Composite Plates</b>	<i>Nigel Ngern, Jia Shun Shang and Vincent Tan</i>	<i>Vincent Tan</i>
16:50 – 17:10	134	<b>Influence of the elastomer layer position on the low-velocity impact behavior of composite/steel/elastomer laminates</b>	<i>Denise Düring, Daniel Stefaniak and Christian Hühne</i>	<i>Denise Düring</i>
17:10 – 17:30	246	<b>High strain rate sensitivity of glass/epoxy/clay nanocomposites</b>	<i>S Gurusideswar and R Velmurugan</i>	<i>S Gurusideswar</i>

Room 02.3	AC	Automotive Composites	Chair: Ahmed Elmarakbi	
	N.	Paper	Authors	Presenter
16:10 – 16:30	22	<b>Estimating the Specific Wear Rate of Unidirectional and Woven Carbon Fiber/Epoxy Composites Using an Energy-based Micromechanics Model</b>	<i>Billy Cheng and Mark Kortschot</i>	<i>Mark Kortschot</i>
16:30 – 16:50	31	<b>Influence of Laser Cutting on Handling, Drape and Infusion Characteristics of Preforms</b>	<i>Dirk Herzog, Matthias Schmidt-Lehr, Marten Canisius, Max Oberlander and Claus Emmelmann</i>	<i>Dirk Herzog</i>
16:50 – 17:10	39	<b>Cost-effective high speed production of multi-material components by selective tape placement</b>	<i>Christian Brecher, Tido Peters and Michael Emonts</i>	<i>Tido Peters</i>
17:10 – 17:30	131	<b>Friction and wear properties of high modulus pitch-based carbon fiber reinforced plastics with SiC nanoparticles</b>	<i>Takumi Sato, Kimiyoshi Naito, Takashi Matsuoka and Tomoko Hirayama</i>	<i>Takumi Sato</i>

18:30 – 19:30

Welcome Reception (Museu da Cidade)



## Sessions

Thursday, September 03

Auditorium	Plenary Lectures	Chair: António Torres Marques
09:00 – 09:45	<b>Progress and Challenges in the Virtual Testing and Design of Composite Structures</b>	Brian Falzon
09:45 – 10:30	<b>Achieving Fire Safety for Polymer Composites in Construction</b>	Luke Bisby

10:30 – 10:50	Coffee Break	
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Auditorium	MC4	Mechanics of Composites	Chair: Tong-Earn Tay	
	N.	Paper	Authors	Presenter
10:50 – 11:10	207	<b>Optimal Use of Ultra-Thin Plies In Composite Structures</b>	Carolina Furtado, Pedro Camanho, Mathias Vogler and António Marques	Carolina Furtado
11:10 – 11:30	60	<b>Deformation prediction of composite specimens subjected to three-point bending tests</b>	Sara Monte, Virgínia Infante, F. Moleiro, J.F.A. Madeira	F. Moleiro
11:30 – 11:50	87	<b>Gust Wind Load Reduction in Wind Turbine Blades</b>	Edgar Carolo and André Marta	Edgar Carolo
11:50 – 12:10	117	<b>On the characterization of parametric uncertainty on FGM plates</b>	Fabio Damasio, T. A. N. Silva, Alda Carvalho and M.A.R. Loja	Fabio Damasio
12:10 – 12:30	179	<b>Material and geometrically nonlinear analysis of functionally graded materials plate-shell structures</b>	José Simões Moita, Aurélio Lima Araújo, Cristóvão Manuel Mota Soares and Carlos Alberto Mota Soares	Cristóvão Manuel Mota Soares

Room 02.1	CM3	Composites Manufacturing	Chair: Rosa Marat-Mendes	
	N.	Paper	Authors	Presenter
10:50 – 11:10	83	<b>Development of Carbon fiber Assisted Universal Joints of Metals and different Metal or polymers (M/M, M/P)</b>	Yoshitake Nishi, Shigehito Inui, Sho Ishii, Hitoki Hasegawa, Yoshihito Matsumura and Michell C Faudree	Yoshitake Nishi
11:10 – 11:30	128	<b>Consolidated Fiber Placement - The lay-up of consolidated unidirectional fiber tapes</b>	Andreas Henneberg and Gordon Transier	Andreas Henneberg
11:30 – 11:50	129	<b>Consolidated fiber placement - a new approach</b>	Gordon Transier and Andreas Henneberg	Gordon Transier
11:50 – 12:10	139	<b>Numerical simulation of pultrusion processes: algorithms' comparative study</b>	Evgeny Barkanov, Pavel Akishin, Nora Miazza and Santiago Galvez	Evgeny Barkanov
12:10 – 12:30	14	<b>Thermal and mechanical modeling of thermoplastic composites during forming process</b>	Eduardo Guzman-Maldonado, Anton Rusanov, Nahiene Hamila and Philippe Boisse	Nahiene Hamila

12:30 – 12:50	243	<b>Characterization of Al7075-B4C composite fabricated by powder compaction techniques under different densification rates</b>	<i>Amir Atrian and Gholam-Hossein Majzoobi</i>	<i>Amir Atrian</i>
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Room 02.2	DF2	Damage, Fatigue and Fracture	Chair: <i>Ana Neves</i>	
	N.	Paper	Authors	Presenter
10:50 – 11:10	75	<b>Influence of the Stacking Sequence on the Nonlinear Material Behavior of Composite Laminates Related to Large Deformations</b>	<i>Robin Taubert, Ulrich Mandel and Roland Hinterhölzl</i>	<i>Robin Taubert</i>
11:10 – 11:30	76	<b>Laminate Damage Model for CFRP Structures</b>	<i>Ulrich Mandel, Robin Taubert and Roland Hinterhölzl</i>	<i>Ulrich Mandel</i>
11:30 – 11:50	130	<b>Optimum design of laminated composites for maximum fatigue life</b>	<i>Hamza Arda Deveci and H. Seçil Artem</i>	<i>Hamza Arda Deveci</i>
11:50 – 12:10	170	<b>Numerical simulation of impact behaviour of carbon composite laminate in dependence of ply thickness</b>	<i>Peter Linde, Francesca Mendolia and Aniello Riccio</i>	<i>Peter Linde</i>
12:10 – 12:30	193	<b>Interfacial Sliding in Composite Interfaces at Elevated Homologous Temperatures: Observations in 3D Electronic Devices</b>	<i>Indranath Dutta, Lutz Meinshausen, Ming Liu and Tae-Kyu Lee</i>	<i>Indranath Dutta</i>

Room 02.3	CMm	Ceramic and Metal-matrix Composites	Chair: <i>Aurélio Araújo</i>	
	N.	Paper	Authors	Presenter
10:50 – 11:10	138	<b>Modeling of processes realizing during combustion of high caloric thermite mixtures on surface of active metallic substrate</b>	<i>Dmitrii Andreev, Vladimir Yukhvid, Vladimir Sanin and Konstantin Shkadinsky</i>	<i>Dmitrii Andreev</i>
11:10 – 11:30	174	<b>Microstructure and mechanical properties of Al-6061/TiC metal matrix composites</b>	<i>Reynaldo Morales Hernandez, Victor Hugo Lopez Morelos, Andrew Kennedy, Jorge Alejandro Verduzco Martinez, Rafael Garcia Hernandez and Egberto Bedolla Becerril</i>	<i>Victor Hugo Lopez Morelos</i>
11:30 – 11:50	181	<b>Fabrication of continuous fiber-reinforced ceramic matrix composites by of electrophoretic deposition</b>	<i>Saša Novak and Aljaž Iveković</i>	<i>Saša Novak</i>
11:50 – 12:10	209	<b>Tension-compression fatigue of NEXTEL™720/Alumina composite at 1200 °C in air and in steam</b>	<i>Marina Ruggles-Wrenn and Richard Lanser</i>	<i>Marina Ruggles-Wrenn</i>
12:10 – 12:30	35	<b>Mechanical and functional properties of the alumina foam/tri-functional epoxy resin composites with an interpenetrating network structure</b>	<i>Joanna Ligoda-Chmiel, Romana E. Śliwa and Marek Potoczek</i>	<i>Joanna Ligoda-Chmiel</i>
12:30 – 12:50	236	<b>Mechanical character of Asymmetric CFRP/Al laminates</b>	<i>Junqing Zhao and Wenbo Liu</i>	<i>Junqing Zhao</i>

12:30 – 14:00	<b>Lunch</b>			
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Auditorium	Plenary Lecture		Chair: <i>Evgeny Barkanov</i>	
14:00 – 14:45	<b>Semidefinite Programming and Applications in free Material Optimization</b>		<i>José Herskovits</i>	

Auditorium	TC	Textile Composites	Chair: <i>Mark Kortschot</i>	
	N.	Paper	Authors	Presenter
14:50 – 15:10	91	<b>Tensile Properties of UHMWPE Single Yarn at Different Low Strain Rates</b>	<i>Hongxu Wang, Paul Hazell, Krishna Shankar, Evgeny Morozov and Juan Escobedo</i>	<i>Hongxu Wang</i>



15:10 – 15:30	108	<b>New mesh material coated with photocatalyst (TiO<sub>2</sub>)</b>	<i>Hiroshi Toyoda</i>	<i>Hiroshi Toyoda</i>
15:30 – 15:50	175	<b>Locking and stability of 3D textile composite reinforcements during forming</b>	<i>Philippe Boisse, Nahiene Hamila and Sylvain Mathieu</i>	<i>Philippe Boisse</i>

Room 02.1	RSh	Repair and Self-Healing	Chair: <i>Luis Reis</i>	
	N.	Paper	Authors	Presenter
14:50 – 15:10	176	<b>Delivering a Compliant Composite Solution in a Non-compliant situation</b>	<i>Osmay Oharriz</i>	<i>Osmay Oharriz</i>
15:10 – 15:30	192	<b>Optimization of a composite panel repaired by bonded scarf patch</b>	<i>Francesco Di Caprio, Fulvio Romano, Antonio Chiariello and Umberto Mercurio</i>	<i>Francesco Di Caprio</i>

Room 02.2	GB1	Green and Bio-Composites	Chair: <i>Edris Hassan</i>	
	N.	Paper	Authors	Presenter
14:50 – 15:10	18	<b>Tencel® fiber reinforced PLA composites</b>	<i>Lukas Sobczak, Ivana Burzic and Martin Marsche</i>	<i>Lukas Sobczak</i>
15:10 – 15:30	25	<b>Sandwich boards made from bio-polyurethane foam and natural fibre cover layers: new approach for sustainable lightweight construction</b>	<i>Holger Fischer, Nils Emde and Mansour Mirzaghavam</i>	<i>Holger Fischer</i>
15:30 – 15:50	50	<b>Silanated Agricultural Waste Bagasse for Wooden-Polyester Composite</b>	<i>Hamdy Naguib, Usama Kandil, Ahmed Hashem and Mahmoud Taha</i>	<i>Hamdy Naguib</i>

Room 02.3	NC1	Nanocomposites	Chair: <i>Hideo Sawada</i>	
	N.	Paper	Authors	Presenter
14:50 – 15:10	20	<b>Interfacial shear properties of carbon nanotubes grafted carbon fiber polyimide composites</b>	<i>Kimiyoshi Naito and Hiroyuki Oguma</i>	<i>Kimiyoshi Naito</i>
15:10 – 15:30	64	<b>Effect of Reactive Rubber Nanoparticles and Nanoclay Mix on the Mechanical Properties of Epoxy</b>	<i>Mona Ahmed, Usama Kandil, Shaker Nevine and Ahmed Hashem</i>	<i>Usama Kandil</i>
15:30 – 15:50	88	<b>Effects of graphene nanofillers on the energy storage properties of paraffin-based phase change materials</b>	<i>Abdalla Alrashdan and Edreese Alsharaeh</i>	<i>Abdalla Alrashdan</i>

15:50 – 16:10	<b>Coffee Break</b>			
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Auditorium	MCS	Mechanics of Composites	Chair: <i>Filipa Moleiro Duarte</i>	
	N.	Paper	Authors	Presenter
16:10 – 16:30	8	<b>Bond properties of glass fibre reinforced polymer bars with fly-ash based geopolymer concrete</b>	<i>Biruk Hailu Tekle, Amar Khennane and Obada Kayali</i>	<i>Biruk Hailu Tekle</i>
16:30 – 16:50	249	<b>Novel Method of Tracking Mechanical Changes in Composite Electrodes during their Charging-Discharging by QCM-D</b>	<i>Mikhael Levi, Gregory Salitra, Netanel Shpigel, Sergey Sigalov, Leonid Daikhin and Doron Aurbach</i>	<i>Mikhael Levi</i>
16:50 – 17:10	254	<b>Multiobjective optimization of constrained layer damping treatments in composite plate structures</b>	<i>J.F. Aguilar Madeira, A.L. Araújo, C.M. Mota Soares, C.A. Mota Soares</i>	<i>J.F. Aguilar Madeira</i>
17:10 – 17:30	256	<b>Laminated soft core sandwich structures: static and dynamic analysis with active-passive damping</b>	<i>Vitor S. Carvalho, Aurélio L. Araújo, Cristóvão M. Mota Soares, Carlos A. Mota Soares</i>	<i>Vitor S. Carvalho</i>
17:30 – 17:50	84	<b>Multi-scale probabilistic modeling of glass fiber reinforced concrete</b>	<i>Rostislav Ryppl, John E. Bolander, Jingu Kang and Miroslav Vořechovský</i>	<i>Rostislav Ryppl</i>

Room 02.1	SM	Smart Materials and Structures	Chair: José V.A. Santos	
	N.	Paper	Authors	Presenter
16:10 – 16:30	3	<b>Three-Dimensional Thermopiezoelectric Analysis of Laminated and Functionally Graded Plates and Shells by a Sampling Surfaces Method</b>	<i>Gennady Kulikov and Svetlana Plotnikova</i>	<i>Gennady Kulikov</i>
16:30 – 16:50	59	<b>Shape-changing (bistable) composites based on viscoelastically generated prestress</b>	<i>Bing Wang and Kevin Fancey</i>	<i>Bing Wang</i>
16:50 – 17:10	172	<b>Interval analysis methodology in the vibration control of a smart structure with laminated composite uncertainties</b>	<i>Marcos Daniel De Freitas Awruch and Herbert Martins Gomes</i>	<i>Marcos Daniel De Freitas Awruch</i>
17:10 – 17:30	253	<b>Output power optimization of piezoelectric vibration harvester for traditional unimorph configuration</b>	<i>Agostinho Matos, José Guedes, Kuzhichalil Jayachandran and Hélder Rodrigues</i>	<i>José Guedes</i>
17:30 – 17:50	53	<b>Study of Shape Memory Alloy Hybrid Composite Structure for Improved Post Impact Strength</b>	<i>Amit Gupta, R Velmurugan and Makarand Joshi</i>	<i>Amit Gupta</i>

Room 02.2	GB2	Green and Bio-Composites	Chair: Jane M.F. Paiva	
	N.	Paper	Authors	Presenter
16:10 – 16:30	161	<b>Study of the potential use of the sugarcane bagasse in cement-panels</b>	<i>Matheus Roberto Cabral, Juliano Fiorelli, Holmer Savastano Junior, Robert Lagacé, Stéphane Godbout and Joahnn Palacios</i>	<i>Juliano Fiorelli</i>
16:30 – 16:50	168	<b>Engineered wood products made with 100% bio-based adhesives: New approaches to adhesive and wood panel manufacture</b>	<i>Armin Thumm, Warren Grigsby, Nancy Hati and Bernadette Nanayakkara</i>	<i>Armin Thumm</i>
16:50 – 17:10	189	<b>The biocomposite structure of decorative laminates</b>	<i>Malin Brodin, Per Olav Johnsen, Leif Kåre Hinderland and Gary Chingá-Carrasco</i>	<i>Malin Brodin</i>
17:10 – 17:30	226	<b>Inverse characterization of vegetable fibre-reinforced composite exposed to long UV degradation</b>	<i>Samuel Furtado, Arlindo Silva, Aurélio Araújo and Cristiano Alves</i>	<i>Aurélio Araújo</i>

Room 02.3	NC2	Nanocomposites	Chair: Cristina M.A. Lopes	
	N.	Paper	Authors	Presenter
16:10 – 16:30	158	<b>Fabrication of Cu-Cr nanocomposites for electrotechnical applications</b>	<i>Natalia Shkodich, Alexander Rogachev, Alexander Mukasyan and Dmitry Moskovskikh</i>	<i>Natalia Shkodich</i>
16:30 – 16:50	171	<b>CNT-polydimethylsiloxane nanocomposites for prostheses interfaces</b>	<i>Adriana Cavaco, Amílcar Ramalho, Sandra Pais and Luísa Durães</i>	<i>Adriana Cavaco</i>
16:50 – 17:10	180	<b>Facile Creation of Superoleophobic-Superhydrophilic and Superoleophilic-Superhydrophobic Surfaces by Using Fluoroalkyl End-capped Vinyltrimethoxysilane Oligomeric Nanocomposites</b>	<i>Hideo Sawada</i>	<i>Hideo Sawada</i>

20:00 – 24:00	<b>Conference Dinner (Olissippo Lapa Palace)</b>			
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## Poster Session

Thursday, September 03

Hall	N.	Paper	Authors	Presenter
10:30 – 17:30	7	<b>New Crosslinking Diluents for Dental Composites</b>	<i>Norbert Moszner, Jörg Angermann and Urs Fischer</i>	<i>Norbert Moszner</i>
	10	<b>Evaluation of the sensorimotor control of rats with chitosan/fibroin 3D-scaffolds implants</b>	<i>Gabriela Santos Andrade, José Trindade Junior, Lucas Vasconcelos Lima, Thiago Abner Dos Santos Sousa, Josimari Melo de Santana and Paulo Autran Leite Lima</i>	<i>Gabriela Santos Andrade</i>
	29	<b>Evaluation on Mechanical behaviour of New ODS Alloys</b>	<i>Omid Khalaj, Bohuslav Masek, Hana Jirkova and Jiri Svoboda</i>	<i>Omid Khalaj</i>
	34	<b>Mechanical Properties of Polypropylene Matrix Composites with Jute Fiber Fabric</b>	<i>Olivia Helena Margoto, Virginia Aparecida Silva Moris and Jane Maria Faulstich de Paiva</i>	<i>Jane Maria Faulstich de Paiva</i>
	45	<b>Multilayer particle board with sugar cane bagasse and bamboo: thermal-physical-mechanical properties</b>	<i>Juliano Fiorelli, Raul Gava Galo, Khosrow Ghavami, Holmer Savastano Junior, Ugo Belini and Gonzalo Mármol</i>	<i>Juliano Fiorelli</i>
	57	<b>Silsesquioxane synthesis and incorporation into organic/inorganic hybrids based on epoxy resin</b>	<i>Letícia Oliveira Alves, Elizabete Yoshie Kawachi and Silvana Navarro Cassu</i>	<i>Silvana Navarro Cassu</i>
	65	<b>Utilization of Reactive Rubber Nanoparticles and Waste Polymers in Improving Asphalt Performance</b>	<i>Usama Kandil, Reem Farag, Amina Saleh, Hamdy Naguib and Mahmoud Taha</i>	<i>Usama Kandil</i>
67	<b>Mechanical Properties and toughening mechanisms of Toughening Ceramics</b>	<i>Jianguo Ning and Huilan Ren</i>	<i>Huilan Ren</i>	

10:30 – 17:30	68	<b>High Temperature Oxidation Behaviors of ZrB<sub>2</sub>-SiC Composites</b>	<i>Young-Hoon Seong, In-Sub Han, Seyoung Kim and Sang Kuk Woo</i>	<i>Young-Hoon Seong</i>
	78	<b>Friction and wear performance of TiCN on M4 high speed steel for their use in fine blanking process</b>	<i>Karla Judith Moreno Bello, J. Santos García Miranda, Daniel Aguilera Camacho, Ana Arizmendi Morquecho and Abad Arenas</i>	<i>Karla Judith Moreno Bello</i>
	89	<b>Preparation and Quasi-Static Mechanical Properties of Zr/W/PTFE granular composites</b>	<i>Huilan Ren, Xiaojun Liu and Jianguo Ning</i>	<i>Xiaojun Liu</i>
	94	<b>The application of thermogravimetric analysis method in the determination of Aramid fiber content in composite</b>	<i>Kai Yi, Dongbing Geng, Chengyuan Shang, Yehong He and Jian Yang</i>	<i>Kai Yi</i>
	95	<b>Application status of composite acoustic liner in aero-engine</b>	<i>Dongbing Geng, Kai Yi, Chengyuan Shang, Jian Yang and Yehong He</i>	<i>Dongbing Geng</i>
	98	<b>Design of Flat-Back Composite Blade for 10MW Class Wind Turbine</b>	<i>Soo-Hyun Kim, Hyung-Joon Bang and Hyungki Shin</i>	<i>Soo-Hyun Kim</i>
	103	<b>Stochastic Approach to Micro-Scale Modeling of Mechanical Behavior of Multiphase Composites</b>	<i>Mikhail Tashkinov</i>	<i>Mikhail Tashkinov</i>
	107	<b>The effect of crystallinity and oxygen content of SiC fiber on LSI processed SiC/SiC ceramic matrix composite</b>	<i>Seyoung Kim, Sangkuk Woo, Insub Han, Jaehyung Choi and Young-Hoon Seong</i>	<i>Seyoung Kim</i>
	116	<b>Longitudinal shear of a bi-material with frictional sliding contact in the interfacial crack</b>	<i>Heorhiy Sulym, Lyubov Piskazub and Grazyna Zietek</i>	<i>Grazyna Zietek</i>
	132	<b>Numerical analysis of GLULAM beams without and with GFRP reinforcement</b>	<i>Antonio Dias, Juliano Fiorelli and Julio Molina</i>	<i>Juliano Fiorelli</i>
	135	<b>Impact damage characterization of sandwich panels produced with cork and PVC types of core</b>	<i>B. Soares, V. Anes, M. Freitas, L. Sousa and Luis Reis</i>	<i>Luis Reis</i>
	137	<b>Mechanical behavior of basalt and aluminum sandwich beams under 3PB and 4PB conditions</b>	<i>R. Marat-Mendes, A. Garcia and Luis Reis</i>	<i>R. Marat-Mendes</i>
	141	<b>Effect of silicon carbide nanoparticles on crystallinity of waterborne polyurethane</b>	<i>Renata Patrícia Dos Santos, Cristina Moniz A. Lopes and Sivana N. Cassu</i>	<i>Cristina Moniz A. Lopes</i>
	146	<b>Chemical conversions of thermite type multicomponent mixtures in combustion waves</b>	<i>Vladimir Yukhvid, Dmitrii Andreev and Vladimir Sanin</i>	<i>Dmitrii Andreev</i>
	148	<b>Natural fiber reinforced composites</b>	<i>François Cordenier and Bénédicte Goffin</i>	<i>François Cordenier</i>
	149	<b>Fabrication and characterization of metal-core carbon-shell nanoparticles reinforced epoxy resin nanocomposites</b>	<i>Aldobenedito Zotti, Simona Zuppolini, Anatolii Pomogailo, Gulzhian Dzhardimalieva, Vitaly Shershnev, Mauro Zarrelli and Anna Borriello</i>	<i>Anna Borriello</i>
	157	<b>Development of high emitting rosamine-TiO<sub>2</sub>/ SiO<sub>2</sub> composite thin films</b>	<i>M. Belén Suárez Jiménez, María G. Guillén, Tânia Lopes-Costa, José M. Pedrosa, Juan R. Sánchez-Valencia, Ángel Barranco, Agustín R. González-Elipe and Ana M. G. Silva</i>	<i>M. Belén Suárez Jiménez</i>

10:30 – 17:30	160	<b>Tetracarboxyphenylporphyrin/TiO<sub>2</sub> composite thin films as selective optical sensors for the detection of Volatile Organic Compounds (VOCs)</b>	<i>María G. Guillén, Javier Roales, M. Belén Suárez Jiménez, Tânia Lopes-Costa, José M. Pedrosa, Pedro Castillero, Ángel Barranco and Agustín R. González-Elipe</i>	<i>María G. Guillén</i>
	163	<b>A combination of high-energy ball milling and spark plasma sintering as an effective tool for consolidation nanostructured Cu-based pseudo-alloys</b>	<i>Natalia Shkodich, Alexander Rogachev, Alexander Mukasyan, Dmitry Moskovskikh and Sergey Vadchenko</i>	<i>Natalia Shkodich</i>
	164	<b>Shear Capacity of Concrete Beams Reinforced with BFRP bars</b>	<i>Maha Rwaished, Shada Maklad, Charif Ahmad, Bassel Khanafar, Farid Abed and Ahmed El Refai</i>	<i>Farid Abed</i>
	167	<b>Detection of Phosgene by using TiO<sub>2</sub>/indicator nanocrystalline thin films</b>	<i>Alejandro P. Vargas, Tania I. Lopes-Costa, María G. Guillén, María Belén Suárez Jiménez and Jose M. Pedrosa</i>	<i>Tania I. Lopes-Costa</i>
	169	<b>Free-base carboxyphenyl porphyrin /TiO<sub>2</sub> composite porous films for the optical detection of NO<sub>2</sub></b>	<i>Jose M. Pedrosa, Tania I. Lopes Da Costa, María G. Guillén, María Belén Suárez Jiménez and Javier Roales</i>	<i>Jose M. Pedrosa</i>
	173	<b>Mechanical Properties of Thiol-ene UV-Curable Thermoplastic Polysilsesquioxanes</b>	<i>Albert Lee, Hyeonyeol Jeon, Kyung-Youl Baek and Seung Sang Hwang</i>	<i>Seung Sang Hwang</i>
	177	<b>Characterization of mechanical properties of short glass fiber-reinforced geopolymer composites</b>	<i>Kinga Korniejenko, Janusz Mikula and Michał Łach</i>	<i>Kinga Korniejenko</i>
	184	<b>Property Enhancement in Unsaturated Polyester Nanocomposites by Using a Reactive Intercalant for Clay Modification</b>	<i>Sinan Sen, Hatice Burcin Gundem and Bulend Ortac</i>	<i>Sinan Sen</i>
	185	<b>Effect of Styryl/Oil Functionalized Intercalant of Montmorillonite Reinforcer on Thermal and Mechanical Properties of Bio-Based Polymer Nanocomposites</b>	<i>Emre Tekay and Sinan Sen</i>	<i>Emre Tekay</i>
	199	<b>Polymer Nanocomposites for Soft Printable Strain Sensors</b>	<i>Hatice Aylin Karahan Toprakci, Saral K. Kalanadhabhatla, Richard J. Spontak and Tushar K. Ghosh</i>	<i>Hatice Aylin Karahan Toprakci</i>
	201	<b>Core-shell filler structure as a method of improving the thermal conductivity</b>	<i>Andrzej Rybak, Karolina Gaska, Jan Czyzewski and Robert Sekula</i>	<i>Karolina Gaska</i>
	213	<b>Numerical simulation of composite castor oil poliurethane with sisal fiber to strengthen concrete slabs</b>	<i>Lauren Karoline De Sousa Gonçalves, Leila Aparecida De Castro Motta, Luan Serafim Mendes Gonçalves and Mariana De Carvalho Silva Vieira</i>	<i>Leila Aparecida De Castro Motta</i>
	215	<b>Influence of Silica Nanoparticles on the Toughness of Fusion Bonded Epoxy</b>	<i>Patrícia Saliba and Herman Mansur</i>	<i>Patrícia Saliba</i>
	216	<b>Influence of hornification of <i>Luffa cylindrica</i> fibres in the reinforcement of cementitious composites</b>	<i>Welles Oliveira, Julia Vieira, Cesar Ponciano and Leila Motta</i>	<i>Leila Motta</i>
221	<b>A numerical simulation of the strength and stiffness of composite structures</b>	<i>Daiva Zeleniakienė, Paulius Griskėvicius and Vitalis Leisis</i>	<i>Daiva Zeleniakienė</i>	

10:30 – 17:30	238	<b>Layerwise mixed least-squares finite element model for free vibration analysis of multilayered piezoelectric composite plates</b>	<i>Teresa Mesquita, Filipa Moleiro, Aurélio Araujo, Cristóvão Manuel Mota Soares and Carlos Alberto Mota Soares</i>	<i>Filipa Moleiro</i>
	247	<b>STXM Investigation into Effects of CaCl<sub>2</sub> on the Hydration of Tricalcium Silicate and Tricalcium Aluminate</b>	<i>Yong Ge and Qingfei Li</i>	<i>Yong Ge</i>
	250	<b>Poly(1,3-Butanediol Dimethacrylate) Nanocomposites Through High Internal Phase Emulsion Templating</b>	<i>Elif Yüce, Funda Çira, Sinan Şen and E. Hilal Mert</i>	<i>E. Hilal Mert</i>
	255	<b>Asymptotic homogenization analysis upon fiber woven reinforced composites</b>	<i>Rafael Q. de Macedo, Rafael T.L. Ferreira, José M. Guedes and Maurício V. Donadon</i>	<i>José M. Guedes</i>



## Sessions

Friday, September 04

Auditorium	Plenary Lectures	Chair: Niels Olhoff	
09:45 – 10:30	Damage Instability and Transition from Quasi-Static to Dynamic Fracture	Carlos Dávila	
10:30 – 11:15	Mechanics of Ultra-Thin Ply Laminates	Pedro Camanho	

11:15 – 11:35	Coffee Break		
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Auditorium	NDE	NDE and Structural Health Monitoring	Chair: João Folgado	
	N.	Paper	Authors	Presenter
11:35 – 11:55	37	<b>Sensitivity analysis of the weight of CFRP stiffened panels supposing the presence of SHM</b>	Antonio Chiriello, Fulvio Romano, Francesco Di Caprio and Umberto Mercurio	Antonio Chiriello
11:55 – 12:15	125	<b>Assessment of carbon-fiber-reinforced thermoplastics after impact damage using metamaterials sensor</b>	Rozina Steigmann, Adriana Savin, Nicoleta Iftimie, Catalina Nutescu Duduman and Felicia Iacomi	Rozina Steigmann
12:15 – 12:35	217	<b>Residual stress evolution during multiple step fabrication of thick composite cylinders</b>	Alfonso Martone, Marco Esposito, Vincenza Antonucci, Mauro Zarrelli and Michele Giordano	Alfonso Martone
12:35 – 12:55	232	<b>Influence of damage position in the quality of localization of damage in laminated composite plates using mode shape derivatives</b>	Pablo Moreno-García, José V. Araújo Dos Santos and Hernani Lopes	José V. Araújo Dos Santos

Room 02.1	HC	Hybrid Composites	Chair: <i>Nahiene Hamila</i>	
	N.	Paper	Authors	Presenter
11:35 – 11:55	110	<b>Application of Hybrid Composite Material for Improving Dynamic Response of Structures during Sequential Earthquakes – Manufacturing, Testing and Numerical Simulations</b>	<i>Adeel Zafar, Mominah Adeel and Bassem Andrawes</i>	<i>Adeel Zafar</i>
11:55 – 12:15	152	<b>Fatigue behavior of CFRP/steel hybrid composites</b>	<i>J. Lopes, D. Stefaniak, P. Camanho, M. Freitas and Luis Reis</i>	<i>Luis Reis</i>
12:15 – 12:35	155	<b>Debonding modelling of indentation loaded fibre metal laminates</b>	<i>Tuomas Pärnänen, Jarno Jokinen, Mikko Kanerva and Olli Saarela</i>	<i>Tuomas Pärnänen</i>
12:35 – 12:55	205	<b>Hybridization of Composite Systems</b>	<i>Rodrigo Tavares, António Melro, Pedro Camanho, António Marques and Paulo Nóvoa</i>	<i>Rodrigo Tavares</i>

Room 02.2	DF3	Damage, Fatigue and Fracture	Chair: <i>Marina Ruggles-Wrenn</i>	
	N.	Paper	Authors	Presenter
11:35 – 11:55	195	<b>Multi-Particle Collision Algorithm with Hooke-Jeeves for solving a structural damage detection problem</b>	<i>Reynier Hernández Torres, Leonardo Chiviawacowsky and Haroldo Campos Velho</i>	<i>Reynier Hernández Torres</i>
11:55 – 12:15	203	<b>Experimental characterization of glass fibre reinforced epoxy composite for the extraction of material parameters and failure envelope validation</b>	<i>Karthikayen Raju, Long Bin Tan, Kwong Ming Tse, Heow Pueh Lee and Vincent Beng Chye Tan</i>	<i>Kwong Ming Tse</i>
12:15 – 12:35	208	<b>The long-term effects of water absorption, desorption and re-absorption in carbon-fibre / epoxy composites</b>	<i>Ebelechukwu Otaluka, Cris Arnold and Sue Alston</i>	<i>Ebelechukwu Otaluka</i>
12:35 – 12:55	223	<b>Progressive Failure of Pultruded FRP Columns: Numerical Study</b>	<i>Francisco Nunes, Nuno Silvestre and João Ramôa Correia</i>	<i>Francisco Nunes</i>

Room 02.3	NC3	Nanocomposites	Chair: <i>Kimiyoshi Naito</i>	
	N.	Paper	Authors	Presenter
11:35 – 11:55	198	<b>Effect of adding polar impurities on carbon nanotubes and concrete bonding strength</b>	<i>Kazi Fattah, Noha M. Hassan and Adil Tamimi</i>	<i>Kazi Fattah</i>
11:55 – 12:15	206	<b>A facile method for synthesizing PVA/Au, PVA/Ag and PVA/AuAg nanocomposites</b>	<i>Dan Sun, Richao Zhang, Andrew Wylie, Marta Diaz Mira, Jenish Patel, Manuel Macias-Montero, Sadeqh Askari, Davide Mariotti and Paul Maguire</i>	<i>Dan Sun</i>
12:15 – 12:35	225	<b>Characterisation of melt processed nanocomposites of Polyamide 6 subjected to uniaxial-drawing</b>	<i>Beatriz Mayoral, Eileen Harkin-Jones, Noorunnisa Khanam Pathan, Mariam Alali Al-Maadeed, Mabrouk Ouederni, Mark Tweedie, Dan Sun and Andrew Hamilton</i>	<i>Beatriz Mayoral</i>
12:35 – 12:55	234	<b>Thermal Conductivity of 3D Graphene Filled Polymer Composites</b>	<i>Yun-Hong Zhao, Zhen-Kun Wu, Ya-Fei Zhang and Shu-Lin Bai</i>	<i>Shu-Lin Bai</i>

13:00	<b>Closing Session + Lunch</b>			
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