

# Welcome to the **7th International Conference on Composites Testing and Model Identification (CompTest 2015) Madrid 2014!!!**

**April 8-10, 2015 • Madrid, Spain**

## **About your Registration**

**Full Conference Registration and Student Registration** include coffee breaks, conference luncheons, welcome reception and access to the technical sessions, the guided visit to the Old Madrid and the conference banquet.

Guests may purchase tickets for the welcoming reception and the conference luncheons at the registration desk. Tickets are 20 € (Guided Visit to Old Madrid) and 55 € (Conference Banquet).

Badges must be worn to gain access to the technical sessions and social functions.

## **Note to speakers**

Presentations must be loaded in the central computer room 15 minutes before the start of the corresponding session.

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## Wednesday 8 April 2015

8:00 - 8:30	Registration & Early Coffee	SS Hall
8:30 - 8:40	Conference Opening	Auditorium
8:40 - 9:20	PLENARY LECTURE 1- PRESENT AND FUTURE OF COMPOSITE MATERIALS IN THE CIVIL AERONAUTICAL INDUSTRY	Auditorium

### Session 1 Theme: Test methods - Design

Chairman: O. Thomsen

9:20 - 9:40	TOWARDS THE DESIGN OF A NEW STANDARD FOR COMPOSITE STIFFNESS IDENTIFICATION	Auditorium
9:40 - 10:00	A IOSIPESCU SANDWICH SPECIMEN FOR PREVENTION OF PREMATURE FAILURE	Auditorium
10:00 - 10:20	ADVANCED EXPERIMENTAL TECHNIQUES FOR DETERMINATION OF THE TENSILE AND COMPRESSIVE FAILURE STRAIN OF CARBON/EPOXY COMPOSITES	Auditorium
10:20 - 10:40	AN IMPROVED METHOD FOR IDENTIFICATION OF THE INTERFACIAL SHEAR STRENGTH BY TENSILE TESTS OF SHORT-FIBER COMPOSITES	Auditorium
10:40 - 11:00	MODE I NONLINEAR FAILURE BEHAVIOR OF 90° -LAYERS OF GLASS FIBER REINFORCED POLYMERS	Auditorium

### 11:00 - 11:40 POSTER SESSION 1 AND COFFEE BREAK (SS HALL)

### Session 2 Theme: Test methods - Property measurement I

Chairman: J. Botsis

11:40 - 12:00	EXPERIMENTAL DETERMINATION OF THE MODE II COHESIVE LAW OF UD HYBRID COMPOSITE INTERFACES USING FULL DISPLACEMENT FIELDS	Auditorium
12:00 - 12:20	VOLUMETRIC STRAIN DISTRIBUTION WITHIN A REINFORCED RUBBER: A NUMERICAL AND EXPERIMENTAL INVESTIGATION	Auditorium
12:20 - 12:40	FIBRE OPTIC DISTRIBUTED SENSING: A POWERFUL TOOL FOR STRUCTURAL TESTS	Auditorium
12:40 - 13:00	MICRO-LEVEL STRAIN EVALUATION USING DIGITAL IMAGE CORRELATION	Auditorium
13:00 - 13:20	NOVEL TESTING AND ANALYSIS METHODS FOR THE STRAIN RATE AND TEMPERATURE DEPENDANT MATERIAL CHARACTERISATION OF COMPOSITES	Auditorium

### 13:20 - 14:30 LUNCH (SS HALL)



**Session 3** Theme: Damage and failure mechanics

Chairman: F. Pierron

14:30 - 14:50	<u>I.E. Taj</u> , <u>U. Kureemun</u> & <u>M. Ridha</u>	BIAXIAL TENSILE-COMPRESSIVE PROGRESSIVE DAMAGE BEHAVIOUR OF NOTCHED AND UNNOTCHED CARBON-EPOXY CROSSPLY LAMINATES	Auditorium
14:50 - 15:10	<u>M. Loukil</u> , <u>A. Pupurs</u> , <u>E. Marklund</u> & <u>D. Mattsson</u>	DAMAGE RESISTANCE PROPERTIES OF THIN-PLY CARBON FIBER/EPOXY LAMINATES	Auditorium
15:10 - 15:30	<u>Rui Marques</u> & <u>Hugo Faria</u>	A NUMERICAL AND EXPERIMENTAL STUDY ON THE FAILURE STRENGTH OF COMPOSITE TUBES SUBJECTED TO BIAXIAL LOADING	Auditorium
15:30 - 15:50	<u>Israel G. García</u> , <u>Jesús Justo</u> , <u>Annaëlle Simon</u> , <u>Federico Paris</u> & <u>Vladislav Mantić</u>	EXPERIMENTAL EVALUATION OF THE THICKNESS EFFECT ON THE TRANSVERSE STRENGTH OF INNER PLYS IN [0, 90]S CROSS-PLY LAMINATES	Auditorium
15:50 - 16:10	<u>Bas Tijjs</u> , <u>Wouter Wilson</u> , <u>Steyn Westbeek</u> & <u>Max Markestein</u>	MORI-TANAKA MEAN-FIELD HOMOGENIZATION BASED FAILURE PREDICTIONS OF A SHORT FIBER COMPOSITE BUTT-JOINT	Auditorium

16:10 - 16:30 COFFEE BREAK (SS HALL)

**Session 4** Theme: Fracture

Chairman: F. Mújika

16:30 - 16:50	<u>Guillaume Frossard</u> , <u>Martin Boesiger</u> , <u>Joël Cugnoni</u> , <u>Thomas Gmür</u> & <u>John Botsis</u>	MODE I FRACTURE OF THIN-PLY CARBON-EPOXY LAMINATES: EFFECTS OF PLY AND SPECIMEN THICKNESS	Auditorium
16:50 - 17:10	<u>Silvestre T. Pinho</u> , <u>Rita Teixeira</u> & <u>Paul Robinson</u>	DOES THE TRANSLAMINAR FRACTURE TOUGHNESS OF A 0° PLY-BLOCK DEPEND ON ITS THICKNESS?	Auditorium
17:10 - 17:30	<u>Gianmaria Bullegas</u> , <u>Silvestre T. Pinho</u> & <u>Soraia Pimenta</u>	IMPROVING TRANSLAMINAR TOUGHNESS OF THIN-PLY LAMINATES THROUGH A BIO-INSPIRED CRACK DEFLECTION TECHNIQUE	Auditorium
17:30 - 17:50	<u>A. Ortega</u> , <u>P. Maimí</u> & <u>E. V. González</u>	CHARACTERIZATION OF INTRALAMINAR FRACTURE COHESIVE LAW	Auditorium

18:00 - 19:30

**RECEPTION  
VISIT TO IMDEA MATERIALS**

## Thursday 9 April 2015

8:40 - 9:20	<u>L. Li</u> , <u>Y. Swolfs</u> , <u>V. Carvelli</u> , <u>Stepan V. Lomov</u> - <u>KU Leuven, Belgium</u>	PLENARY LECTURE 2 - CLUSTER ANALYSIS OF ACOUSTIC EMISSION SIGNALS FOR 2D AND 3D WOVEN CARBON AND GLASS FIBER/EPOXY COMPOSITES	Auditorium
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**Session 5** Theme: Test methods - Property measurement II

Chairman: T. Tong

9:20 - 9:40	<u>G. P. Batkams</u> & <u>J.M. Dulieu-Barton</u>	DATA-RICH CHARACTERISATION OF DAMAGE IN COMPOSITE MATERIALS DURING INTERMEDIATE STRAIN RATE LOADING	Auditorium
9:40 - 10:00	<u>Marco L. Longana</u> , <u>Janice M. Dulieu-Barton</u> & <u>Fabrice Pierron</u>	IDENTIFICATION OF THE STRAIN RATE DEPENDENCE OF THE ELASTIC PROPERTIES OF CFRP USING DIGITAL IMAGE CORRELATION	Auditorium

10:00 - 10:20	<u>Torin Quick</u> , <u>Sirina Safriet</u> , <u>David Mollenhauer</u> , <u>Robert Wheeler</u> & <u>Chad Ryther</u>	IN-SITU MICRO-COMPRESSION OF UNIDIRECTIONAL POLYMER MATRIX COMPOSITES	Auditorium
10:20 - 10:40	<u>Christof Hirth</u> , <u>Hannes Koerber</u> , <u>Juergen Grosser</u> & <u>Markus Wolfahrt</u>	STRAIN RATE EFFECT ON THE LONGITUDINAL TENSILE STRESS-STRAIN RESPONSE OF COST EFFECTIVE UNIDIRECTIONAL GLASS/EPOXY COMPOSITES	Auditorium
10:40 - 11:00	<u>F. Lahuerta</u> , <u>R.P.L. Nijssen</u> , <u>F. P. van der Meer</u> & <u>L. J. Sluys</u>	INFRARED INSPECTION OF THICK LAMINATES DURING FATIGUE TESTS	Auditorium

11:00 - 11:40 POSTER SESSION 2 AND COFFEE BREAK (SS HALL)

Session 6 Theme: Micromechanics

Chairman: S. Lomov

11:40 - 12:00	<u>Abderrahmane Ayadi</u> , <u>Hedi Nouji</u> , <u>Sofiane Guessasma</u> & <u>Frederic Rogger</u>	PROOF OF ORTHOTROPIC MECHANICAL BEHAVIOR OF A SHORT GLASS FIBRE REINFORCED THERMOPLASTIC BASED ON X-RAY TOMOGRAPHY AND MULTI-SCALE FINITE ELEMENT COMPUTATION	Auditorium
12:00 - 12:20	<u>Camilla Osmiani</u> , <u>Galal Mohamed</u> , <u>Giuliano Allegri</u> & <u>Ivana K. Partridge</u>	EXPLORING THE INFLUENCE OF MICRO-STRUCTURE ON THE MECHANICAL PROPERTIES AND CRACK BRIDGING MECHANISMS OF FIBROUS TUFTS	Auditorium
12:20 - 12:40	<u>M. Herráez-Matesanz</u> , <u>C. González</u> & <u>C. S. Lopes</u>	A COMPUTATIONAL MICROMECHANICS APPROACH FOR PLY PROPERTIES OPTIMIZATION	Auditorium
12:40 - 13:00	<u>Yasmine Abdin</u> , <u>Atul Jain</u> , <u>Ignaa Verpoest</u> & <u>Stepan V. Lomov</u>	MICRO-MECHANICS BASED MODELING AND VALIDATION OF THE DAMAGE BEHAVIOR OF SHORT WAVY FIBER COMPOSITES	Auditorium
13:00 - 13:20	<u>Brian Nyvang Legarth</u> & <u>Qingda Yang</u>	KINKING CRACKS IN COMPOSITES	Auditorium

13:20 - 14:30 LUNCH (SS HALL)

Session 7 Theme: Delamination - Parameter identification

Chairman: J. Costa

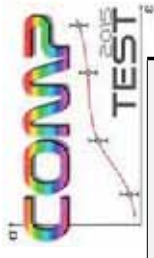
14:30 - 14:50	<u>Reidar K. Joki</u> , <u>Frode Grytten</u> , <u>Brian Hayman</u> & <u>Bent F. Sørensen</u>	DETERMINATION OF MIXED MODE COHESIVE LAW FOR DELAMINATION WITH LARGE SCALE BRIDGING	Auditorium
14:50 - 15:10	<u>M. Olave</u> , <u>I. Vara</u> , <u>H. Husabiaga</u> , <u>L. Aretxabaleta</u> , <u>S. V. Lomov</u> & <u>D. Vandepitte</u>	MODE II FRACTURE TOUGHNESS MEASUREMENTS OF WOVEN LAMINATES: UNIT CELL SIZE EFFECT	Auditorium
15:10 - 15:30	<u>Carlos Sarrado</u> , <u>Albert Turon</u> , <u>Jordi Renart</u> & <u>Josep Costa</u>	EFFECT OF THE ADHERENT AND ADHESIVE THICKNESS ON THE FRACTURE TOUGHNESS AND COHESIVE LAW OF FM300 ADHESIVE	Auditorium
15:30 - 15:50	<u>J. Renart</u> , <u>L. Carreras</u> , <u>J. Costa</u> & <u>A. Turon</u>	DETERMINATION OF CRACK GROWTH RATE CURVES IN MODE II TESTS BY MEANS OF THE COMPLIANCE REAL TIME MONITORING	Auditorium

15:50 - 16:10 COFFEE BREAK (SS HALL)

Session 8 Theme: Delamination - Modelling

Chairman: S. Pinho

16:10 - 16:30	<u>Daniel Svensson</u> , <u>K. Svante Alfredsson</u> & <u>Ulf Stigh</u>	MIXED MODE INTERLAMINAR FAILURE – THEORY AND EXPERIMENTS	Auditorium
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16:30 - 16:50	<u>F. Mujika</u> , A. Boyano, J. Bonhomme, V. Mollón, J. de Gracia & A. Arrese	ANALYTICAL AND NUMERICAL APPROACH OF A ENF SPECIMEN WITH A CYLINDRICAL INSERT FOR PROMOTING MIXED MODE I/II INTERLAMINAR FAILURE	Auditorium
16:50 - 17:10	E. Farmand-Ashtiani, J. Cugnoni & <u>J. Botsis</u>	TRACTION-SEPARATION RELATION IN DELAMINATION OF CROSS-PLY LAMINATES: EXPERIMENTAL CHARACTERIZATION AND NUMERICAL MODELING	Auditorium

18:30 - 20:00	<b>VISIT MADRID</b>		MADRID
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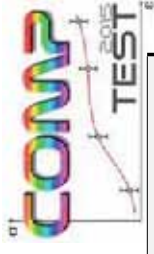
20:30 - 0:00	<b>CONFERENCE BANQUET</b>		
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## Friday 10 April 2015

8:40 9:20	Endel Iarve, WPAFB, USA	Plenary lecture 3- LAMINATED COMPOSITES: MODELING AND VALIDATION	Auditorium
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<b>Session 9</b>			
Theme: Material Models			
9:20 - 9:40	<u>S.A. Tabatabaei</u> & S.V. Lomov	INVESTIGATION OF THE VOLUME REDUNDANCY AND INTERPENETRATION PROBLEMS IN MESO-FEM OF FIBRE REINFORCED COMPOSITES USING EMBEDDED ELEMENT METHOD	Auditorium
9:40 - 10:00	<u>L. Pupure</u> , R. Joffe & J. Varna	IDENTIFICATION OF PARAMETERS FOR DIRECT AND INVERTED MODEL TO PREDICT PERFORMANCE OF MATERIALS EXHIBITING NON-LINEAR VISCOELASTIC BEHAVIOR	Auditorium
10:00 - 10:20	<u>I. Martín</u> , F. Rodríguez, A. Fernández-López & J. Sánchez	MODELING HEAT TRANSFER ON AN ISC MANUFACTURING PROCESS WITH THERMOPLASTICS	Auditorium
10:20 - 10:40	<u>Yentl Swolfs</u> , Gergely Czé, Meisam Jalalvand, Michael Wisnom, Ignaas Verpoest & Larissa Gorbatikh	MODEL VALIDATION OF THE HYBRID EFFECT IN CARBON/GLASS HYBRID COMPOSITES	Auditorium
10:40 - 11:00	<u>Soraia Pimenta</u> & Paul Robinson	WAVY-PLY SANDWICH WITH CRUSHABLE CORE: DESIGN, SIMULATION AND TESTING	Auditorium

11:00 - 11:40	POSTER SESSION 3 AND COFFEE BREAK (SS HALL)		
Theme: Fatigue			
11:40 - 12:00	<u>Atul Jain</u> , Yasmine Abdin, Stefan Straesser, Wim Van Paepegem, Ignaas Verpoest & Stepan V. Lomov	VALIDATION OF THE MASTER SN CURVE APPROACH FOR SHORT FIBER REINFORCED COMPOSITES	Auditorium
12:00 - 12:20	<u>F. Warzok</u> , S.R. Hallett, G. Allegri & M. Gude	ON THE DEGRADATION BEHAVIOUR OF Z-PINS UNDER CYCLIC LOADING CONDITIONS	Auditorium



12:20 - 12:40	<u>Marino Quaresimin</u> , Paolo A. Carraro & Lucio Maragoni	MICRO-SCALE DAMAGE INITIATION AND EVOLUTION IN OFF-AXIS PLYS UNDER FATIGUE LOADING	Auditorium
12:40 - 13:00	<u>G. Martakos</u> , J.H. Andreasen, C. Berggreen & O.T. Thomsen	INTERFACIAL CRACK-ARREST IN SANDWICH BEAMS USING A NEW TYPE OF CRACK ARRESTER	Auditorium
13:00 - 13:20	<u>J.A. Glud</u> , L.C.T. Overgaard, J. Dulieu-Barton & O.T. Thomsen	INTRALAMINAR FATIGUE CHARACTERIZATION OF GFRP LAMINATE USING LOCK-IN DIC AND TSA FOR USE IN MICRO-MECHANICS BASED MULTIAXIAL FATIGUE MODEL	Auditorium
13:20 - 14:30	LUNCH		

**Session 11**

Theme: Impact

Chairman: J. López Puente

14:30 - 14:50	<u>Jesús Pernas-Sánchez</u> , José Alfonso Artero-Guerrero, David Varas & Jorge López-Puente	ANALYSIS OF CARBON/EPOXY COMPOSITE LAMINATES SUBJECTED TO HIGH VELOCITY ICE IMPACTS 2015	Auditorium
14:50 - 15:10	<u>Yi Liu</u> , G. Guillaumet, E.V. González, J. Costa & J.A. Mayugo	EXPERIMENTAL STUDY OF COMPRESSION AFTER IMPACT STRENGTH OF TAILORED NON-CONVENTIONAL LAMINATES	Auditorium
15:10 - 15:30	<u>Nathalie Godin</u> , Pascal Reynaud, Mohamed R'Mili & Gilbert Fantozzi	DAMAGE SENSITIVITY AND ACOUSTIC EMISSION OF SiC/SiC COMPOSITE DURING STATIC FATIGUE TEST AT INTERMEDIATE TEMPERATURE AFTER IMPACT DAMAGE: TOWARD LIFETIME PREDICTION	Auditorium

**CONFERENCE CLOSURE & COFFEE**

Wednesday 8 April 2015 11:00-11:40

<u>Andrei Costache</u> , Kristian Glejbøl, Jon M. Sivebæk & Christian Berggreen	EXPERIMENTAL INVESTIGATION OF A BASALT FIBER REINFORCED COMPOSITE TO METAL JOINT
<u>Juan Manuel González-Cantero</u> , Enrique Graciani, Federico París, Bernardo López-Romano & José Antonio Rodríguez-Sánchez	STUDY OF THE COMPOSITE ILTS TEST IN CFRP ANGLES BY MEANS OF ANALYTICAL AND FEM MODELS
<u>Arttu Miettinen</u> , Roberts Joffe, Liva Pupure & Bo Madsen	X-RAY MICROTOMOGRAPHY OF NATURAL FIBRE COMPOSITES
<u>G.P. Rodríguez Donoso</u> , M.A. Caminero Torija, V. Muñoz Rucián, A. Romero Gutiérrez, J.L. Martínez Vicente, María del Carmen Serna Moreno & J.J. López Cela	IMPACT DAMAGE IN COMPOSITE STRUCTURES
<u>A. Krundaeva &amp; Yu. Shmotin</u>	A MODEL OF NON-IMPREGNATED ARAMID WINDING FOR MITIGATING THE FAN BLADE-OUT IN AEROCRAFT GAS TURBINE ENGINES
<u>A. Garía-Carpintero</u> , J. Xu, C-S. Lopes & C. González	MESO-MECHANICAL CHARACTERIZATION OF TRIAXIAL BRAIDED COMPOSITE MATERIAL PROPERTIES
<u>O. Falcó</u> , C.S. Lopes, B. Tijs and H. Erçin	CONSISTENT SIMULATION OF DAMAGE IN UNIDIRECTIONAL COMPOSITE COUPONS USING CONTINUUM DAMAGE MECHANICS

**POSTER SESSION 1**



**POSTER SESSION 2**

Thursday 9 April 2015 11:00-11:40

Vincent Legrand, Luan Tranvan, Georgio Rizk, Khaled Khalil, Pascal Casari & Frédéric Jacquemin	POST-FIRE MECHANICAL PROPERTIES OF SANDWICH COMPOSITES
Abderrahmane Ayadi, Hedi Nouri, Sofiane Guessasma & Frederic Roger	ELASTIC PROPERTIES ASSESSMENT OF A SHORT GLASS FIBRE REINFORCED POLYAMIDE 66 FROM X-RAY TOMOGRAPHY AND FINITE ELEMENT COMPUTATION
Abderrahmane Ayadi, Hedi Nouri, Sofiane Guessasma & Frederic Roger	MECHANICAL PERFORMANCE OF A WELD LINE IN A SHORT GLASS FIBRE REINFORCED POLYAMIDE 66 BASED ON X-RAY TOMOGRAPHY AND FINITE ELEMENT COMPUTATION
Dhriti Nepal, Gyaneshwar P. Tandon, Timothy D. Breitzman, Richard B. Hall & David	MICRO-SCALE CHEMICAL, MORPHOLOGICAL AND MECHANICAL CHARACTERIZATION OF POLYMER-MATRIX TEXTILE COMPOSITES
Prakash Jadhav, Zheng Li, Suresh Subramanian, Sreerama Prasad, Sesha TS & Debdutt Patro	PLY DROP IN COMPOSITE STRUCTURES- EVALUATION OF STRAIN ALLOWABLE
A. Wagjih, N. Blanco & P. Maimí	DAMAGE SCENARIO OF CFRP COMPOSITE LAMINATE UNDER QUASI-STATIC INDENTATION LOADING
M. Pérez, J. Renart, C. Sarrado, J. Costa & A. Rodriguez-Bellido	OBTAINING THE MODE II ENERGY FRACTURE TOUGHNESS IN A C-ELS TEST BY MEANS OF THE J-INTEGRAL
J.D. Vanegas-Jaramillo, J. Costa, A. Turon & L.J. Cruz	STUDY OF THE TENSILE BEHAVIOUR OF UNIDIRECTIONAL HYBRID COMPOSITES BY MEANS OF THE WEIBULL OF WEIBULL'S MODEL

# Basement



	Toilets
	Elevators
	Stairs
	Exit



## SPONSORS

We wish to thank the following for their contribution to the success of this conference:



## About the Conference Location

### Computer/Network Facilities

IMDEA Materials Institute has guest wireless connection available in the whole building.

Wifi: IMDEA-GUEST

Password: ImdeaInternet

### How to arrive to IMDEA Materials Institute

IMDEA Materials Institute is located at the Scientific and Technological Park of the Polytechnic University of Madrid in Tecnogetafe.

Address:

Calle Eric Kandel, 2

28906 Getafe

The conference provides **shuttle** services to and from the hotels to IMDEA Materials Institute. Please see below the shuttle schedule corresponding to each day of the workshop. The traveling time is approximately 30-40 mins. The bus stop near NH Nacional and NH Atocha is show in the map below.

**It is highly recommended that all participants use this shuttle service, as it is the most convenient way to get to the venue.**

Alternative ways to arrive to IMDEA Materials Institute include taxi (approximately 25-35 euro, travelling time from Atocha: 30 min, see detailed directions and map below) and public transport (traveling time from Atocha: 1h30min, see directions below).

**If you have any question about how to reach IMDEA Materials please contact Mariana Huerta at +34 915493422.**



**Map showing the location of the bus to be taken near NH Nacional and NH Atocha (in front of the cafeteria “El brillante”)**

# SHUTTLE SCHEDULE FROM/TO THE HOTELS TO/FROM THE CONFERENCE VENUE

## Hotel to IMDEA Materials Institute

### Wednesday ,April 8th

7:40 am in Atocha\*

2:00 pm in Atocha \*

### Thursday, April 9th

8:10 am in Atocha\*

2:00 pm in Atocha \*

### Friday, April 10th

8:10 am in Atocha\*

2:00 pm in Atocha \*

## IMDEA Materials Institute to Hotels & Visit to the Old Madrid

### Wednesday ,April 8th

2:30 pm to Atocha \*

7:40 pm to Atocha \*

### Thursday, April 9th

2:30 pm to Atocha \*

5:15 pm to Atocha \*\*

### Friday, April 10th

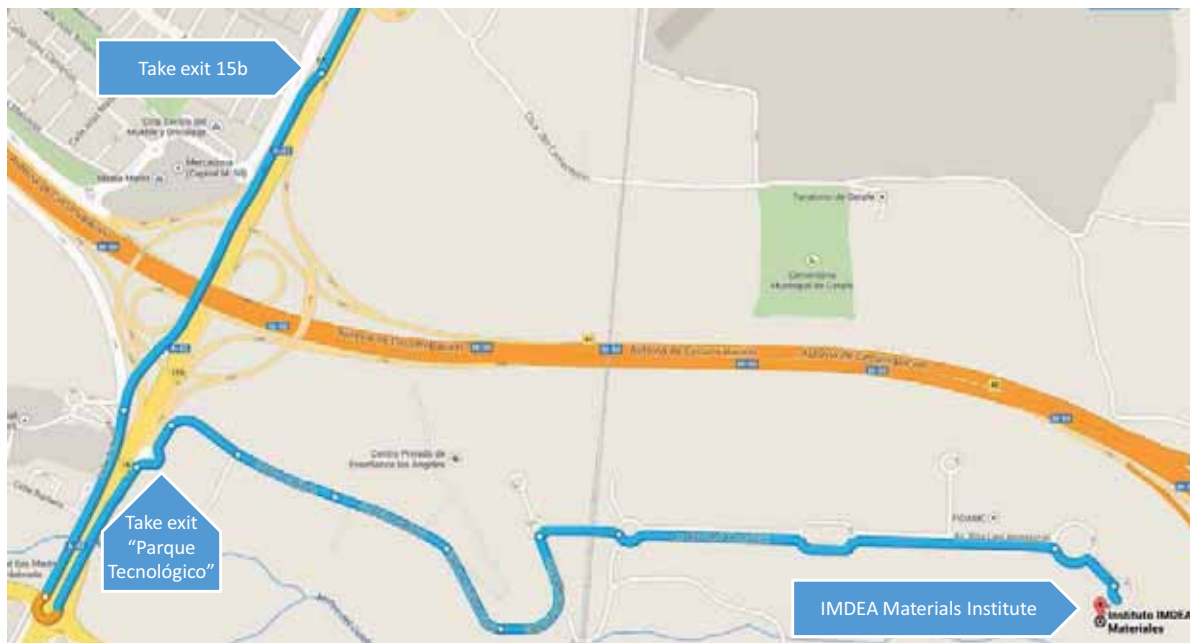
3:50 pm to Atocha \*

(\*) The bus stop will be in front of the cafeteria “El brillante”

(\*\*) A bus will leave near the hotel NH Nacional and NH Atocha (in front of the cafeteria “El brillante”) at 6:15 pm to go to the Plaza de la Villa, where the visit to the Old Madrid will start.

After the visit to the Old Madrid there will be a bus to bring us to the Conference Banquet (Restaurant Paradis Madrid), near the Hotel NH Nacional and NH Atocha.

## Map (to be printed and shown to the driver if taking a taxi)



## By taxi

### From Atocha Train Station (near NH Sur and NH Nacional)

- Head southeast toward Paseo de la Infanta Isabel (130 m)
- Exit the roundabout onto Paseo de la Infanta Isabel (42 m)
- Take the ramp onto Paseo de la Infanta Isabel (260m)
- At the roundabout, take the 3rd exit onto Plaza del Emperador Carlos V (280 m)
- Continue onto Paseo de Sta María de la Cabeza (1.9 km)
- Continue onto A-42 (signs for Toledo/R-5/Badajoz/Plaza de Fernández Ladreda) (13.2 km)
- Take exit 15b toward M-506/Pinto/Fuenlabrada (1.1 km)
- Merge onto Autovía de Toledo (200 m)
- At the roundabout, take the 4th exit and stay on Autovía de Toledo heading to M-50/Madrid (400 m)
- Keep right at the fork, follow signs for A-42/Getafe/Madrid (68 m)
- After 68 meters turn right immediately following the sign “Parque Científico Tecnológico *TECNOGETAFE*”.
- Continue onto Paseo de Tiselius, leaving Los Angeles school on your left until you reach a roundabout (entrance to Tecnogetafe) (1.2 Km)
- Take the first exit right and continue straight along the main avenue of the Technology Park (Avenida Rita Levi Montalcini) until the end of the avenue where you will reach a roundabout (1.0 Km)
- In the last roundabout take the first exit right onto Calle Eric Kandel, where IMDEA Materials Institute is located.

**From Barajas Airport (Terminals T1, T2 y T3):**

- Join the M-14 via the ramp on the left towards Madrid /Av. América/A-2/M-40/A-3/A-4/A-5.
- Take the left exit towards M-40/M-40 R-3/A-3/R-4/A-4/A-42/R-5 direction until you reach Exit 25 to take the A-42 towards Toledo. Keep driving along A42 highway (13.2 Km)
- Take exit 15b toward M-506/Pinto/Fuenlabrada (1.1 km)
- Merge onto Autovía de Toledo (200 m)
- At the roundabout, take the 4th exit and stay on Autovía de Toledo heading to M-50/Madrid (400 m)
- Keep right at the fork, follow signs for A-42/Getafe/Madrid (68 m)
- After 68 meters turn right immediately following the sign “Parque Científico Tecnológico *TECNOGETAFE*”.
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- In the last roundabout take the first exit right onto Calle Eric Kandel, where IMDEA Materials Institute is located.

**From Barajas Airport (Terminal T4):**

- Go straight until you reach a fork where you must keep right to follow the signs to Madrid.
- Continue straight to take at a junction Eje-Aeropuerto/M-12 left towards Madrid/M-11/M-40 (In this highway will have to pay a toll).
- Take the M-40/M-40 Highway exit, continue in this sense and get to the fork, bear right and follow signs for M-40/E-90/A-2 / and merge onto highway Zaragoza/R-3/A-3/R-4/A-4/A-42/R-5 M-40/M-40.
- Take exit 25 to merge onto A-42 toward Toledo (10.5 Km)
- Take exit 15b toward M-506/Pinto/Fuenlabrada (1.1 km)
- Merge onto Autovía de Toledo (200 m)
- At the roundabout, take the 4th exit and stay on Autovía de Toledo heading to M-50/Madrid (400 m)
- Keep right at the fork, follow signs for A-42/Getafe/Madrid (68 m)
- After 68 meters turn right immediately following the sign “Parque Científico Tecnológico *TECNOGETAFE*”.
- Continue onto Paseo de Tiselius, leaving Los Angeles school on your left until you reach a roundabout (entrance to Tecnogetafe) (1.2 Km)
- Take the first exit right and continue straight along the main avenue of the Technology Park (Avenida Rita Levi Montalcini) until the end of the avenue where you will reach a roundabout (1.0 Km)
- In the last roundabout take the first exit right onto Calle Eric Kandel, where IMDEA Materials Institute is located.

## Public Transport (not recommended)

You should take “Cercanías” line C-4 (in Sol or Atocha) heading to Parla and stop at the Metro/Cercanías station of *Getafe Central* (Estimated time from Atocha Station: 25 minutes, price 1.50€) and then catch the Tecnogetafe shuttle service (Estimated time 20 minutes, price free). The first stop of the bus service is located about 50 meters on the right/down as you exit the station (The bus stop is shown in the picture below). The shuttle service is run by the bus company *SAMAR* (in the top front of the bus you will see a sign of *Tecnogetafe*). The last stop of this shuttle is right in front of IMDEA Materials Institute.

### Monday to Thursday

#### Getafe Central - IMDEA

Departure	Arrival
7:30 AM	7:50 AM
8:10 AM	8:30 AM
8:55 AM	9:20 AM
9:40 AM	10:00 AM

1:50 PM	2:10 PM
2:30 PM	2:50 PM
3:10 PM	3:30 PM

5:35 PM	5:55 PM
6:15 PM	6:35 PM
6:55 PM	7:15 PM
7:35 PM	7:55 PM

#### IMDEA - Getafe Central

Departure	Arrival
7:50 AM	8:10 AM
8:30 AM	8:55 AM
9:20 AM	9:40 AM

1:30 PM	1:50 PM
2:10 PM	2:30 PM
2:50 PM	3:10 PM
3:30 PM	3:50 PM

5:15 PM	5:35 PM
5:55 PM	6:15 PM
6:35 PM	6:55 PM
7:15 PM	7:35 PM
7:55 PM	8:15 PM

### Friday

#### Getafe Central - IMDEA

Departure	Arrival
7:30 AM	7:50 AM
8:10 AM	8:30 AM
8:55 AM	9:20 AM
9:40 AM	10:00 AM

1:50 PM	2:10 PM
2:30 PM	2:50 PM
3:10 PM	3:30 PM

#### IMDEA - Getafe Central

Departure	Arrival
7:50 AM	8:10 AM
8:30 AM	8:55 AM
9:20 AM	9:40 AM

1:30 PM	1:50 PM
2:10 PM	2:30 PM
2:50 PM	3:10 PM
3:30 PM	3:50 PM

6:00 PM	6:20 PM
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## **Program notes**

### **Technical Sessions**

The Technical program will begin Thursday, April 8<sup>th</sup> and conclude Friday, April 10<sup>th</sup>

The conference will be organized to include plenary sessions on the different topics of the conference. Each day will start with a keynote lecture given by an internationally-recognized expert on a predetermined topic and will be followed by oral presentations on a similar topic. Time will be included in the program for ad hoc meetings, informal discussions, and/or outings to local cultural attractions. This format is designed to promote dialogue and enhance the exchange of ideas among the participants.

All participants are expected both to attend the entire conference and to contribute actively to the discussions. The conference will take place in an informal atmosphere.

### **Keynote speakers:**

- **Prof. Stepan V. Lomov** - Department MTM, KU Leuven (Belgium)
- **Dr. José Sánchez** - Airbus Operations, Spain
- **Dr. Endel V. Larve** - Research Engineer and Advanced Composites Analytics, University of Dayton Research Institute, USA

## **Policies**

### **Audio/Video Recording Policy**

IMDEA Materials Institute reserves the right to any audio and video reproduction of all presentations at every IMDEA-sponsored meeting. Recording of sessions (audio, video, still-photography, etc...) intended for personal use, distribution, publication, or copyright without express written consent of IMDEA Materials Institute and the individual authors is strictly prohibited.

### **Photography Notice**

By registering for the conference, all attendees acknowledge that they may be photographed by IMDEA Materials Institute personnel while at events and that those photos may be used for promotional purposes.

## **Organizing Committee**

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- **Prof. Dr. Carlos González** - IMDEA Materials Institute & Polytechnic University of Madrid
- **Prof. Dr. Claudio Lopes** – IMDEA Materials Institute
- **Prof. Dr. Javier Llorca** - IMDEA Materials Institute & Polytechnic University of Madrid

### **Conference Vicechairs**

- **Prof. Dr. Fabrice Pierron** – University of Southampton
- **Prof. Dr. Michael Wisnom** – University of Bristol

### **Secretary**

- Ms. Mariana Huerta - IMDEA Materials Institute

## **Local Organizing Committee**

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- Dr. Roberto Guzmán de Villoria
- Dr. Deyi Wang
- Dr. Federico Sket
- Dr. Jon Molina
- Mrs. Francisca Martínez
- Mr. Fernando Naya
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- Prof. Tay Tong Earn, National University of Singapore, Singapore



## GUIDED VISIT TO THE OLD MADRID Thursday, April 9th

The area known as *Austria's Madrid*, or the Madrid of the Habsburg, after the Austrian royal dynasty who reigned in Spain until 1700, is the oldest section of the city, and it is full of historical attractions. You will feel the charm of old medieval renaissance Madrid in the narrow quiet streets around Plaza de la Villa, the Convent of las Carboneras, la Basilica de San Miguel and, of course, the Plaza Mayor where you can find the Cava Baja street, which is very lively all nights of the week. Again, at the calle Mayor, there is the Mercado de San Miguel, a cute 1913 iron market. We will stop at the Cathedral of la Almudena, and will finish our journey at the Plaza de Oriente, in the vicinity of the Royal Palace.



- A bus will leave at **5:15 pm** from IMDEA Materials to Atocha. So you can leave all your personal things in the hotel.
- There will be a **bus** in front of the cafeteria “El brillante” (near the hotels - see map in the **page XI**) at **6:15 pm** to go to the **Plaza de la Villa**, where the visit to the old Madrid will start.
- After the visit to the Old Madrid there will be a bus to bring us to the Conference Banquet (Restaurant Paradis Madrid), near the Hotel NH Nacional and NH Atocha.

# Conference Banquet

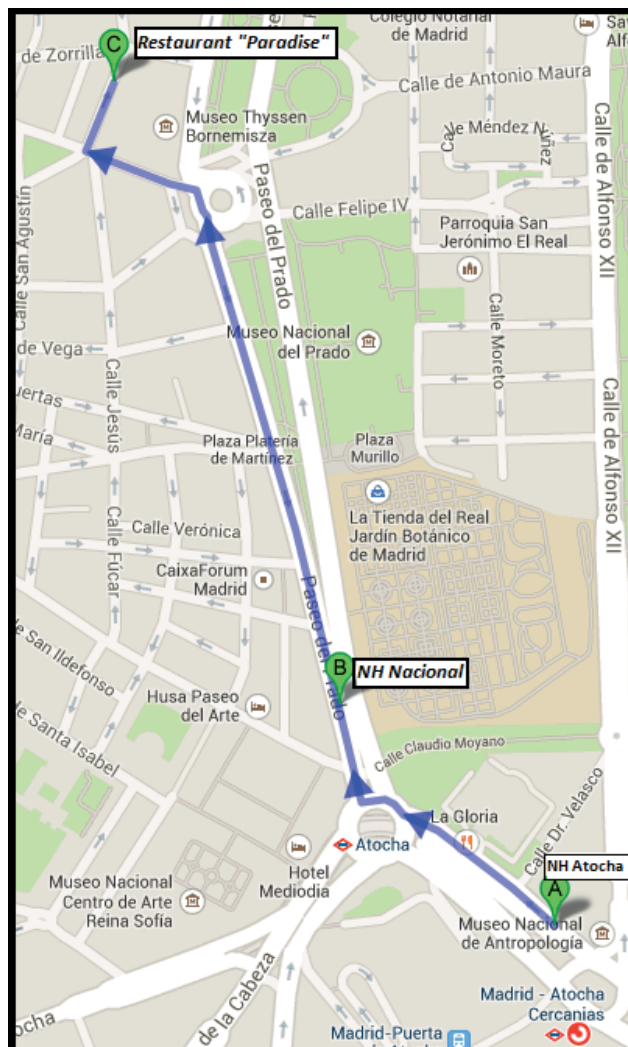
## TIME:

08:30 pm – 11.30 pm, April 9th (Thursday)

## LOCATION:

### Restaurant “Paradis Madrid”

Calle Marqués de Cubas, 14, 28014 Madrid



10 minutes walk from the NH Nacional  
12 minutes walk from the NH Sur