

## Scientific Program

The Scientific Program of the conference will be daily arranged around two Keynote Plenary Lectures by distinguished scientists in the field of *Experimental Mechanics* and parallel sessions for oral paper presentations. Paper presentations in the form of Posters will also be possible, and facilities for that purpose will be available during the whole week of the ICEM15 conference.

## Social Program

In parallel with the Technical and Scientific Program, a full range of social activities will be offered to Delegates and Accompanying Persons during all days of the Conference. Most of these will be organised by a competent local travel agency to be associated with the ICEM15 conference. For details please see the conference web site.

## Registration

All attendees, including invited speakers, are strongly advised to register in advance of the Conference. The registration fees are as follows:

| Registration Fee    | Prior to 31 JAN 2012 | After 31 JAN 2012 |
|---------------------|----------------------|-------------------|
| Full Delegate       | 650,00 Euro          | 850,00 Euro       |
| Student Delegate    | 400,00 Euro          | 550,00 Euro       |
| Accompanying Person | 250,00 Euro          | 350,00 Euro       |

All registered delegates are entitled to one copy of the book of abstracts, CD-ROM with full-papers, attend all technical sessions, early-bird and welcome receptions, refreshments, lunches, banquet and full-day tour & river cruise on Wednesday. Accompanying Persons are entitled to early-bird and welcome receptions, banquet and full-day tour & river cruise on Wednesday.

## Further Information

For further information, please see the conference web site, or contact the Organising Committee at the following address:

**Prof. J.F. Silva Gomes**  
FEUP/DEMec

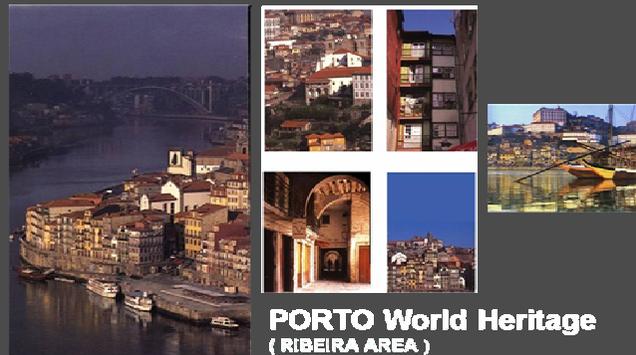
Rua Dr. Roberto Frias, 4200-465 Porto  
Tel: 22-508 1771; Tlm: +351 91 725 89 50;  
E-mail: [sg@fe.up.pt](mailto:sg@fe.up.pt)

## Conference Venue

The conference will be held in the beautiful city of Porto, Portugal, at the new campus of the Faculty of Engineering, University of Porto, which is very convenient and well equipped for conferences in terms of facilities, transportation and proximity to hotels.



Situated on the banks of the Douro river, Porto is one of the *oldest* tourist destinations in Europe. Sloping steeply down towards the river with its remarkable bridges - one of them designed by Gustave Eiffel - it has been an inspiration to a variety of artists. Porto made its name over two centuries ago because of its connection with the port wine industry. Many areas in Porto, well planned and landscaped, have been dedicated to leisure, public gardens, sophisticated and attractive shopping areas and excellent Museums and Theaters, which justifies the city's wish to be granted "World Heritage Status" by UNESCO.



**PORTO World Heritage**  
( RIBEIRA AREA )

Porto, the country's second largest city, is in itself full of interest, but the district it heads, though largely industrialized, offers the visitor plenty to see. Along the coast, holiday resorts like the cosmopolitan beach of Espinho, busy ports like Matosinhos, with splendid seafood, or traditional fishing towns like Póvoa de Varzim, but where there is also an animated casino. Inland, for example, the quaint charm of Amarante, with 17th century mansions overlooking the river and famous for a kind of sweet egg pastries. Right next to Porto you can visit, in Vila Nova de Gaia, the lodges where the famous Port wine is blended and aged and where you can taste the different varieties, or you may choose to take a river cruise along the Douro.

**ICEM15**  
Porto/Portugal  
2012



**15th International Conference on  
Experimental Mechanics**

Faculty of Engineering, University of Porto  
22-27 July 2012

## **1<sup>ST</sup> ANNOUNCEMENT AND CALL FOR PAPERS**

This is the First Announcement and Call-for Papers for the 15<sup>th</sup> International Conference on Experimental Mechanics, to take place in Porto (Portugal) from 22 to 27 July 2012. The deadline for Abstract Submission is 30 November 2011. Full information about the conference can be found in the ICEM15 web site, at the following address:

<http://paginas.fe.up.pt/clme/icem15/index.htm>

## Organisation

*The conference is jointly organized by*

Faculty of Engineering, University of Porto and  
Portuguese Society for Experimental Mechanics

*Under the auspices of*

European Society for Experimental Mechanics

## Relevant Dates

|                                 |                   |
|---------------------------------|-------------------|
| Submission of Abstracts         | 30 November, 2011 |
| Notification of Acceptance      | 13 January, 2012  |
| Deadline for Early Registration | 31 January, 2012  |
| Submission of Full Papers       | 16 March, 2012    |
| Conference                      | 22-27 July, 2012  |

## Conference Chair

Prof. J.F. Silva Gomes  
Faculty of Engineering, University of Porto  
Porto, Portugal

## Organising Committee

### Chair

Joaquim Silva Gomes (FEUP)

### Local Members

António T. Marques (FEUP); Paulo T. de Castro (FEUP); António J.M. Ferreira (FEUP); Carlos C. António (FEUP); Jorge O. Seabra (FEUP); Mário A.P. Vaz (FEUP); José D. Rodrigues (FEUP); Clito F. Afonso (FEUP); Álvaro Cunha (FEUP); Elsa Caetano (FEUP)

### National Members

João Ferreira (IST, Lisbon); Jorge Gomes (LNEC, Lisbon); José M. Cirne (UC, Coimbra); Paulo G. Piloto (IPB, Bragança); Mário Santos (LNEG, Lisbon)

## International Scientific Committee

Aben, H. (Estonia); Afonso, C.F. (Portugal); Angelova, D. (Bulgaria); Anglada, M. (Spain); António, C.C. (Portugal); Banks-Sills, L. (Israel); Barros, R.C. (Portugal); Barton, J. (UK); Bathe, K.J. (USA); Bolton, R. (USA); Botsis, J. (Switzerland); Branco, F.A. (Portugal); Bremand, F. (France); Camanho, P. (Portugal); Cardeira, C. (Portugal); Castro, C.F. (Portugal); Castro, P.T. de (Portugal); Cavalli, M. (USA); Chen, T. (Taiwan); Costa, Luisa (Portugal); Cottron, M. (France); Crocco, D. (Italy); Cunha, A. (Portugal); Datta, S. (USA); Daum, W. (Germany); Degrieck, J. (Belgium); Dietrich, L. (Poland); Eberhardsteiner, J. (Austria); Emri, I. (Slovenia); Esteves, J.L. (Portugal); Ferreira, A.J.M. (Portugal); Freddi, A. (Italy); Freire, J.L. (Brazil); Furlong, C. (USA); Gabbar, H.A. (Canada); Galiotti, U. (Italy); Gdoutos, E. (Greece); Genovese, K. (Italy); Gilchrist, M. (Ireland); Ghosh, Ashok (USA); Hejrum, Du (Singapore); Hoa, S.V. (Canada); Hutchings, I. (UK); Iliescu, N. (Romania); Jacquot, P. (Switzerland); Jones, N. (UK); Jorge, R.N. (Portugal); Kennedy, D. (Ireland); Klein, H.W. (Germany); Kourkoulis, S. (Greece); Laermann, K. (Germany); Langseth, M. (Norway); Leão, C.P. (Portugal); Lebedev, A. (Ukraine); Lee, D.G. (Korea); Li, Jackie (USA); Lopez, G. Ruiz (Spain); Lu, Jian (Hong Kong); Maia, Nuno (Portugal); Mal, A. (USA); Marques, A.T. (Portugal); Marques, J.C. (Portugal); Meguid, S.A. (Canada); Mileiko, S.T. (Russia); Miller, R.E. (Canada); Mimmi, G. (Italy); Mines, R. (UK); Miranda, Rosa (Portugal); Miyano, Y. (Japan); Morimoto, Y. (Japan); Moshaiov, A. (Israel); Moura, M.F. (Portugal); Navarro, C. (Spain); Olabi, Abdul G. (Ireland); Pappalettere, C. (Italy); Pieczyska, E. (Poland); Pierron, F. (France); Pires, J.N. (Portugal); Ragulsksis, M. (Lithuania); Ramesh, K. (India); Reddy, J.N. (USA); Restivo, M.T. (Portugal); Rodrigues, J.D. (Portugal); Sainov, V. (Bulgaria); Schaer, G. (Canada); Sciommarella, C.A. (Italy); Seabra, Jorge (Portugal); Semenski, D. (Croatia); Servin, M. (Mexico); Silva, A.J. (Portugal); Silva Gomes, J.F. (Portugal); Silva, Lucas (Portugal); Silva, M.G. (Portugal); Silva, S. Carmo (Portugal); Sjödal, M. (Sweden); Soares, C.M. (Portugal); Suleman, Afzal (Portugal); Takagi, T. (Japan); Tamuzs, V. (Latvia); Tavares, J.M. (Portugal); Thomsen, O.T. (Denmark); Tooren, M.J. (Netherlands); Truman, C.E. (UK); Umeda, T. (Japan); VanHemelrijck, D. (Belgium); Vautrin, A. (France); Vaz, Mário P. (Portugal); Wang, Wei-Chung (Taiwan); Weng, G. (USA); Yoneyama, Satoru (Japan); Yoon, Y.C. (Singapore); Zhang, Z. (China)

## Objectives and Topics

**ICEM 15** is the fifteenth international gathering of scientists and engineers interested in the topic of *experimental mechanics* and its application to mechanical design, materials engineering, and engineering mechanics planned for July 22-27, 2012 in Porto, Portugal. The first conference of this series was held in Delft (The Netherlands), in 1959, and the last one took place in Poitiers (France) in July 2010. In the meantime, the 10<sup>th</sup> EM meeting was held in Portugal (Lisbon), in 1994, which I had also the privilege to chair. All these EM meetings resulted from the belief that of those disciplines associated with advanced product design and manufacture, *experimental mechanics* techniques have been making continuous and significant advances during the years. Important and dramatic improvements in systems and component design can be made by the use of the latest advances in experimental mechanics techniques applied to energy systems, structures and materials. Their effect on the environment is significant and will help in avoiding global warming and harmful CO<sub>2</sub> emissions.

It is therefore the objective of this meeting to provide a forum for the discussion and dissemination of recent advances in the field of *Experimental Mechanics*. The goal is to enable mechanical, aeronautical, civil, automotive, biomedical, environmental, and nuclear engineers, researchers and scientists to exchange ideas on the following and derivative topics:

- **Testing and Diagnostics:** Condition Monitoring, Destructive and Nondestructive Testing, Damage Mechanics and Assessment, Prototyping and Full-Scale Testing, Vibration Monitoring, Failure Diagnostics, Residual Stresses.
- **Modes of Failure:** Fatigue, Corrosion-Fatigue, Stress Corrosion Cracking, Fatigue Creep Interaction, Environmentally Assisted Failures, Brittle Fracture, Buckling, Impact Failure.
- **Surface and Interface Engineering:** Functionally Graded Materials, Smart Structures and Materials, Coatings Plating and Metal Finishing, Tribology and Failure of Interfaces, Surface Integrity, Surface Treatments and Shot-peening.
- **Nanotechnologies & Nanomaterials:** NEMS and MEMS Technologies, Nanocomposites, Nanodevices, Diagnostics and Control, Nanosensors, Molecular Devices.
- **Civil Engineering Applications:** Structural Analysis, Structural Integrity, Experimental Tests & Structural Monitoring, Experimentation in Geoseismology, Concrete and Composite Structures, Metallic Structures, Structural Rehabilitation.

## Topics (continued)

- **Biomechanical Applications:** Mechanics and Design of Protheses, Biomaterials and Biocompatibility, Stress Monitoring, Dental and Orthopaedic Biomechanics, Sports and Rehabilitation Biomechanics, Biofluid Mechanics, Medical Devices.
- **Sensors and Instrumentation:** Optical Techniques and Interferometry, Optical Fibres, Nondestructive Tools in Design, Advanced Mechanical Testing, Condition Monitoring, Self-sensing Materials, Self-healing Materials.
- **Thermo-Fluid Systems:** Granular Flow, Thermal Barrier Coatings, Heat And Mass Transfer, Experimental Fluid Dynamics, Solid-Fluid Interactions, Interfacial Dynamics, Large Scale Eddy and Turbulence Analysis.
- **E-Teaching Experimental Mechanics:** We will accept papers that deal with novel techniques in teaching *experimental mechanics* to engineering students. Topics of interest include: lateral thinking, teaching of large classes, assessment, curricula, laboratories, time management, Integration of IT into the classroom.
- **Case Studies:** We would welcome real engineering applications, case histories and case studies that involve the use of experimental techniques in engineering applications to design, manufacturing and monitoring of structures, materials and processes.

## Thematic Symposia

A number of thematic symposia will be organized under the auspices of the **15<sup>th</sup> International Conference on Experimental Mechanics**. Interested authors should contact the coordinators directly.

Individuals interested in running a Symposium on any or derivatives of the main conference topics should inform the conference chair of their intention as soon as possible. Upon approval, the symposium organiser will be requested to submit a summary of his/her plans with regards to the title of symposium, number of sessions required (5 papers per session), names of potential authors and any other special requirements.

## Technical Exhibition

ICEM15 will provide facilities for a technical exhibition on equipments, software and services related to *experimental mechanics* during the whole period of the conference. Companies and individuals interested in displaying software, apparatus or any other kind of material at the technical exhibition should inform the conference chair of their intention as soon as possible.