

Scientific Program

The Scientific Program of the conference will be daily arranged around two *Keynote Plenary Lectures* by distinguished scientists, 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 days of the **IRF2016** 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 **IRF2016** conference.

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 2016	After 31 JAN 2016
Full Delegate	650,00 Euro	850,00 Euro
Student Delegate	500,00 Euro	650,00 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, present a maximum of two papers (one oral and one poster), attend all technical sessions, early-bird and welcome receptions, refreshments, lunches, conference banquet and privileged access to all initiatives of the social program. Accompanying Persons are entitled to early-bird and welcome receptions, banquet and privileged access to all initiatives of the social program.

Further Information

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

Prof. J.F. Silva Gomes
FEUP/DEMEc
E-mail: sg@fe.up.pt

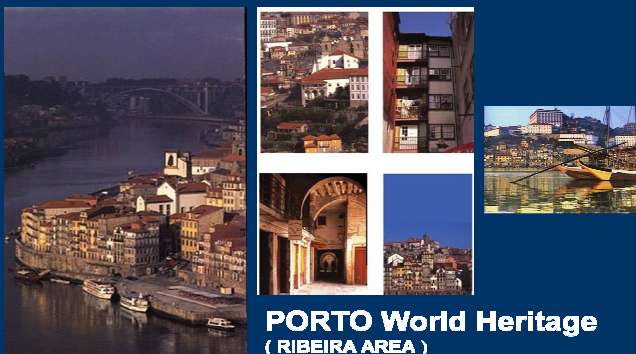
Prof. Shaker A. Meguid
AMD/L/U.Toronto
E-mail: meguid@mie.utoronto.ca

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.



1ST ANNOUNCEMENT AND CALL FOR PAPERS

This is the First Announcement and Call-for-Papers for the **5th International Conference Integrity - Reliability - Failure**, to take place in Porto (Portugal) from 24 to 28 July 2016. The deadline for Abstract Submission is 15 December 2015. Full information about the conference can be found in the IRF2016 web site, at the following address:

<http://paginas.fe.up.pt/clme/IRF2016/>

Institutional Sponsors

The conference is sponsored by

Faculty of Engineering, University of Porto
&
MADL-University of Toronto

Relevant Dates

Submission of Abstracts	15 December, 2015
Notification of Acceptance	07 January, 2016
Deadline for Early Registration	31 January, 2016
Submission of Full Papers	15 March, 2016
Conference	24-28 July, 2016

Conference Co-Chairs

Prof. J.F. Silva Gomes
Faculty of Engineering, University of Porto, Portugal
Prof. Shaker A. Meguid
MADL, University of Toronto, Canada

International Scientific Committee

Aben, H. (Estonia), Adali, S. (S. Africa), Afonso, C.F. (Portugal), Alexopoulos, N. (Greece), António, C.C. (Portugal), Banks-Sills, L. (Israel), Baptista, J.S. (Portugal), Barros, R.C. (Portugal), Bathe, K.J. (USA), Botsis, J. (Switzerland), Bremand, F. (France), Caetano, E. (Portugal), Camanho, P. (Portugal), Campos, J.R. (Portugal), Castro, C.F. (Portugal), Castro, P.T. (Portugal), Cavaleiro, A. (Portugal), Chen, T. (Taiwan), Chenot, J-L (France), Cirne, J. (Portugal), Correia, A. (Portugal), Croccolo, D. (Italy), Cunha, A. (Portugal), Datta, S. (USA), Degrieck, J. (Belgium), Dietrich, L. (Poland), Eberhardsteiner, J. (Austria), Fernandes, A.A. (Portugal), Ferreira, D. (Portugal), Ferreira, J.G. (Portugal), Fiúza, A. (Portugal), Fonseca E. (Portugal), Gdoutos, E. (Greece), Hejum, Du (Singapore), Igartua, A. (Spain), Ignaszak, Z. (Poland), Iliescu, N. (Romania), Jones, N. (UK), Jorge, R.N. (Portugal), Kahlen, F-J (S. Africa), Klein, W. (Germany), Kourkoulis, S. (Greece), Laermann, K. (Germany), Langseth, M. (Norway), Lima, G. (Brazil), Lino, J. (Portugal), Lopes, H. (Portugal), Lu, Jian (Hong Kong), Madureira, L. (Portugal), Mal, A. (USA), Marques, A.T. (Portugal), Masato, Y. (Japan), Meda, A. (Italy), Meguid, S.A. (Canada), Mileiko, S.T. (Russia), Miller, R.E. (Canada), Mines, R. (UK), Moreira, P. (Portugal), Morimoto, Y. (Japan), Moura, M.F. (Portugal), Muc, Aleksander (Poland), Navarro, C. (Spain), Pappalettere, C. (Italy), Pieczyska, E. (Poland), Piloto, P. (Portugal), Pindera, M.J. (USA), Quelhas, O. (Brazil), Ramesh, K. (India), Reddy, J.N. (USA), Robinson, J. (Ireland), Ruiz, G. (Spain), Ruzicka, M. (Czech. Rep.), Sainov, V. (Bulgaria), Seabra, Jorge (Portugal), Semenski, D. (Croatia), Silva, Lucas (Portugal), Silva Gomes, J.F. (Portugal), Sjö Dahl, M. (Sweden), Sousa, Luísa (Portugal), Takagi, T. (Japan), Tamalsky, E. (Brazil), Tamuzs, V. (Latvia), Tavares, J.M. (Portugal), Tavares, P. (Portugal), Tooren, M.J. (Netherlands), Truman, C.E. (UK), Umehara, N. (Japan), VanHemelryck, D. (Belgium), Varum, H. (Portugal), Vaz, Mário P. (Portugal), Wang, Wei-Chung (Taiwan), Weng, G. (USA), Yoneyama, Satoru (Japan), Yong, Ng T. (Singapore), Yoon, Y.C. (Singapore), Zhang, Z. (China).

Organising Committee

(Local Members)

Carlos C. António (U.Porto)	Catarina Castro (U.Porto)
Clito F. Afonso (U.Porto)	José Cirne (U.Coimbra)
Mário A.P. Vaz (U.Porto)	Paulo Piloto (I.P.B)
Pedro Moreira (FEUP/INEGI)	

Objectives

IRF2016 is the fifth international gathering of a prestigious series of conferences coordinated by the International Scientific Committee on Mechanics and Materials in Design. This series of conferences started in 1999 and they are wholly devoted to advances in mechanics, materials, structural integrity and design. These meetings resulted from the belief that of those disciplines associated with advanced product design and manufacture, engineering mechanics, materials engineering, maintenance and thermo-fluid mechanics have made the most significant advance in recent years. The conference is planned for July 24-28, 2016 in Porto, Portugal.

Main Topics

- **Computational Mechanics:** FEM, BEM and Hybrid Methods, Analysis of Structural Components, Optimum Design Techniques, Metal Forming and Metal Cutting, Dynamics and Vibration, Dynamic Loading of Structures, Reliability Assessment, Case Studies.
- **Experimental Mechanics:** Condition Monitoring, Destructive and Nondestructive Testing, Optical Techniques, Damage Mechanics and Assessment, Prototyping and Full-Scale Testing, Vibration Monitoring, Residual Stresses, Case Studies.
- **Modes of Failure:** Fatigue, Corrosion-Fatigue, Stress Corrosion Cracking, Fatigue Creep Interaction, Environmentally Assisted Failures, Brittle Fracture, Buckling, Impact Failure, Case Studies.
- **Composite and Advanced Materials:** Fibres, Matrices and Interfaces, Polymer, Ceramic, Carbon, and Metal Composites, Multifunctional Composites, Smart Structures and materials, Processing, Fabrication and Recycling, Durability, Damage and Fracture, Health Monitoring and Repairability, Case Studies.
- **Nanotechnologies & Nanomaterials:** NEMS and MEMS Technologies, Nanocomposites, Nanodevices, Diagnostics and Control, Nanosensors, Molecular Devices, Applications of Nanocomposites in Industry, Case Studies.
- **Tribology and Surface Engineering:** Lubrication, Lubricants and Additives, Surface Coatings and Treatments, Gears and Bearings, Micropitting, Pitting, Scuffing and Wear, Surface Integrity, Clutches, Adhesive Bonding, Case Studies.
- **Impact and Crashworthiness:** Testing Techniques, Measurement in Dynamics, Earthquake Engineering, Crashworthiness, Ballistic Studies,, Energetic Materials, Impact Behaviour of Materials, Case Studies.
- **Mechanical Design and Prototyping:** Mechanical Design, Product Development, Additive Manufacturing, Prototyping, Design for Manufacturing, Eco-design, Conversion Technologies, Case Studies.

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, Case Studies.
- **Civil Engineering Applications:** Structural Analysis, Structural Integrity, Experimental Tests and Structural Monitoring, Experimentation in Geoseismology, Concrete and Composite Structures, Metallic Structures, Structural Rehabilitation, Case Studies.
- **Road Safety and Reliability:** Autonomous Vehicles and Road Safety, Modelling and Simulation of Vehicle Collision, Design of Safety Features, Novel Intelligent Transport Systems, Crash Management Systems, Post-crash Rehabilitation, Forensic Engineering, Case Studies.
- **Energy and Thermo-Fluid Systems:** Energy Systems,, Thermal Barrier Coatings, Heat And Mass Transfer, Experimental Fluid Dynamics, Solid-Fluid Interactions, Interfacial Dynamics, Large Scale Eddy and Turbulence Analysis, Case Studies.

Thematic Symposia

A number of thematic symposia will be organized under the auspices of **IRF2016 - 5th International Conference Integrity – Reliability - Failure**. 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 chairs 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

M2D'2015 will provide facilities for a technical exhibition on equipments, software and services related to *Mechanics and Materials in Design* 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 chairs of their intention as soon as possible.