

International Scientific Committee

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Keynote Speakers

The ICEM20 program will include a number of Keynote Lectures by distinguished professionals and scientists in the field:

Prof. Shaker A. Meguid (U. Toronto, Canada)
 Prof. Pedro Camanho (U. Porto, Portugal)
 Prof. Veit Senner (T.U. Munich, Germany)
 Dr. Alfredo C. Costa (LNEC, Portugal)

Conference Sponsors



Scientific Program

The Scientific Program of the conference will be daily arranged around *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 ICEM20 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 ICEM20 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 DEC 2022	1 JAN - 28 FEB 2023
Full Delegate	800,00 Euro	900,00 Euro
Student Delegate	500,00 Euro	600,00 Euro
Accompanying Person	200,00 Euro	200,00 Euro

Registered delegates are entitled to the presentation and online publication of one Abstract/Paper (oral or poster), a copy of the USB-card with the conference Proceedings, attend all technical sessions, early-bird reception, welcome dinner, refreshments, lunches, conference banquet and privileged access to all initiatives of the social program. Accompanying Persons are entitled to early-bird reception and welcome dinner, banquet and access to the optional initiatives of the social program.

Further Information

For further information, please see the conference website, or contact the Organising Committee at the following address;

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



1st ANNOUNCEMENT AND CALL FOR ABSTRACTS

This is the First Announcement and Call-for-Papers for the 20th International Conference on Experimental Mechanics, to take place in Porto, Portugal from 2 to 7 July 2023. The deadline for Abstract Submission is 15 October 2022. Full information about the conference can be found in the ICEM20 website, at the following address:

<http://paginas.fe.up.pt/~icem20/>

Institutional Sponsors

The conference is jointly sponsored by

European Society for Experimental Mechanics (EURASEM)
 Faculty of Engineering, University of Porto (FEUP)
 Portuguese Society for Experimental Mechanics (APAET)
 National Laboratory of Civil Engineering (LNEC)

Relevant Dates

Submission of Abstracts	15 October, 2022
Notification of Acceptance	31 October, 2022
Deadline for Early Registration	31 December, 2022
Submission of Full Papers	28 February, 2023
Conference	2 - 7 July, 2023

Conference Chair

Prof. J.F. Silva Gomes

Faculty of Engineering, University of Porto, Portugal

Vice-Chairs

Prof. Carlos C. António
 Faculty of Engineering, U. Porto

Prof. Jorge P. Gomes
 Nat. Lab. Civil Engineering

Organising Committee

(Local Members)

Catarina Castro (U.Porto); Clito F. Afonso (U.Porto)
 José Reis Campos (U.Porto); Paulo T. Castro (U.Porto)
 Rui C. Barros (U.Porto)

Conference Venue

The **ICEM20** conference will be held in the beautiful city of Porto, in northern Portugal, at the facilities of the Faculty of Engineering, University of Porto, which are very convenient for conferences and other events, in terms of equipment, transportation and proximity to the city centre and hotels.

Porto is one of the oldest tourist destinations in Europe, considered European Best Destination in 2012, 2014 and 2017. Porto made its name over two centuries ago because of its connection with the port wine industry, and is listed as a UNESCO World Heritage Site.



Apart from Porto, Northern Portugal is often forgotten by international tourists. However, as Portuguese who have travelled extensively in our country, we know that Northern Portugal is probably the most authentic region, with a wide range of interesting destinations!

The Douro is the highest-flow river of the Iberian Peninsula. It rises near Duruelo de la Sierra in Soria Province, central Spain, meanders south briefly then flows generally west through the north-west part of central Spain and into northern Portugal, to its mouth at Porto.



Portuguese Gastronomy is one of the most valuable cultural resources of this beautiful country. If you are to spend some time in Portugal, do not miss out and try some of the most valuable typical dishes. Fresh fish, seafood and the famous Portuguese Stew are renowned reference dishes worldwide.

Scope

ICEM20 is the twentieth international gathering of a prestigious series of conferences organised under the auspices of the European Society for Experimental Mechanics (EuraSEM). This series of conferences started in 1959, in Delft, and they rely upon 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. It is therefore the objective of this meeting to provide a forum for the discussion and dissemination of recent advances in Experimental Mechanics and its applications in structures, materials, biomechanics and many other fields of science and engineering. The goal is to enable mechanical, aeronautical, civil, automotive, biomedical, environmental, and nuclear engineers, researchers and scientists to exchange ideas on the main topics of the conference.

Main Topics

- **Testing and Diagnostics:** Condition Monitoring, Destructive and Nondestructive Testing, Optical Techniques, Damage Mechanics and Assessment, Prototyping and Full-Scale Testing, Vibration Monitoring, Residual Stresses, Case Studies.
- **Analytical and Numerical methods:** 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
- **Composite and Advanced Materials:** Fibres, Matrices and Interfaces, Polymer/Ceramic/Carbon/Metal Composites, Multi-functional Composites, Smart Structures and Materials, Processing/Fabrication/Recycling, Durability/Damage/Fracture, Health Monitoring and Repairability, Case Studies.
- **Fatigue and Fracture Mechanics:** Fatigue, Corrosion-Fatigue, Stress Corrosion Cracking, Fatigue Creep Interaction, Environmentally Assisted Failures, Brittle Failure, Buckling, Impact Failure, Case Studies.
- **Nanotechnologies and 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.
- **Mechanical Design and Prototyping:** Mechanical Design, Product Development, Additive Manufacturing, Prototyping, Design for Manufacturing, Eco-design, Conversion Technologies, Case Studies.

Main 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 & Structural Monitoring, Experimentation in Geoseismology, Concrete and Composite Structures, Metallic Structures, Structural Rehabilitation, Case Studies.
- **Impact and Crashworthiness:** Testing Techniques, Measurement in Dynamics, Earthquake Engineering, Crash-worthiness, Ballistic Studies, Energetic Materials, Impact Behaviour of Materials, 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.
- **Industrial Engineering and Management:** Systems Engineering, Manufacturing Engineering, Safety Engineering, Sustainable Technologies and Processes, Risk Assessment, Product Reliability, Operations Management, Case Studies.

Thematic Symposia

A number of thematic symposia will be organized under the auspices of **ICEM20** - 20th 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 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

ICEM20 will provide facilities for a technical exhibition on equipments, software and services related to the main theme of the conference during the whole period of the event. Companies and individuals interested in displaying software, services, equipments or any other kind of material at the technical exhibition should inform the conference chairs of their intention as soon as possible.