

HPSM/OPTI 2020

WIT
CONFERENCES
Call for Papers

10th International Conference on High Performance and Optimum Design of Structures and Materials

3 – 5 June 2020 | Prague, Czech Republic

Organised by

Wessex Institute, UK
University of A Coruña, Spain
Free University of Brussels, Belgium
Czech Technical University, Prague

Sponsored by

WIT Transactions on the Built Environment
International Journal of Computational Methods
and Experimental Measurements



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The use of novel materials and new structural concepts nowadays is not restricted to highly technical areas like aerospace, aeronautical applications or the automotive industry, but affects all engineering fields including those such as civil engineering and architecture.

The conference addresses issues involving advanced types of structures, particularly those based on new concepts or new materials and their system design. Contributions will highlight the latest development in design, optimisation, manufacturing and experimentation in those areas. The meeting also aims to search for higher performance sustainable materials.

Most high performance structures require the development of a generation of new materials, which can more easily resist a range of external stimuli or react in a non-conventional manner. Particular emphasis will be placed on intelligent structures and materials as well as the application of computational methods for their modelling, control and management.

The conference also addresses the topic of design optimisation. Contributions on numerical methods and different optimisation techniques are also welcome, as well as papers on new software. Optimisation problems of interest to the meeting involve those related to size, shape and topology of structures and materials. Optimisation techniques have much to offer to those involved in the design of new industrial products.

The development of new algorithms and the appearance of powerful commercial computer codes with easy to use graphical interfaces has created a fertile field for the incorporation of optimisation in the design process in all engineering disciplines.

This scientific event is a new edition of the High Performance and Optimum Design of Structures and Materials Conference and follows the success of a number of meetings on structures and materials and on optimum design that originated in Southampton as long ago as 1989. As the meetings evolved they gave rise to the current series, which started in Seville in 2002, and followed by Ancona in 2004, Ostend in 2006, the Algarve in 2008, Tallinn in 2010, the New Forest, home of the Wessex Institute in 2012, Ostend in 2014, Siena in 2016 and Ljubljana in 2018.

The meeting will provide a friendly and useful forum for the interchange of ideas and interaction amongst researchers, designers and scholars in the community to share advances in the scientific fields related to the conference topics.

Conference Chairmen

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Polytechnic University of Valencia, Spain

Benefits of Attending

USB Drive

Delegates will receive a USB drive at the conference containing the presented papers.

Publication

Papers presented at HPSM/OPTI 2020 are to be published in a Volume of WIT Transactions on the Built Environment (ISSN 1743-3509). The publication will be available both in electronic and hard copy.

Indexing

The WIT Transactions are DOI registered with CrossRef and are currently listed in indexing services such as Scopus and Google Scholar, as well as being submitted to the Web of Science. All conference books are listed in the British Library and American Library of Congress.

Open Access and Digital Archive

All conference papers are archived permanently on our electronic library where they can be downloaded for free (www.witpress.com/elibrary).

Peer review

To ensure the quality of our publications, abstracts and papers are double peer-reviewed by members of the International Scientific Advisory Committee and other experts, with manuscripts processed through CrossRef Similarity Check.

Reduced Fee for PhD Students

The Wessex Institute believes in the importance of encouraging PhD students to present and publish innovative research at its conferences. As a result, the Institute offers PhD students a much reduced conference fee.

Networking

Participants can present their research and interact with experts from around the world, as part of a unique community.

Journal Publication Opportunity

After the conference, delegates will be invited to submit enhanced versions of the conference paper to the International Journal of Computational Methods and Experimental Measurements (ISSN 2046-0546)

Conference Topics

The following list covers some of the topics to be presented at the conference. Papers on other subjects related to the objectives of the meeting are also welcome.

Composite materials

Material characterisation

Experiments and numerical analysis

Natural fibre composites

Nanocomposites

Green composites

Composites for automotive applications

Transformable structures

Environmentally friendly and sustainable structures

Structural optimisation

Reliability based design optimisation

Non deterministic approaches

Evolutionary methods in optimisation

Aerospace structures

Biomechanics application

Structures under extreme loading

Surface modification

Lightweight structures

Design for sustainability

Design for durability

Lifecycle assessment

Structural reliability

Smart materials and structures

Optimization of civil engineering structures

Optimization on mechanical engineering

Optimization in car industry

Design optimization of tall buildings

Metaheuristic algorithms

New algorithms for size and topology optimisation

BIM tools for design optimization

Emerging materials

Case Studies



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Location

Prague is the capital city of the Czech Republic with a history dating back a millennium. Nicknamed “the City of a Hundred Spires”, Prague is home to a number of famous cultural attractions, many of which survived the violence and destruction of European wars. The city sits amid the gentle landscapes of the Bohemian plateau, straddling the Vltava River, which is the longest river in the Czech Republic. Main attractions include the Prague Castle, the Charles Bridge, the Old Town Square with the Prague astronomical clock and the Jewish Quarter. The historical centre of Prague has been listed in the UNESCO World Cultural and Natural Heritage Register since 1992. It is a city of culture boasting more than ten major museums, along with numerous theatres, cinemas, and other historical exhibits.

Venue

The conference will take place at Masarykova kolej, a conference centre and student residence for Czech Technical University. The venue is well connected with the city centre by underground and it is only 20 minutes away from the airport.



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Submission Information

Abstracts of no more than 300 words should be submitted as soon as possible.

Abstracts should clearly state the purpose, results and conclusions of the work to be described in the final paper. Final acceptance will be based on the full-length paper which, if accepted for publication, must be presented at the conference.

The language of the conference will be English.

Online submission:

www.witconferences.com/hpsmopti2020

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For more information visit: www.witconferences.com/hpsmopti2020