



Journal of Materials and Engineering Structures

CALL FOR PAPERS FOR SPECIAL ISSUE OF DECEMBER 2018

Durability and Reliability of Structural Mechanics

Journal information

Journal of Materials and Engineering Structures (JMES) is an online, free and open access journal (ISSN 2170-127X). **JMES** is indexed in **Thomson Reuters Web of Science**: Emerging Sources Citation Index (ESCI) and in Directory of Open Access Journals (**DOAJ**).

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Focus and scope

Currently, uncertainty quantification takes a considered part in the research activities in mechanical modelling and in several fields of applied science. In fact, mechanical model predictions are based on the knowledge of the mechanical parameters and physical properties of the materials, the applied loads, and the initial and boundary conditions. Nevertheless, the knowledge of these properties remains imperfect because it is affected by uncertainties. Uncertainty quantification aims to study the influence of the uncertain parameters of the prediction models on the structural performance.

A common framework for modelling uncertain parameters is within probabilistic approaches leading to a probabilistic characterization of the structural response. Alternatives include non-probabilistic approaches, or interval methods.

The goal of this journal issue is to provide an opportunity for researchers to present recent works on new methods for structural reliability methods by using probabilistic or non-probabilistic approaches, structural design and maintenance optimization under uncertainty, as well as the use of metamodels to reduce the computational cost induced by the mechanical models. Academics and practicing engineers concerned with the various forms of structural reliability analysis and structural and maintenance optimization in presence of uncertainties.

The second goal of this issue is to offer for researchers to publish recent contributions on durability of material and structures (concrete, steel, composite material, timber, etc.) in both experimental and modelling aspects with regard to mechanical and chemical degradation (chloride ingress, carbonation, sulfate attack, cracking, fatigue, aging, etc.) combined with mechanical damage. This issue is also open to aspects of material behaviour, Eco-materials, wastes valorisation and the characterisation of their life cycle analysis (LCA).

Contributions addressing both theoretical developments and practical applications, in the following topics:

- Structural Reliability methods (approximated reliability methods, Monte Carlo simulations, advanced simulation methods).
- Applications of structural reliability to challenging engineering problems.
- Polynomial Chaos Expansions and stochastic finite element methods.
- Uncertainty quantification, probabilistic modeling and analysis.
- Reliability based design.
- Performance-based optimization.
- Reliability based Design optimization.
- Robust based optimization under uncertainty.
- Decision-making in presence of uncertainties.
- Risk based design and maintenance optimization.
- Surrogate models for uncertainty quantification and robust design optimization.
- Reliability-based maintenance optimization.
- Prognosis and structural health monitoring.
- Modeling of extreme or rare events.
- Modeling of uncertainty with Bayesian theory, imprecise probabilities, evidence theory, interval models, fuzzy set theory, information gap theory, etc.
- Non-probabilistic approaches based design and maintenance optimization.
- Microstructural characterization.
- Transport modeling of aggressive agents.
- Multiscale Modeling.
- Coupling mechanical damage and transport process.
- Chloride, carbonation, sulfate attack.
- Steel corrosion.
- Experimental characterization of durability of concrete.
- Effects odd SCMs on durability.
- Service life quantification.
- Self-healing of concrete.
- Eco-materials and wastes valorization.
- Life Cycle analysis.

Important dates

- Submission deadline: 31 March 2018
- First review decision: 31 May 2018
- Revisions due: 31 August 2018
- Final manuscript: 30 October 2018
- Expected publication date: 31 December 2018

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General information

All submitted articles will be subject to a double peer-review process according to the standards of JMES. The full papers must be submitted through the journal's website.

When submitting your paper, be sure to specify that the paper is a contribution for the Special Issue, so that your paper is assigned to the guest editors. Please see the Author Instructions on the web site of JMES if you have not yet submitted a paper through this web-based system. Accepted papers will be published in the issue of December 2018.

We are looking forward to receiving your contribution.

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