



## Special Issue “**Simulations of Composite Structures Under Fire**”

Journal of Structural Design and Numerical Methods (JSDNM)

### Guest Editor:

**Carlos Balsa** is Balsa is an Adjunct Professor in the Department of Mathematics - Polytechnic Institute of Bragança (IPB) – Portugal. PhD in Engineering Sciences, by the Faculty of Engineering of the University of Porto (Portugal), and in Informatique et Télécommunications, component of Calcul de Haute Performance, by the National Polytechnic Institute of Toulouse (France). Research in the area of Applied and Computational Mathematics: Implement and develop computational methods for solving

ordinary and partial differential equations resulting from problems of fluid mechanics, structural and thermal engineering; application of matrix methods to data analysis in various contexts such as economic and business sciences, weather forecasts or digital image processing.

ORCID link: <https://orcid.org/0000-0003-2431-8665>

**Paulo A. G. Piloto** is currently coordinator professor in the Department of Applied Mechanics – Polytechnic Institute of Bragança (IPB) – Portugal, having performed other professional activities in business and university environment. Develops the research activity in the field of fire and structural engineering, participating as an integrated researcher in LAETA (Laboratory for Energy, Transport and Aeronautics) - INEGI (Institute of Science and Innovation in Mechanical Engineering and Industrial Engineering), and as associate researcher in the research unit of the University of Salamanca "Art, architecture, Urbanism and Ingeniería (siglos XIX-XXI)”

ORCID link: <https://orcid.org/0000-0003-2834-0501>

### Call for Papers:

Composite structures have been extensively used in the modern building industry due to their superior mechanical/physical properties and excellent functionalities. Among all the composite structures, composite slabs, composite columns, composite beams, composite walls and composite panels apply new materials systems to structures to reduce weight and increase the fire resistance.

Due to the nature of the composite structures, they are subject to unique and complex collapse mechanisms, especially under fire conditions. Composite structures must meet fire-safety requirements in accordance with standards and regulations. Generally, standard fire tests are made using the standard fire curve ISO 834. But a good design may include other types of fire scenarios. These alternative scenarios can be represented through natural fire curves, which include the effects of cooling, and through parametric fire curves that consider different types of fire load densities.

Computational models are of great importance in this field because they are an alternative analysis to experimental tests that are expensive, time consuming and require laboratory facilities. However, computational simulations must be reliable and realistically, capturing the effects of the various parameters and phenomena involved. The validation of the computational models is usually required to accurately combine all aspects of the phenomenon.

Full-length papers, case studies as well as reviews covering the Simulations of Composite Structures Under Fire are welcome

The goal of this special issue “**Simulations of Composite Structures Under Fire**” is to bring together the latest advances and developments on the computational simulations of composite structures.

This special issue seeks to publish papers aimed at addressing significant issues and contributing toward the introduction of new concepts, methodologies, and knowledge to the Simulations of Composite Structures Under Fire. We are happy to invite you to submit an article for the Journal of Structural Design and Numerical Methods (JSDNM) for a special issue “**Simulations of Composite Structures Under Fire**”.

Original articles in the following topics are welcome for submission.

**Specific topics:**

Composite Materials	Validation models and Parametric studies
Composite Structures	Material modelling
Thermal Analysis	Finite Element Method
Mechanical Analysis	Finite Volume Method
Fire Modeling	Finite Difference Method

**Evaluation by EiC:**

Since this Special Issue will be organized by journal AEs therefore, the EiC will be responsible for evaluating the papers based on scope, feasibility, and technical merit. The decision on the Acceptance or Revision of Paper will be taken by EiC.

**Manuscript Submission (Guidelines):**

- Papers will be submitted through regular submission process: author can register by using the link <http://rationalpublication.com/registration.php> choosing **Journal of Structural Design and Numerical Methods**, after reading “Instructions to authors” through <http://rationalpublication.com/cs/es/instruction-to-authors.php> , thereafter, manuscript will be submitted through <http://rationalpublication.com/admin/login> , two files are required for submission: 1) Cover Letter (mention Special Issue “Simulations of Composite Structures Under Fire”); 2) Manuscript.
- The Managing AE will be responsible for organizing the view process. The review process will be the same as for the regular submission.

**Suggested Time-line:**

- Manuscript Submission Due: ~~30 September, 2020~~ 31 October, 2020
- First Review Completed: ~~31 October, 2020~~ 15 November, 2020
- Revised Manuscript Due: ~~30 November, 2020~~ 30 November, 2020
- Second Revision Completed and Final Decision: 15 December, 2020
- Final Manuscript Due: 31 December, 2020

**This special issue is being edited by:**

Carlos Balsa ([balsa@ipb.pt](mailto:balsa@ipb.pt)) and Paulo A. G. Piloto ([ppiloto@ipb.pt](mailto:ppiloto@ipb.pt))  
Polytechnic Institute of Bragança (IPB)  
Campus de Santa Apolónia, 5300-253 Bragança  
PORTUGAL

**For any queries related with the Special Issue, please feel free to contact the Guest Editor**

**Or:** [managing\\_editor@rationalpublication.com](mailto:managing_editor@rationalpublication.com) ; [support@rationalpublication.com](mailto:support@rationalpublication.com)