

STEEL AND COMPOSITE STRUCTURES

Nuno Lopes[†], Ana Espinós*

[†] RISCO, Departamento de Engenharia Civil, Universidade de Aveiro, Portugal

Email: nuno.lopez@ua.pt

* Instituto de Ciencia y Tecnología del Hormigón (ICITECH)

Universitat Politècnica de València, Spain

Email: aespinos@mes.upv.es

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ABSTRACT

The aim of this proposal is to gather, in a thematic session of the conference CMN2021, interesting and new numerical research works dealing with the resistance of steel and composite steel and concrete structures applied in civil engineering.

Numerical simulations have been widely applied for the determination of the resistance of steel and composite structural elements, connections and entire structures, when experimental analyses are not possible (due to cost or size limitations) or when parametric studies with high number of variables are needed. For these reasons, the numerical modelling application has been growing up in the latest years (as for example the use of the finite element method), with several research activities being conducted based on numerical simulation.

Additionally, the increase of knowledge on the numerical prediction of different phenomena (e.g. failure mechanisms, instabilities phenomena, etc.) occurring in buildings or other civil engineering structures, due to the loading and corresponded mechanical resistance, are of the utmost importance for the safety assurance of people and property.

Due to its mechanical properties and design flexibility, the application in structures of steel, and of composite steel and concrete, has become very common, increasing the need for promoting the research progress on the topic.

Works related with numerical simulations of entire structures, structural elements (beams, columns and beam-columns of different cross-sections) and connections, made of steel or composite steel and concrete, will be the object of this thematic session. The influence of the consideration of different actions, such as the ones resulted from dynamic loading (e.g. seismic, impact, imposed vibrations, etc.), thermal loading (e.g. fire, explosions, etc.) or others, on those structures or structural components can be also addressed in this session.