

ADVANCED MODELLING PROCEDURES FOR MASONRY STRUCTURES

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ABSTRACT

Masonry constructions are widely spread in many countries and form a relevant part of the world historic and architectural heritage. They have drawn the attention of the scientific community over the past decades. Even today large efforts are devoted to develop efficient and accurate procedures for the assessment of their structural safety and the design of repair and strengthening interventions.

Analytical, empirical, and computational approaches have been proposed and applied for the analysis of ancient and new masonry structures, both unreinforced and strengthened.

However, numerical modelling techniques are the most adopted nowadays, thanks to the increasing availability of computational tools and the continuous advancements in numerical methods for structural analysis. Indeed, 1D, 2D and 3D finite element formulations have been widely proposed, based on the adoption of nonlinear constitutive laws capable of describing the main nonlinear mechanisms evolving in masonry structures, when subjected to external loadings. Also, alternative methods as the discrete elements and the macro-element approaches have been put forward [1].

A suitable criterion for classifying masonry modelling approaches relies on the scale at which masonry is analyzed, distinguishing between micromechanical, macromechanical and multiscale models [2].

The aim of the proposed mini-symposium is to collect the most recent research contributions on these topics and to discuss on the current and future developments.

REFERENCES

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