

ICoNSoM 2022

International Conference on Nonlinear Solid Mechanics, 13-16 June 2022, Alghero, Italy

MS: NONLINEAR BEHAVIOUR OF VAULTED MASONRY STRUCTURES

MS Description

Historic and architectural heritage in many countries mainly consists in masonry structures and it is often located in seismic areas. Masonry is a heterogeneous material made of a regular or irregular assemblage of units (bricks and/or blocks) and joints (with or without mortar), with different mechanical properties and exhibiting strongly nonlinear constitutive behavior, characterized by the presence inelastic effects, like damage and fracture. A great part of masonry buildings has arches, vaults and domes: its protection is a challenging task.

The main goal of this Mini-Symposium (MS) is to collect the most recent advances in computational analysis of vaulted masonry structures and will be focused on development or improvement of numerical and analytical approaches and their application to the study of nonlinear behavior. Contributions based on finite element, distinct element, limit analysis and analytical formulations are welcome to discuss potentialities and limitations (in terms of accuracy and computational efficiency) of the usually adopted modeling approaches for the nonlinear analysis of vaulted masonry structures.

Following the MS, contributions will be selected for be published on the special issue “Nonlinear Behaviour of Vaulted Masonry Structures” hosted by the *International Journal of Masonry Research and Innovation*, all information can be found here: [IJMRI-SI-ICoNSoM](#)

MS Topics

Arches, Vaults and Domes; Computational strategies based on either Discrete Element Method (DEM) or Finite Element Method (FEM); Combined Discrete/Finite Element Method; Non-Smooth Contact Dynamics; Upper Bound Limit Analysis; Lower Bound Limit Analysis; Thrust Network Analysis; Homogenization approaches for limit analysis; Computational homogenization approaches; Multiscale models for fracture/damage simulation; Damage/plasticity models including unilateral contact and friction; Micro and Macro models; No Tension models; Fracture; Damage and defects detection.

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