

## NOVEL ADVANCES IN NUMERICAL METHODS FOR WAVE PROPAGATION PHENOMENA IN COMPLEX MEDIA

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### ABSTRACT

Simulation of the wave propagation phenomena in realistic, complex heterogeneous and engineered, scenarios ranging from industrial facilities to civil structures or biological environments, involves challenges not only from a mathematical modelling point of view, but also from the point of view of the design of accurate and reliable numerical methods. These should be capable of dealing with coupled phenomena, heterogeneous media, nonlinear material responses, or multiscale phenomena.

This mini-symposium is focused on the novel advances of numerical and algorithmic methodologies, which introduce new perspectives in the approximation of classical wave phenomena problems (e.g. exterior problems, fluid-structure interaction systems or aeroacoustics), but also on the design of new numerical procedures to recent challenges in sophisticated mechanical and vibroacoustic systems such as (but not limited to) composites, porous materials, noise barriers, sonic crystals, metamaterials, and underwater environments. Those contributions merging classical numerical techniques with other data-driven procedures are very welcome.