

## Special Issue on **Advances and Applications of Seismic Metamaterials for the Vibration Mitigation of Structures**

# CALL FOR PAPERS

Seismic metamaterials are emerging as a promising solution for seismic vibration mitigation in new and existing buildings and infrastructures. Metamaterials are characterized by a resonant structure allowing for extraordinary wave control capacities. The most relevant for seismic waves and ground-borne vibrations control is represented by “bandgaps” that inhibit the propagation of waves within certain frequency bands in every direction.

Despite the continuous advances in metamaterials-based vibration isolation devices, the development of effective designs and the technical aspects of their implementation still present significant challenges. These include requirements for ultralow frequency and sufficiently wide bandgaps, space constraints, minimum intervention and ecological footprint, the integration of seismic metamaterials into the earthquake risk assessment process, and the need for verification and subsequent standardization.

The aim of this special issue is to bring together researchers from interdisciplinary areas, including engineering, physics and mathematics, seismology, geotechnics, with a joint interest in seismic metamaterials. We invite investigators to contribute with original research and review articles that span three main areas, namely, (1) metamaterial class definition, that is, conceptual architecture and core functionality of unit cells and their interaction with soils, (2) underlying physics, that is, continuum and lumped models that include both linear and nonlinear and finite and infinite periodic or random lattices, and (3) numerical, experimental, and physical modeling, that is, numerical simulations of the candidate configurations and investigation of the effects of upscaling these systems to the full-scale problem.

Potential topics include but are not limited to the following:

- ▶ Seismic wave propagation control, scattering, filtering, and mode conversion
- ▶ Seismic metamaterials and soil-structure interaction
- ▶ Nonlinear seismic metamaterials
- ▶ Integration to structural design
- ▶ Reliability analysis and uncertainty propagation

Authors can submit their manuscripts through the Manuscript Tracking System at <https://mts.hindawi.com/submit/journals/sv/aasm/>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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### **Submission Deadline**

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