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Call for Papers

Instability and Failure of Nonclassical Materials and Nonlinear Structures



Aims & Scope

Stability and failure are two correlated phenomena in materials and structures which in engineering practice are treated as either separate or in causality. Yet, while instability may entail failure, instabilities may play a control function in, for example biomaterials or soft materials, etc. They can also enhance structural performance by allowing possible harvesting of predictive structural modes of functionality that are scalable, reversible, and robust, a process known as “Buckliphilia”. The intricate interplay between instability and failure is also critical for nanomaterials, soft materials, and some nonclassical materials such as metamaterials with designed periodic properties. This special collection of the Journal of Engineering Mechanics is dedicated to such nonclassical and nonlinear materials and structures. We invite contributions that are theoretical, experimental, or numerical in nature, or a combination thereof. Contributions investigating theories and applications for such nonclassical materials and nonlinear structures involving cross-disciplinary areas are particularly encouraged and sought. Examples include:

- Instability and failure of biomaterials
- Instability and failure of nanomaterials
- Instability and failure of metamaterials
- Instability and failure of soft materials
- Instability and failure of nonlinear structures
- Instabilities across scales
- “Buckliphilia” or instability-driven design
- Harnessing instability to enhance performance

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Submission Guidelines

We invite Forum articles, Technical Notes, Technical Papers, and Case Studies. Article type descriptions (including length limits) and preparation guidelines can be found in “Publishing in ASCE Journals: A Guide for Authors” (<https://ascelibrary.org/doi/book/10.1061/9780784479018>). The submission deadline for this special collection is May 31, 2022.

Authors should follow the guidelines for ASCE journal submission and submit manuscripts electronically through the journal’s Editorial Manager website: <https://www.editorialmanager.com/jrnemeng/>

When submitting, authors should indicate in the submission questions that the paper is being submitted in response to this call for papers (“Instability and Failure of Nonclassical Materials and Nonlinear Structures”) and the Guest Editors’ names (Lim, Yiatros, Wadee).

Please note that this is an invitation to submit papers for peer review and does not imply acceptance for publication. Acceptance of submitted papers depends on the results of the normal refereed peer review process of the journal.

All accepted papers submitted through this solicitation will be published in regular issues of the journal as they are accepted, and they will be added to a special online collection (which is similar to a print version of a special issue) and will be indexed for citations like other regular journal papers).