DE GRUYTER

SPECIAL ISSUE ON ADVANCES IN NONLINEAR DYNAMICS AND CONTROL: MODELING, DATA-BASED APPROACHES, AND APPLICATIONS

GUEST EDITORS

Prof. Dr. Sohail Nadeem (Lead GE), Quaid-I-Azam University;

sohailnadeem240@gmail.com

Zhenling Liu, Henan University of Technology

DESCRIPTION

It is well known that nonlinearity plays an important role in various fields of applied science, ensuring reliability, functionality and comfort for a variety of engineering applications. Structural nonlinearity, large amplitude vibration, limit cycles, instability, and friction are just a few examples of nonlinear dynamical phenomena. In recent years, there has been growing interest in the research community to improve our understanding of nonlinear vibration phenomena, as well as an early demand from industry for efficient lightweight designs and the need for monitoring and characterization of existing structures. In this case, advanced computational methods for modeling nonlinear dynamic systems need to be developed, and it is worth exploring nonlinear features such as harmonic resonance, bifurcation, and chaos. Effective modeling techniques and the discovery of novel dynamic features will enable breakthroughs in nonlinear control methods and useful devices, which may be potentially valuable for improving the performance, comfort, and longevity of engineered systems and structures. This special issue covers a wide range of engineering applications, including structural engineering, mechanical systems, aerospace engineering, civil engineering and Marine engineering. This special issue calls for contributions in the fields of theoretical development, numerical simulation, experimental research, and practical applications related to nonlinear dynamics and control.

Topics include but are not limited to:

- Nonlinear vibration theory, dynamic modeling and analysis methods
- Computing techniques, perturbation methods, local/global methods, efficient algorithms, parallel processing, computational intelligence
- Vibration and control of engineering structures and machinery
- Innovative control of structures and machinery, including fuzzy, probabilistic and neural network control
- Nonlinear system identification, parameterization, data-driven, neural networks, artificial intelligence (AI)
- Active/adaptive control and intelligent architecture
- Fault diagnosis and health monitoring
- Nonlinear modeling and data-based approaches

HOW TO SUBMIT

Before submission authors should carefully read the Instructions for Authors.

For an initial submission, the authors are strongly advised to upload their entire manuscript, including tables and figures, as a single PDF file. All submissions to the Special Issue must be made electronically via the Editorial Manager submission and tracking review system: https://www.editorialmanager.com/nleng

All manuscripts will undergo the standard peer-review process (single blind, at least two independent reviewers). When entering your submission via online submission system please choose the submission type:

"SI: Advances in Nonlinear Dynamics and Control"

For more details, please see Authors Statements and Data Sharing Policy documents available in the Supplementary Materials section at the journal website.

The deadline for submissions is **November 30th, 2024**, but individual papers will be reviewedand published online on an ongoing basis.