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COMPUTATIONAL METHODS IN NONLINEAR DYNAMICS

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ABSTRACT

It is widely recognized that a further progress in nonlinear dynamics and chaotic engineering systems depends on development of effective computational methods. Thus, the proposed mini-symposium intends to provide a forum for the exchange of ideas and knowledge in the area of the computational nonlinear dynamics. Specifically we aim to review the state-of-the-art and to stimulate new developments. Particular emphasis will be paid to achieve a good balance between theoretical and applied papers.

Contributions are welcome on modelling and analysis of nonlinear dynamical systems where effective solutions are obtained computationally, as well as to newly developed numerical techniques. Papers are solicited in the following topics but not restricted to:

- Advanced numerical algorithms and computational efficiency
- Continuation methods
- Deterministic and stochastic nonlinear dynamics
- Modelling, analysis and control of systems with strong nonlinearities
- Effective computation in structural dynamics with localised nonlinearities
- Reduced order modelling
- Stability, bifurcations, integrity and chaos in dynamical systems
- Flows and maps
- Discrete (ODEs), continuous (PDEs) and hybrid systems
- Smooth and non-smooth engineering systems
- Nonlinear dynamics in micro- and nano scale (MEMS, NEMS, etc.)