

ADVANCED BEAM MODELS

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ABSTRACT

Beam-like structures are widely employed in practically all areas of engineering practice, from the construction industry to offshore and aerospace structures. Beam structural models have always attracted the engineering and scientific community due to their simplicity (one-dimensionality), computational efficiency and ability to provide a physical insight into the problems, making it even possible to obtain closed-form analytical solutions. Recent years have witnessed a growing interest in “advanced” beam models for static, stability, vibration and dynamic analyses, including “geometrically exact” theories and thin-walled beam models allowing for cross-section in-plane and out-of-plane (warping) deformation.

Following the success of the homonym Mini Symposium in the ECCOMAS 2012 conference, this session aims at bringing together researchers working in the development and application of advanced beam models, thus providing an international expert forum aimed at discussing the most recent ideas and strategies in this increasingly broad scientific domain, making it possible to be exposed to its cutting-edge achievements and to have a clear picture of its current state-of-the-art.

The Mini Symposium will cover (without being limited to) the following topics:

- Buckling and vibration
- Post-buckling and collapse
- Nonlinear dynamics
- Thin-walled members
- Steel and composite (steel-concrete and FRP) members
- Large displacements and finite rotations