

ADVANCES IN NUMERICAL METHODS FOR MULTIBODY SYSTEMS

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Key words: Mechanisms, Machines, Computational Mechanics, Dynamics, Computational Kinematics.

ABSTRACT

This mini-symposium deals with new advances in numerical methods for multibody systems. It is dedicated to explore theoretical and computational methods in rigid and flexible multibody systems, their applications, and experimental procedures used to validate the theoretical foundations. The objective is to present emerging fundamental approaches used in computer-aided kinematic and dynamic analysis of multibody systems, as well as methods for synthesis of mechanisms, and to identify future directions of research in the area.

Topics of interest include, but are not limited to:

- New formulations and models in flexible multibody mechanics
- Lie-group, dual numbers, and screw theory based formulations for multibody mechanics
- Time-integration methods for constrained multibody dynamics
- Contact and impact mechanics in the context of multibody dynamics
- Reduced order methods in multibody dynamics
- Methods for kinematics synthesis of mechanisms

Papers describing advanced applications in areas as wind-turbines, vehicles, robotics, biomechanics, aerospace engineering, engines, and microelectromechanics, within many others, are also welcome.