



SMART 2027 MS04

Deployable and Sliding Flexible Structures

Organizers:

- Assistant Prof. Jakob Scheidl, Institute of Mechanics and Mechatronics, TU Wien, jakob.scheidl@tuwien.ac.at
- Associate Prof. Alexander Humer, Institute of Technical Mechanics, JKU Linz, alexander.humer@jku.at
- Associate Prof. Francesco Dal Corso, Department of Civil, Environmental, and Mechanical Engineering, University of Trento, Italy, francesco.dalcorso@unitn.it

Description:

Deployable and sliding flexible structures are characterized by a relative motion with respect to their surroundings. The range of engineering applications featuring structures of this kind is vast and still growing, especially due to recent advances in the field of smart structures related to soft robotics, biomechanics and deployable actuators. These systems exhibit rich dynamics and feature various sources of nonlinearity along with the added complexity of structures traveling through an open domain and interacting with moving or stationary boundaries.

This mini-symposium targets contributions from all engineering disciplines focusing on the consistent mechanical modeling, formal analysis and numerical simulation of moving or deployable flexible structures. Topics of specific interest include inelastic constitutive behavior, phenomena related to contact and friction, large deformations, variable-length structures, buckling and dynamic stability, structural optimization and control, fluid-structure interaction and coupled field problems.

We welcome theoretical and computational submissions addressing academic or applied problems, related (but not limited) to the research fields of soft robotics, biomechanics, manufacturing, aerospace engineering or process engineering. Other contributions that fit the theme of the mini-symposium, including experimental work, are also welcome.