

Extremely Deformable Structures

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The possibility of exploiting highly deformable structures opens new and unexpected technological possibilities. In particular, the challenge is the design of deformable and bi-stable mechanisms which can reach superior mechanical performances and can have a strong impact on several high-tech applications, including stretchable electronics, nanotube serpentines, deployable structures for aerospace engineering, cable deployment in the ocean, but also sensors and flexible actuators and vibration absorbers.

Readers are introduced to a variety of interrelated topics involving the mechanics of extremely deformable structures, with emphasis on bifurcation, instability and nonlinear behavior, both in the quasi-static and dynamic regimes. Essential and up-to-date theoretical, numerical and experimental methodologies are covered, as a tool to progress towards a satisfactory modeling of the nonlinear behavior of structures.

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