Fluid-structure Interaction Modeling For Wind Energy Harvesting In A Venturi Tube.

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Abstract

This study models the energy harvesting reached from an air flow transportation through the flapping of a cantilever polymer flag. The mechanical resonance of the flag is created by a Venturi channel. The flag is charged by triboelectrification and its flapping between two electrodes induces an electrical current in a load. Our model is based on the Fluid-Structure Interaction (FSI) Multiphysics involving solid and fluid mechanics.