

Abstract Submitted
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Flow-induced Flutter of Heart Valves: Experiments with Canonical Models¹ ZHONGWANG DOU, JUNG-HEE SEO, RAJAT MITTAL, Johns Hopkins University — For the better understanding of hemodynamics associated with valvular function in health and disease, the flow-induced flutter of heart valve leaflets is studied using benchtop experiments with canonical valve models. A simple experimental model with flexible leaflets is constructed and a pulsatile pump drives the flow through the leaflets. We quantify the leaflet dynamics using digital image analysis and also characterize the dynamics of the flow around the leaflets using particle imaging velocimetry. Experiments are conducted over a wide range of flow and leaflet parameters and data curated for use as a benchmark for validation of computational fluid-structure interaction models.

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