

Abstract Submitted
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A study of the flow-leaflet interaction R. LEDESMA, R. ZENIT, G. PULOS, Universidad Nacional Autonoma de Mexico — The manufacture of prosthetic heart valves is a relatively simple process. Valves made with biomaterials simply copy the “design” of the original ones, because of the limited understanding of the physical mechanism involved in the proper performance of valves. The identification of the parameters that determine the valve performance will help to improve the prosthetic designs and to minimize the health complications. In this work we study the flow-leaflet interaction in a pulsating flow, with the purpose of evaluating the influence of the material properties and leaflet dimensions. A 2D flow channel was design to obtain measurements of the leaflet deflection, for different flow conditions. Using a PIV system, measurements of the flow velocity fields are also obtained. Preliminary results show that the deflection of the leaflet and the proper open-close cycle, that determines the valve performance, is directly related to the leaflet length, thickness and material properties. We have identified the range of parameters for which the valve performance is acceptable.

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