

عنوان مقاله:

Flutter of a Membrane in a Stagnation Flow

محل انتشار:

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خلاصه مقاله:

An analytical solution is given to investigate the vibrations of a membrane under the effect of an incoming fluid flow perpendicular to it. The membrane is located at the stagnation point of the flow and is of finite width but infinite length. A rigid wall extends through the finite width of the membrane to infinity. The flow is considered to be a small perturbation on the two dimensional potential stagnation flow solution due to the vibrations of the membrane, and the membrane is modeled by the linear vibration equation. The resulting coupled problem is solved by a Galerkin procedure and the eigenvalue equation relating the membrane frequency to the other parameters is derived.

کلمات کلیدی:

Flutter velocity, Membrane, Stability, Stagnation point flow, Vibration

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