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**Free Vibration of a Rectangular Plate
in Contact with Unbounded Fluid**

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Abstract

A theoretical study on the free vibration of a rectangular plate in contact with an unbounded fluid is presented. In the theoretical approach, the simply supported boundary condition along the plate edges and the ideal fluid are assumed. On the contacting surface between the plate and fluid, the compatibility requirement is considered for the fluid-structure interaction. It is found that the normalized natural frequencies increase according to increase of the mode numbers. The effect of fluid depth on the coupled natural frequencies is also theoretically observed.