

## The Vibration of Flexible Plate Caused by Vortices Using Fluid-Solid Coupled FEM

Hashimoto, G.\* and Tanahashi, T.\*

\* Keio University, 3-14-1 Hiyoshi, Kohoku-ku, Yokohama, Kanagawa 223-8522, Japan.

E-mail: uc06425@educ.cc.keio.ac.jp

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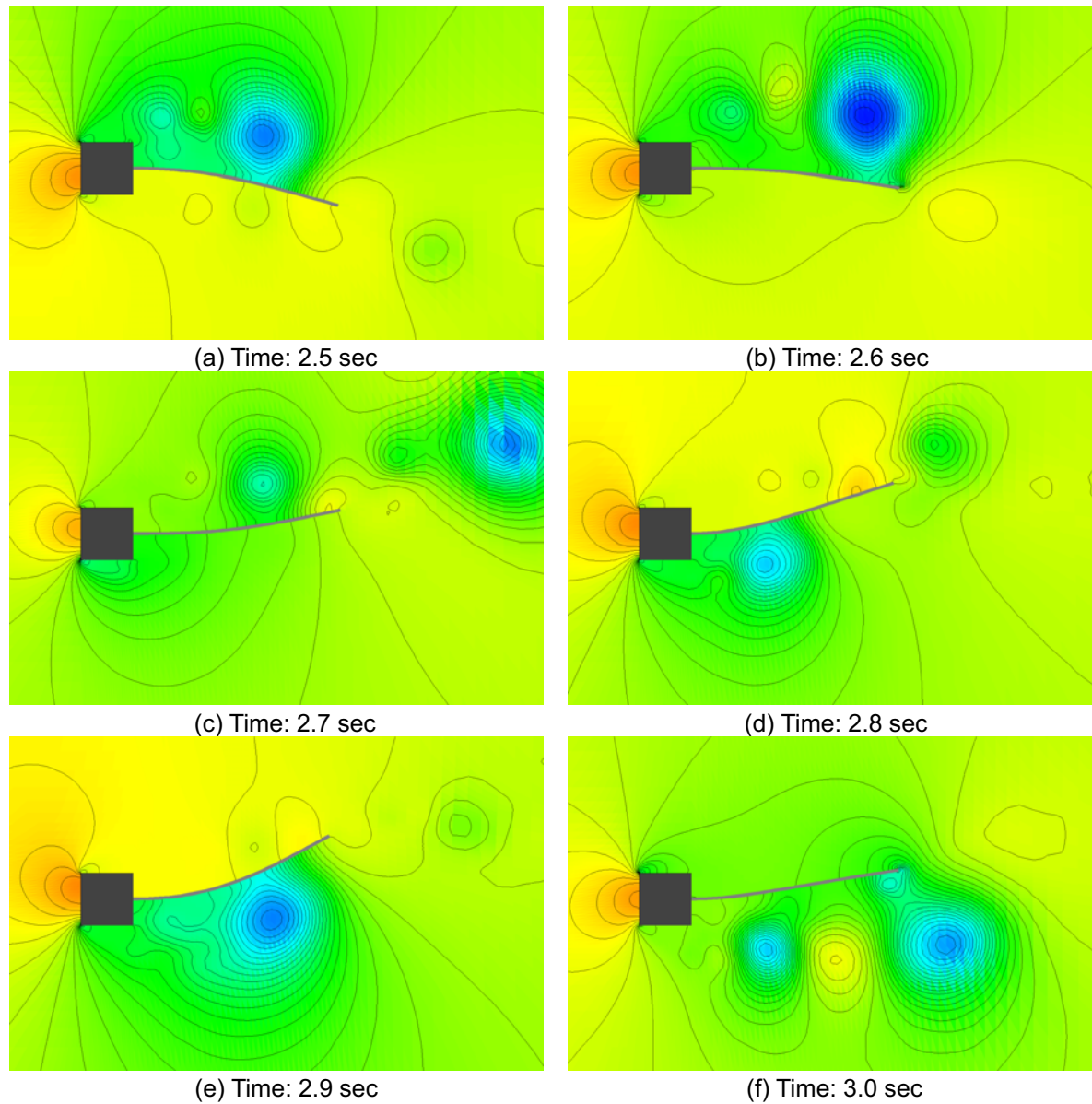


Fig. 1. The appearances of plate vibration and pressure contours.

In recent years, much attention has been paid to a fluid-solid coupled analysis. The deformation of solid wall which is caused by flow is one of important mechanical problems. Because solid wall influences the flow field, the phenomenon becomes very complex. We simulated the flexible plate vibration caused by shedding Karman vortices. A rubber-like plate joined to a rigid quadrilateral prism locates in air flow. We simulated this phenomenon using ALE (Arbitrary Lagrangian-Eulerian) GSMAC (Generalized-Simplified Marker and Cell)-FEM. Figure 1 shows the appearances of plate vibration and pressure contours for a period. The difference of fluid force by shedding vortex on both sides of the plate begins the vibration.