

# Existence of global weak solutions for the high frequency and small displacement oscillation fluid-structure interactions systems

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April 28, 2020

## Abstract

The purpose of this paper is to study the fluid-structure interaction (FSI) problem which is a simplified model to describe high frequency and small displacement oscillation of elastic structure in fluids. The elastic structure displacement is modeled by a fourth order nonlinear hyperbolic square equations, the motion of fluid is modeled by the time-dependent incompressible Navier-Stokes equations. we prove the existence of at least one weak solutions (global in time) to this problem by compactness method. The result both holds for two-dimensional and three-dimensional cases.

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