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Fluid-Structure Interaction in Ocean Engineering

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ABSTRACT

In this paper, we introduce our recent studies on fluid-structure interaction in ocean engineering, which include hydroelastic analysis of very large floating structures, hydroelastic analysis of general floating structures, and hydroelastic analysis of submersed floating tunnels. We focus on developing numerical procedures for hydroelastic behaviors of various floating bodies. The analysis methods are based on boundary element method (BEM) for surrounding fluids and finite element method (FEM) for floating structures. The direct-coupled formulations for fluid-structure interaction problems were derived and implemented. Various numerical examples were solved and also experimental studies were performed to validate the numerical methods developed.

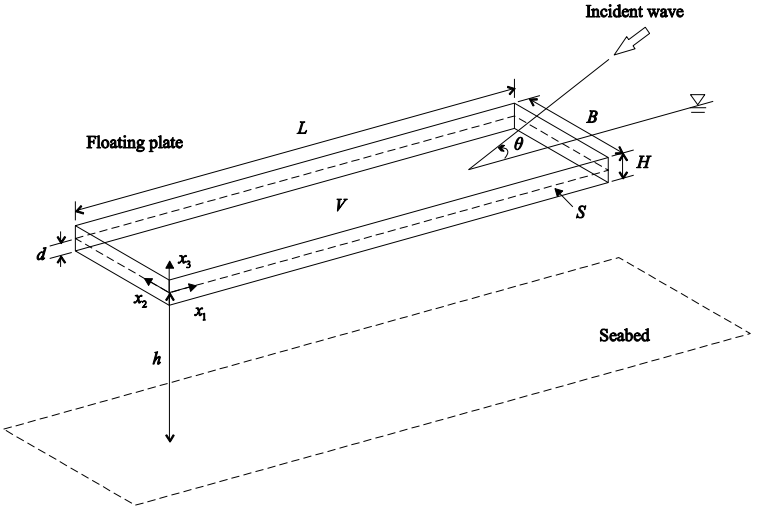

Fig 1. Problem description of a floating plate subjected to an incident wave (Yoon et. al, 2014)

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