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Marine Propeller Cavitation Analysis Using BEM

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Abstract : In this paper, a numerical study of sheet cavitation has been performed on DTMB4119 and E779A marine propellers with the boundary element method. In propeller design, various parameters of geometry and fluid are incorporated. So a program is needed to solve the flow taking the whole parameters changing into account. The capability of analyzing the wetted and cavitation flow around propellers in steady, unsteady, uniform, and non-uniform conditions while decreasing computational time compared to numerical finite volume methods with acceptable precision are the characteristic features of the present method. Moreover, modifying the position of the detachment point and its corresponding potential value has been considered. Numerical results have been validated with experimental data, showing a good conformation.

Keywords : cavitation, BEM, DTMB4119, E779A
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