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Dynamic Response of Viscoelastic Plates to High Pressure Induced by Bubble Collapse S.W. GONG, E. KLASEBOER, J. LOU, Institute of High Performance Computing, Singapore — The numerical simulations of viscoelastic plates to high pressure induced by underwater explosion bubble will be presented in this paper. The boundary-element method (BEM) is used to simulate the physical process of the explosive bubble growth, contraction and collapse. The finite element method (FEM) is used to calculate the viscoelastic plates response to the high pressure induced by underwater explosion bubble. The interaction of the viscoelastic plates and the underwater explosion bubble is simulated numerically via the coupled BEM-FEM. The computational procedure for the prediction of dynamic response of the viscoelastic plates to the high pressure induced by underwater explosion bubble is demonstrated. The case studies are conducted to examine the effects of different charge weights and locations on dynamic response of the viscoelastic plate. The results from this study may provide some insights into to the problem of viscoelastic structures subjected to underwater explosion bubble, which might be useful for potential applications in biomedicine or marine industry.

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