

## Topology Optimization of Vibrating Structures with Hydrodynamic Surface Pressure Loading

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This paper deals with the problem of topology optimization of continuum structures subjected to time-harmonic hydrodynamic surface pressure loading. This problem is an extension relative to traditional topology optimization, as both the locations and directions of the loading change as the structural topology changes. Maximization of the integral dynamic structural stiffness for given frequency and amplitude of the hydrodynamic pressure loading is the design objective in this paper. The boundary conditions, the material, and the total volume within the admissible design domain are also given. The volumetric densities of material in the finite elements in the design domain are the design variables. Illustrative optimum topology results are presented.

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