



ONR special issue on multiphysics problems of marine composites

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Composite materials and structures have been used increasingly in marine applications. The marine environment provides unique conditions such as fluid–structure interactions, moisture and sea-water effects, temperature extremes, bio-fouling, etc.

Two special issues were completed on the topic “Composite Materials and Structures for Marine Applications”. This issue focused on multiphysics problems of composite structures. Six papers were included in this special issue.

The first paper deals with research on repeated impact loading on woven composite structures under Arctic conditions (such as at $-50\text{ }^{\circ}\text{C}$) until failure of the structure. The second paper examined the geometric scaling effect of implosions of composite tubes using a unique experimental

test setup. The next article presented an experimental technique to measure internal deformations of a 3D body using the digital volumetric speckle photography technique. The fourth paper investigated blast resilience of hybrid composite panels with different combinations of glass-fiber and carbon-fiber composites. Finally, the last two papers contain research on experimental studies to understand the fluid–structure interaction of composite structures. One dealt with structural coupling by fluid media, while the other discussed flow-induced vibration of a structure.

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