

Editorial

**Y. W. Kwon, Naval Postgraduate School
Y.D.S. Rajapakse, Office of Naval Research**

This special issue, titled “Marine Applications of Composite Structures and Materials”, contains seven papers, which discuss diverse aspects of the interaction between composite structures and fluid medium. The research presented in the manuscripts was supported by the Solid Mechanics Program of US Office of Naval Research.

The first four papers investigated the fluid-structure interaction with composite structure subjected different dynamic loading. The first paper, written by Y. W. Kwon and R. P Conner, investigated the dynamic response and progressive failure of laminated E-glass woven fabric composite when the composite is submerged in water. In particular, the authors compared the experimental results between the two environments, in air and in water, under the same impact loading conditions. The second paper, prepared by J. P. Dear and his co-workers, presented a full-scale air-blast impact on sandwich composite structures made of GFRP and CFRP. Both experimental and numerical studies were undertaken and their results were compared. A. Shukla and his colleagues prepared their paper which studied the fluid-structure interaction on the performance of composite structures under air-blast loading. They compared the blast response among different composite as well as metallic structures. The next paper was written by S. Avachat and M. Zhou. The paper investigated the effect of core density of sandwich composites on deformation and failure when subjected to underwater impulsive loading using an experimental technique.

The fifth paper was written by C. Wang and V. Eliasson. They examined shock wave focusing in water inside convergent structures. They applied a high speed impact to produce a shock wave inside convergent structures filled with water and measured the shock wave propagation in the fluid and solid media. The last two papers examined the fluid-structure interaction with water slamming load. M. A. Battley and T. D. Allen investigated the water slamming effect on composite panels experimentally. Their study showed the effect of compliant panels subjected to water slamming impacts. Finally, J. Xiao and R. C. Batra used the boundary element method to study transient deformations of water induced by curved rigid hulls assuming water as incompressible, inviscid, and rotational.

