Journal of Applied Mathematics

Special Issue on Mathematical Modeling of Marine Structures

Call for Papers

Naval architecture and ocean engineering deal with design and operation of a large variety of structures for use at sea. Striving for cost-effective and safe designs has resulted in development of sophisticated methods for predicting the behavior of these structures. The core disciplines have been oceanography, hydrodynamics, dynamics, structural mechanics, and material science, but recently we have also seen an increasing use of cybernetics and information technology. Applied mathematics is the common tool we have when applying the basic disciplines on our practical problems.

We invite researchers and investigators to contribute original research as well as review papers that will stimulate the continuing efforts to apply mathematical models and mathematical methods for analysis of marine structures. Analytical as well as numerical methods are welcome, together with experimental verification of theoretical models. Potential topics include, but are not limited to:

- Modeling of wind-generated waves, tsunamis, and ocean currents
- Hydrodynamic loading on coastal and marine structures
- Flow-induced vibrations of marine structures
- Fluid-structure interactions in the marine environment
- Nonlinear dynamics and stability of floating and fixed marine structures
- Linear and nonlinear dynamics of very slender marine structures: cables, risers, mooring lines, and pipelines
- Highly nonlinear transient phenomena: sloshing, slamming, and water impact
- Soil-structure interactions
- Strength of marine structures: fatigue, buckling, collapse, and fracture
- Marine applications of control theory including dynamic positioning systems
- Mathematical models applied to the inspection and monitoring of marine structures
- Nonlinear signal analysis methods applied to the dynamics of marine structures
- Statistical description of waves and dynamic responses
- Reliability and structural integrity of marine structures
- Clean energy conversion in the marine environment
- Oil spill spreading, contamination, and control
- Multidisciplinary issues in marine structures

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Manuscript Due	Friday, 20 January 2012
First Round of Reviews	Friday, 20 April 2012
Publication Date	Friday, 20 July 2012

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