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Nonlinear Wave Dynamics and Wake Structure

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Message from the Guest Editor

The nonlinear dynamics of water surface waves demonstrates a great variety of manifestations. Experimental studies of the last two decades have revealed a number of new effects in the behavior of waves, which urgently require their proper theoretical study.

Nonlinear dispersion of waves, well studied in weakly nonlinear models, still remains the object of active research in completely nonlinear wave models. The specific task of this issue is the study of highly nonlinear and dissipative processes, the transformation of breaking waves, and the evolution of the wave spectrum in the deep-water and coastal zones of the sea.

The propagation of surface waves is usually accompanied by the influence of wind, coastal currents, tides, etc. Another theme of the issue is a radical change in the behavior of waves in the presence of the indicated “external” influences.

The ship’s wake is one of the most striking examples of sea waves observed directly in natural conditions. One of the topics of the issue is the study of the structure of the ship’s wave wake under the influence of currents and wind in the coastal zone and in the open ocean.

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Message from the Editor-in-Chief

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