

# GN Wave theory and TEBEM for Wave-Body Interaction

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MSB 114

Monday, December 9

2:45-3:10 pm Coffee Hour

3:10-3:50 pm Seminar

## Abstract

**Towards the goal of simulating irregular nonlinear water wave interaction with arbitrary floating bodies, the Green-Naghdi wave theory (GN theory) has been recently reformulated in a simple form. Meanwhile, the Taylor Expansion Boundary Element Method (TEBEM) was put forward to overcome the difficulties associated with the traditional Hess-Smith panel method for non-smoothed floating bodies and complicated boundaries with sharp corners. The results show that the high-level GN theory can predict wave transformation over uneven seabed and some tsunamis problems, as well as two-layer internal solitary waves very accurately. TEBEM has been used to solve free-surface potential flow problems, such as the second-order wave radiation and diffraction, as well as ships running into wave problems, with high-order derivatives in the boundary conditions. Dr. Zhao will present new results on the GN wave simulations and Prof. Duan will introduce the progress on TEBEM research.**

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Please join us for the coffee hour at the seminar venue a half hour before the seminar, 3:00 – 3:30 pm