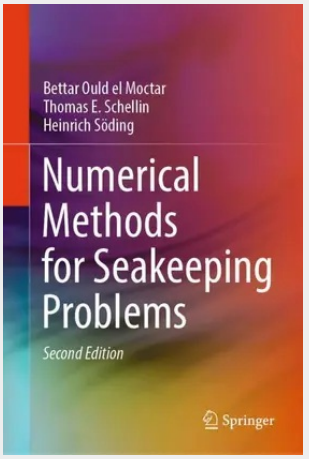
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Numerical Methods for Seakeeping Problems



This book describes the latest numerical methods to assess the seakeeping behaviour of today's ships.

It has become necessary to utilize the latest techniques to assess the ship's dynamics in waves. Numerical methods to conduct seakeeping computations range from simple strip theory to complex nonlinear unsteady numerical computational fluid dynamics (CFD) techniques which solve the unsteady Reynolds-averaged Navier–Stokes (URANS) equations together with the continuity equations, and the nonlinear equations of motion.

The book covers strip theory, Green function method, linear and nonlinear Rankine source method, and URANS methods. Now in its second, revised edition, the book includes the influence of wave-induced ship vibrations on wave loads, drift forces under shallow water conditions, and sloshing in partly filled tanks and swimming pools.

The book will be of interest to post-graduate students, Ph.D. candidates, as well as engineers in the field of naval architecture, ocean, and marine engineering.

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