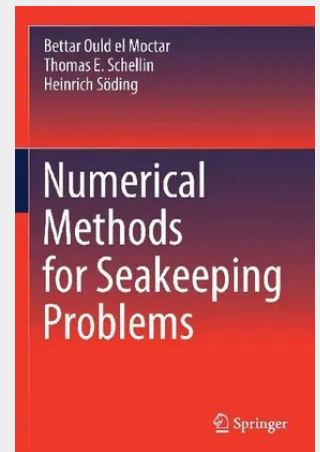


Numerical Methods for Seakeeping Problems

The book describes currently applied and newly developed advanced numerical methods for wave-induced ship motions and loads. Besides well-established computational methods based on strip theory, panel methods and finite volume methods for unsteady Reynolds-averaged Navier-Stokes equations (URANS), recent advances like a fully nonlinear Rankine panel method, URANS calculations including elastic hull deformations, and an improved method to predict added resistance in waves are explained in detail. Furthermore, statistical methods to assess extreme motions and loads are described both for linear and nonlinear responses in a stationary seaway as well as during long-term ship operations. Results of motions and loads, computed using the various methods, are compared with each other and with results of model experiments. Introductory chapters on fluid dynamics, motions of rigid and elastic ship hulls, numerical methods to compute fluid flows associated with wind waves, and the development and simulation of seaways complement the volume. The book will be of interest to post-graduate students, PhD candidates, as well as engineers in the field of naval architecture, ocean, and marine engineering.

The book describes currently applied and newly developed advanced numerical methods for wave-induced ship motions and loads. Besides well-established computational methods based on strip theory, panel methods and finite volume methods for unsteady Reynolds-averaged Navier-Stokes equations (URANS), recent advances like a fully nonlinear Rankine panel method, URANS calculations including elastic hull deformations, and an improved method to predict added resistance in waves are explained in detail. Furthermore, statistical methods to assess extreme motions and loads are described both for linear and nonlinear responses in a stationary seaway as well as during long-term ship operations. Results of motions and loads, computed using the various methods, are compared with each other and with results of model experiments. Introductory chapters on fluid dynamics, motions of rigid and elastic ship hulls, numerical methods to compute fluid flows associated with wind waves, and the development and simulation of seaways complement the volume. The book will be of interest to post-graduate students, PhD candidates, as well as engineers in the field of naval architecture, ocean, and marine engineering.



171,19 €

171,19 € (zzgl. MwSt.)

Lieferfrist: bis zu 10 Tage

Artikelnummer: 9783030625634

Medium: Buch

ISBN: 978-3-030-62563-4

Verlag: Springer

Erscheinungstermin: 20.01.2022

Sprache(n): Englisch

Auflage: 1. Auflage 2021

Produktform: Kartoniert

Gewicht: 464 g

Seiten: 290

Format (B x H): 155 x 235 mm

