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Titolo	Numerical methods for seakeeping problems // Bettar Ould el Moctar, Thomas E. Schellin and Heinrich Soding
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Edizione	[1st ed. 2021.]
Descrizione fisica	1 online resource (xii, 290 pages) : illustrations (some color)
Disciplina	627.042
Soggetti	Offshore Engineering Mathematical physics Ocean engineering Ships - Seakeeping - Mathematical models
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
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Nota di contenuto	Introduction -- Fundamentals of Hydordynamics and Statistics Wave Theories -- Kinematics and Dynamics of rigid bodies -- Strip Methods -- Boundary Element Methods -- Field Methods -- Computational Procedures -- Applications.
Sommario/riassunto	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.
