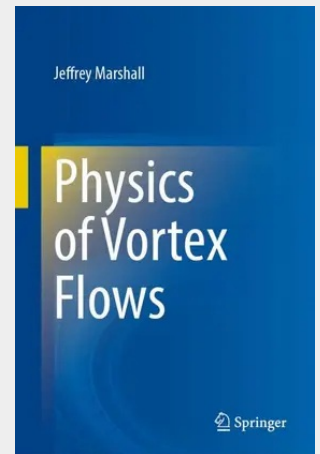


Marshall

Physics of Vortex Flows

This book provides a comprehensive, modern discussion of the physics of vortex flows and vortex-body interactions through a combination of mathematical models, figures, descriptive explanation, and mathematical solutions. The author utilizes both exact and simplified mathematical models of vortex transport to explain the wide range of physical phenomena exhibited by vortices in two- and three-dimensional fluids. The book focuses particularly on describing phenomena associated with bending waves and area-varying waves on vortex cores that underlie many 3D vortex phenomena including both small-amplitude waves and nonlinear solitary waves. Inherently three-dimensional vortex phenomena such as vortex reconnection, multiscale vortex interactions, vortex breakdowns, and cutting of a vortex by a blade are examined in detail, including introduction and validation of simple models to describe the underlying physical processes occurring.

This book provides a comprehensive, modern discussion of the physics of vortex flows and vortex-body interactions through a combination of mathematical models, figures, descriptive explanation, and mathematical solutions. The author utilizes both exact and simplified mathematical models of vortex transport to explain the wide range of physical phenomena exhibited by vortices in two- and three-dimensional fluids. The book focuses particularly on describing phenomena associated with bending waves and area-varying waves on vortex cores that underlie many 3D vortex phenomena including both small-amplitude waves and nonlinear solitary waves. Inherently three-dimensional vortex phenomena such as vortex reconnection, multiscale vortex interactions, vortex breakdowns, and cutting of a vortex by a blade are examined in detail, including introduction and validation of simple models to describe the underlying physical processes occurring.



80,24 €

74,99 € (zzgl. MwSt.)

Lieferfrist: bis zu 10 Tage

Artikelnummer: 9783032010506

Medium: Buch

ISBN: 978-3-032-01050-6

Verlag: Springer

Erscheinungstermin: 04.10.2025

Sprache(n): Englisch

Auflage: Erscheinungsjahr 2025

Produktform: Gebunden

Gewicht: 781 g

Seiten: 350

Format (B x H): 160 x 241 mm

