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Soggetti	Fluid mechanics Engineering mathematics Engineering - Data processing Physics Soft condensed matter Engineering Fluid Dynamics Mathematical and Computational Engineering Applications Classical and Continuum Physics Soft and Granular Matter
Lingua di pubblicazione	Inglese
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Nota di contenuto	Introduction -- Fundamentals of domain decomposition -- Conservation laws -- Compressible flows -- Incompressible flows -- Multiscale and multiphysics flow -- Bibliography -- Appendices: Codes for example computations.
Sommario/riassunto	This book presents the multiblock method, also known by other names such as the zonal method and the domain decomposition method. The multiblock method offers a systematic approach to tackle large-scale, intricate problems by breaking them down into smaller, more manageable sub-problems. The method addresses each sub-problem individually while accounting for its interconnections with the others, ultimately arriving at a comprehensive solution. The book provides a cohesive overview of the multiblock method’s concepts and principles, particularly in the context of fluid flows, encompassing diverse fields including computational science, aerospace engineering, civil

engineering, physical oceanography, and machine learning. It delves into foundational mathematics, studies model problems, elucidates numerical algorithms, and offers practical examples relevant to fluid dynamics. With its comprehensive coverage, this book serves as a resource for both learners and practitioners, catering to students, researchers, and modelers alike, whether as a textbook for structured learning or as a reference for applied problem-solving.