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Sommario/riassunto	With the advances in high-speed computer technology, complex heat transfer and fluid flow problems can be solved computationally with high accuracy. Computational modeling techniques have found a wide range of applications in diverse fields of mechanical, aerospace, energy, environmental engineering, as well as numerous industrial systems. Computational modeling has also been used extensively for performance optimization of a variety of engineering designs. The purpose of this book is to present recent advances, as well as up-to-date progress in all areas of innovative computational heat transfer and fluid mechanics, including both fundamental and practical applications. The scope of the present book includes single and multiphase flows, laminar and turbulent flows, heat and mass transfer, energy storage, heat exchangers, respiratory flows and heat transfer, biomedical applications, porous media, and optimization. In addition, this book provides guidelines for engineers and researchers in computational modeling and simulations in fluid mechanics and heat transfer.