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	Nota di contenuto	Chapter 1: Coupled Curvilinear Immersed Boundary (CURVIB) and Rotation-Free Finite Element (RFFE) method: Concept and Applications -- Chapter 2: Immersed Boundary Methods for Simulating Human Motion Events -- Chapter 3: Immersed Boundary Method for High Reynolds Number Compressible Flows around an Aircraft Configuration -- Chapter 4: Handling Slender/Thin Geometries with Sharp Edges in Sharp-interface Immersed Boundary Approach -- Chapter 5: Mass conservation in sharp interface immersed boundary method - A GPGPU accelerated implementation -- Chapter 6: Solid/Fluid Thermal Coupling Using the Immersed Boundary Method -- Chapter 7: Immersed Boundary Methods for High Reynolds Number Turbulent Flows -- Chapter 8: Immersed boundary method applied to Unsteady

Aerodynamics -- Chapter 9: Ghost Fluid Lattice Boltzmann Methods for Complex Geometries -- Chapter 10: Level Set Method based Immersed Boundary Method - Development and Applications -- Chapter 11: Study of momentum and thermal wakes due to elliptic cylinders of different axis ratios using immersed boundary methods -- Chapter 12: Immersed-boundary projection method -- Chapter 13: Development and assessment of a sharp interface immersed boundary method for compressible flows -- chapter 14: Development and Application of Immersed-boundary Methods for Compressible Flows -- Chapter 15: Sharp-interface Eulerian methods for high-speed multi-material flows -- Chapter 16: A higher-order cut-cell methodology for simulation of compressible viscous flow with extension to moving boundary problems -- Chapter 17: Sharp Interface Immersed boundary method for tackling large-scale flow-induced deformation.

Sommario/riassunto	This volume presents the emerging applications of immersed boundary (IB) methods in computational mechanics and complex CFD calculations. It discusses formulations of different IB implementations and also demonstrates applications of these methods in a wide range of problems. It will be of special value to researchers and engineers as well as graduate students working on immersed boundary methods, specifically on recent developments and applications. The book can also be used as a supplementary textbook in advanced courses in computational fluid dynamics.