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Collana	CISM International Centre for Mechanical Sciences, Courses and Lectures, , 0254-1971 ; ; 579
Disciplina	620.25
Soggetti	Acoustical engineering Acoustics Mathematical models Engineering Acoustics Mathematical Modeling and Industrial Mathematics
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Formato	Materiale a stampa
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Nota di bibliografia	Includes bibliographical references at the end of each chapters.
Nota di contenuto	Fundamental equations of acoustics -- Non-conforming finite elements for flexible discretization with applications to aeroacoustics -- Boundary element methods -- Direct aeroacoustic simulations based on high order discontinuous Galerkin schemes -- Algebraic solvers.
Sommario/riassunto	The book presents a state-of-art overview of numerical schemes efficiently solving the acoustic conservation equations (unknowns are acoustic pressure and particle velocity) and the acoustic wave equation (pressure of acoustic potential formulation). Thereby, the different equations model both vibrational- and flow-induced sound generation and its propagation. Latest numerical schemes as higher order finite elements, non-conforming grid techniques, discontinuous Galerkin approaches and boundary element methods are discussed. Main applications will be towards aerospace, rail and automotive industry as well as medical engineering. The team of authors are able to address these topics from the engineering as well as numerical points of view.