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Lingua di pubblicazione	Inglese
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Autore	Godlewski Edwige
Titolo	Numerical Approximation of Hyperbolic Systems of Conservation Laws / / by Edwige Godlewski, Pierre-Arnaud Raviart
Pubbl/distr/stampa	New York, NY : , : Springer New York : , : Imprint : Springer, , 2021
ISBN	1-0716-1344-8
Edizione	[2nd ed. 2021.]
Descrizione fisica	1 online resource (846 pages)
Collana	Applied Mathematical Sciences, , 2196-968X ; ; 118
Disciplina	533.2
Soggetti	Numerical analysis Mathematical analysis Mathematical physics Numerical Analysis Analysis Mathematical Methods in Physics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Nonlinear hyperbolic systems in one space dimension -- Gas dynamics and reacting flows -- Finite volume schemes for one-dimensional systems -- The case of multidimensional systems -- An introduction to boundary conditions -- Source terms.
Sommario/riassunto	This monograph is devoted to the theory and approximation by finite volume methods of nonlinear hyperbolic systems of conservation laws in one or two space variables. It follows directly a previous publication on hyperbolic systems of conservation laws by the same authors. Since

the earlier work concentrated on the mathematical theory of multidimensional scalar conservation laws, this book will focus on systems and the theoretical aspects which are needed in the applications, such as the solution of the Riemann problem and further insights into more sophisticated problems, with special attention to the system of gas dynamics. This new edition includes more examples such as MHD and shallow water, with an insight on multiphase flows. Additionally, the text includes source terms and well-balanced/asymptotic preserving schemes, introducing relaxation schemes and addressing problems related to resonance and discontinuous fluxes while adding details on the low Mach number situation.