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Descrizione fisica	1 online resource (427 p.)
Collana	Applied and Numerical Harmonic Analysis, , 2296-5009
Disciplina	515.353
Soggetti	Mathematics Mathematics, general
Lingua di pubblicazione	Inglese
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Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	III POTENTIALS, DIFFUSIONS AND WAVES -- 9 Potential Theory and Fundamental Solutions of Elliptic Equations -- 10 Diffusions and Parabolic Evolution Equations -- 11 Waves and Hyperbolic Equations -- 12 First Order Nonlinear PDEs and Conservation Laws -- 13 Generalized Solutions of First Order Nonlinear PDEs -- 14 Nonlinear waves and growing interfaces: 1-D Burgers-KPZ models -- 15 Other Standard Nonlinear Models of Higher Order -- Appendix A: Answers and Solutions -- Appendix B: Bibliographical Notes.
Sommario/riassunto	Distributions in the Physical and Engineering Sciences is a comprehensive exposition on analytic methods for solving science and engineering problems. It is written from the unifying viewpoint of distribution theory and enriched with many modern topics that are important for practitioners and researchers. The goal of the books is to give the reader, specialist and non-specialist, useable and modern mathematical tools in their research and analysis. Volume 2: Linear and Nonlinear Dynamics of Continuous Media continues the multivolume project that endeavors to show how the theory of distributions, also called the theory of generalized functions, can be used by graduate students and researchers in applied mathematics, physical sciences, and engineering. It contains an analysis of the three basic types of linear partial differential equations—elliptic, parabolic, and hyperbolic—as well as chapters on first-order nonlinear partial

differential equations and conservation laws, and generalized solutions of first-order nonlinear PDEs. Nonlinear wave, growing interface, and Burger's equations, KdV equations, and the equations of gas dynamics and porous media are also covered. The careful explanations, accessible writing style, many illustrations/examples and solutions also make it suitable for use as a self-study reference by anyone seeking greater understanding and proficiency in the problem solving methods presented. The book is ideal for a general scientific and engineering audience, yet it is mathematically precise. Features · Application oriented exposition of distributional (Dirac delta) methods in the theory of partial differential equations. Abstract formalism is kept to a minimum. · Careful and rich selection of examples and problems arising in real-life situations. Complete solutions to all exercises appear at the end of the book. · Clear explanations, motivations, and illustration of all necessary mathematical concepts.
