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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Front matter -- Preface -- Notation -- Contents -- Part I. Classical Theory -- Chapter 1. Preliminaries -- Chapter 2. Partial Differential Equations and Mathematical Modeling -- Chapter 3. Elliptic Boundary Value Problems -- Chapter 4. Mixed Problems for Evolution Equations -- Chapter 5. The Cauchy Problem for Evolution Equations -- Part II. Modern Theory -- Chapter 6. Distributions -- Chapter 7. Sobolev Spaces -- Chapter 8. The Variational Theory of Elliptic Boundary Value Problems -- Part III. Semilinear Equations -- Chapter 9. Semilinear Elliptic Problems -- Chapter 10. The Semilinear Heat Equation -- Chapter 11. The Semilinear Wave Equation -- Chapter 12 Semilinear Schrödinger Equations -- Bibliography -- Index
Sommario/riassunto	The text is intended for students who wish a concise and rapid introduction to some main topics in PDEs, necessary for understanding current research, especially in nonlinear PDEs. Organized on three parts, the book guides the reader from fundamental classical results, to some aspects of the modern theory and furthermore, to some techniques of nonlinear analysis. Compared to other introductory books in PDEs, this work clearly explains the transition from classical to generalized solutions and the natural way in which Sobolev spaces appear as completions of spaces of continuously differentiable functions with respect to energetic norms. Also, special attention is paid to the investigation of the solution operators associated to elliptic,

parabolic and hyperbolic non-homogeneous equations anticipating the operator approach of nonlinear boundary value problems. Thus the reader is made to understand the role of linear theory for the analysis of nonlinear problems.

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