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Titolo	Plasticity [[electronic resource]] : Mathematical Theory and Numerical Analysis // by Weimin Han, B. Daya Reddy
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ISBN	1-283-91000-4 1-4614-5940-0
Edizione	[2nd ed. 2013.]
Descrizione fisica	1 online resource (427 p.)
Collana	Interdisciplinary Applied Mathematics, , 0939-6047 ; ; 9
Disciplina	531.385
Soggetti	Numerical analysis Mechanics Mechanics, Applied Numerical Analysis Theoretical and Applied Mechanics Solid Mechanics
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Preface to the Second Edition -- Preface to the First Edition.- Preliminaries -- Continuum Mechanics and Linearized Elasticity -- Elastoplastic Media -- The Plastic Flow Law in a Convex-Analytic Setting -- Basics of Functional Analysis and Function Spaces -- Variational Equations and Inequalities -- The Primal Variational Problem of Elastoplasticity -- The Dual Variational Problem of Classical Elastoplasticity -- Introduction to Finite Element Analysis -- Approximation of Variational Problems -- Approximations of the Abstract Problem -- Numerical Analysis of the Primal Problem -- References -- Index.-
Sommario/riassunto	This book focuses on the theoretical aspects of small strain theory of elastoplasticity with hardening assumptions. It provides a comprehensive and unified treatment of the mathematical theory and numerical analysis. It is divided into three parts, with the first part providing a detailed introduction to plasticity, the second part covering the mathematical analysis of the elasticity problem, and the third part devoted to error analysis of various semi-discrete and fully discrete

approximations for variational formulations of the elastoplasticity. This revised and expanded edition includes material on single-crystal and strain-gradient plasticity. In addition, the entire book has been revised to make it more accessible to readers who are actively involved in computations but less so in numerical analysis. Reviews of earlier edition: "The authors have written an excellent book which can be recommended for specialists in plasticity who wish to know more about the mathematical theory, as well as those with a background in the mathematical sciences who seek a self-contained account of the mechanics and mathematics of plasticity theory." (ZAMM, 2002) "In summary, the book represents an impressive comprehensive overview of the mathematical approach to the theory and numerics of plasticity. Scientists as well as lecturers and graduate students will find the book very useful as a reference for research or for preparing courses in this field." (Technische Mechanik) "The book is professionally written and will be a useful reference to researchers and students interested in mathematical and numerical problems of plasticity. It represents a major contribution in the area of continuum mechanics and numerical analysis." (Math Reviews).
