Record Nr. UNINA9910143567903321 Autore Balluffi R. W Titolo Kinetics of materials [[electronic resource] /] / Robert W. Balluffi, Samuel M. Allen, W. Craig Carter; with editorial assistance from Rachel A. Kemper Hoboken, N.J., : J. Wiley & Sons, 2005 Pubbl/distr/stampa 1-280-28813-2 **ISBN** 9786610288137 0-470-30216-X 0-471-74931-1 0-471-74930-3 Descrizione fisica 1 online resource (673 p.) Altri autori (Persone) AllenSamuel M CarterW. Craig KemperRachel A Disciplina 541.394 620.1/1292 620.11292 Soggetti Materials - Mechanical properties Materials science Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali "Wiley-Interscience." Nota di bibliografia Includes bibliographical references and index. Nota di contenuto CONTENTS; Preface; Acknowledgments; Notation; Symbols-Roman; Symbols-Greek; 1 Introduction; 1.1 Thermodynamics and Kinetics; 1.1.1 Classical Thermodynamics and Constructions of Kinetic Theories; 1.1.2 Averaging; 1.2 Irreversible Thermodynamics and Kinetics; 1.3 Mathematical Background; 1.3.1 Fields; 1.3.2 Variations; 1.3.3 Continuum Limits and Coarse Graining; 1.3.4 Fluxes; 1.3.5 Accumulation: 1.3.6 Conserved and Nonconserved Quantities: 1.3.7 Matrices, Tensors, and the Eigensystem; Bibliography; Exercises; PART I MOTION OF ATOMS AND MOLECULES BY DIFFUSION 2 Irreversible Thermodynamics: Coupled Forces and Fluxes2.1 Entropy

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Sommario/riassunto

A classroom-tested textbook providing a fundamental understanding of basic kinetic processes in materialsThis textbook, reflecting the hands-on teaching experience of its three authors, evolved from Massachusetts Institute of Technology's first-year graduate curriculum in the Department of Materials Science and Engineering. It discusses key topics collectively representing the basic kinetic processes that cause changes in the size, shape, composition, and atomistic structure of materials. Readers gain a deeper understanding of these kinetic processes and of the properties and applicati