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| Livello bibliografico | Monografia |
| Note generali | Description based upon print version of record. |
| Nota di bibliografia | Includes bibliographical references and indexes. |
| Nota di contenuto | Chemical Kinetics of Solids; Preface; Table of Contents; Symbols and Definitions; 1 Introduction; 1.1 Scope; 1.2 Historical Remarks; 1.3 Four Basic Kinetic Situations; 1.3.1 Homogeneous Reactions: Point Defect Relaxation; 1.3.2 Steady State Flux of Point Defects in a Binary Compound; 1.3.3 The Kinetics of an Interface Reaction; 1.3.4 Kinetics of Compound Formation: A + B = AB; References; 2 Thermodynamics of Point Defects; 2.1 Introduction; 2.2 Thermodynamics of Crystals; 2.2.1 Phenomenological Approach; 2.2.2 Remarks on Statistical Thermodynamics of Point Defects<br>2.3 Some Practical Aspects of Point Defect Thermodynamics2.4 Point Defects in Solid Solutions; 2.5 Conclusions; References; 3 One- and Two-Dimensional Defects in Crystals; 3.1 Introduction; 3.2 Dislocations; 3.2.1 Strain, Stress, and Energy; 3.2.2 Kinetic Effects Due to Dislocations; 3.3 Grain Boundaries; 3.3.1 Structure and Energy of Grain Boundaries; 3.3.2 Phase Boundaries in Solids; 3.4 Mobility of Dislocations, Grain Boundaries, and Phase Boundaries; References; 4 Basic Kinetic Concepts and Situations; 4.1 Introduction; 4.1.1 Systematics of Solid State Chemical Processes |

4.2 The Concepts of Irreversible Thermodynamics4.2.1 Structure Element Fluxes; 4.3 Diffusion; 4.3.1 Introduction; 4.3.2 Fickian Transport; 4.3.3 Chemical Diffusion; 4.4 Transport in Ionic Solids; 4.4.1 Introduction; 4.4.2 Transport in Binary Ionic Crystals AX; 4.5 Transport Across Phase Boundaries; 4.5.1 Introduction. Equilibrium Phase Boundaries; 4.5.2 Non-Equilibrium Phase Boundaries; 4.6 Transport in Semiconductors;  Junctions; 4.6.1 Introduction; 4.6.2 The (p-n) Junction; 4.7 Basic Rate Equations for Homogeneous Reactions; 4.7.1 Introduction; 4.7.2 Rate Equations; References
5 Kinetics and Dynamics. Local Equilibrium5.1 Introduction; 5.1.1 Linear Response; 5.1.2 Transition State; 5.1.3 Brownian Motion; 5.2 Kinetic Parameters and Dynamics; 5.2.1 Phenomenological Coefficients and Kinetic Theory; 5.2.2 Correlation of Atomic Jumps; 5.2.3 Conductivity of Ionic Crystals: Frequency Dependence; 5.2.4 Diffusive Motion and Phonons; 5.3 Relaxation of Irregular Structure Elements; 5.3.1 Introduction; 5.3.2 Relaxation of Structure Elements in Nonstoichiometric Compounds A1-0; 5.3.3 Relaxation of Intrinsic Disorder; 5.4 Defect Equilibration During Interdiffusion
5.4.1 The Atomistics of Interdiffusion5.4.2 The Kirkendall Effect; 5.4.3 Local Defect Equilibration During Interdiffusion; 5.4.4 Interdiffusion of Heterovalent Compounds; References; 6 Heterogeneous Solid State Reactions; 6.1 Introduction; 6.2 Nucleation and Initial Growth; 6.2.1 Introductory Remarks; 6.2.2 Nucleation Kinetics; 6.2.3 Early Growth; 6.3 Compound Formation; 6.3.1 Formation Kinetics of Double Salts; 6.3.2 Formation of Multiphase Products; 6.4 Displacement Reactions; 6.5 Powder Reactions; 6.5.1 General; 6.5.2 Self-propagating Exothermic Powder Reactions; 6.6 Interface Rate Control
6.7 Thermal Decomposition of Solids

Sommario/riassunto

Many different chemical processes take place inside solids or at solid surfaces and interfaces. However, their quantitative description sometimes seems difficult to understand. This book by Professor Schmalzried, author of the eminently successful Solid State Reactions; bridges the gap between the 'physical' and 'chemical' approaches to this subject because it is written in a language which both sides understand. For the first time, a comprehensive coverage of the rapidly developing field of Solid State Kinetics is available.The topics covered in this book go far beyond diffusional tra

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| Nota di bibliografia | Includes bibliographical references (p. 175-191) and index. |
| Nota di contenuto | A classroom a day A ten-year trial Growing bigger and more diverse The intensification of educational politics Good isn't good enough It takes an excellent school system to ensure excellent schools Fairfax County Public Schools and the future of suburban education |