

1. Record Nr.	UNINA9910778941703321
Autore	Philibert J (Jean)
Titolo	Atom movements : diffusion and mass transport in solids // Jean Philibert
Pubbl/distr/stampa	Les Ulis, France : , : Editions de Physique, , [1991] ©1991
ISBN	2-7598-0172-1
Descrizione fisica	1 online resource (603 p.)
Collana	Monographies de physique
Disciplina	530.415
Soggetti	Transport theory Kirkendall effect Diffusion
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Bibliographic Level Mode of Issuance: Monograph
Nota di bibliografia	Includes bibliographical references (pages [xix]-xxi) and index.
Nota di contenuto	Front matter -- Preface -- Foreword -- Foreword to the English Edition -- Translator's Acknowledgments -- TABLE OF CONTENTS -- General Bibliography -- Notation -- CHAPTER I: DIFFUSION AND DRIFT -- CHAPTER II: ATOMIC THEORY OF DIFFUSION -- CHAPTER III: DIFFUSION MECHANISMS AND CORRELATION EFFECTS -- CHAPTER IV: SELF-DIFFUSION -- CHAPTER V: SOLUTE DIFFUSION IN PURE MATERIALS. DIFFUSION IN ALLOYS -- CHAPTER VI: DIFFUSION AND DRIFT IN ALLOYS AND COMPOUNDS -- CHAPTER VII: DIFFUSION IN MEDIA OF LOWER DIMENSIONALITY -- CHAPTER VIII: PHENOMENOLOGICAL THEORY OF DIFFUSION -- CHAPTER IX: TECHNIQUES FOR THE STUDY OF DIFFUSION -- CHAPTER X: THE STUDY OF SOME DIFFUSION-CONTROLLED PROCESSES -- EXERCISES -- INDEX
Sommario/riassunto	The present book is the result of diverse courses on diffusion. It is intended to give as complete an overview as possible of diffusion in solid media, while relating the process of diffusion to both their physical bases and their applications. A series of a real situations is covered in this account, from self-diffusion of radiotracers to the more complex cases of mass flow under chemical or thermal gradients or under electric fields, or diffusion in structures of lower dimensionality (surfaces and interfaces). In all these analyses, no category of materials

was favored; metals, ionic crystals, oxides, and semiconductors all had their turn. Only polymers were not specifically touched. One chapter is specifically devoted to techniques for studying diffusion, including methods of numerical simulation, and a last and long chapter gives a number of metallurgical phenomena in which diffusion plays a fundamental role.
