1. Record Nr. UNINA9910860802203321

Autore	Blavette Didier
Titolo	Diffusion, segregation and solid-state phase transformations : Course reminders and solved problems / / Didier Blavette, Thomas Philippe
Pubbl/distr/stampa	Les Ulis : , : EDP Sciences, , [2022] ©2022
ISBN	2-7598-2744-5
Edizione	[1st ed.]
Descrizione fisica	1 online resource (266 p.)
Collana	Current Natural Sciences
Disciplina	536/.7
Soggetti	Materials science Thermodynamics SCIENCE / Physics / General
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Frontmatter -- Preface -- Preface by Yves Bréchet -- Contents -- Chapter 1 Thermodynamics of Equilibria and Phase Diagrams -- Chapter 2 Diffusion and Transport in Solids -- Chapter 3 Kinetics of Formation of a New Phase -- References -- Index
Sommario/riassunto	This book contains a set of solved problems on the thermodynamics of phase transformations, diffusion and kinetics in alloys. These problems, preceded by a reminder of the course, are completed by answers detailing each stage of the calculations. The topics covered in the book (precipitation, ordering, segregation on crystalline defects, growth of a thin film, oxidation, creep, doping of semiconductors, etc.) are essential for the design of materials and the optimisation of heat treatments and properties, whether for structural materials (steels, Ni, Al, Cu, Ti-based alloys, etc.) or functional materials (semiconductors, alloys and magnetic multilayers, etc.). They often lead to an industrial problem (aeronautics, nuclear power plants, microelectronics, etc.). This book is intended for teachers and students of bachelor’s and master’s degrees, but also for engineering students, PhD students and researchers.