1. Record Nr. UNINA9910458744803321

Autore	Humphreys F. J
Titolo	Recrystallization and related annealing phenomena [[electronic resource] /] / by F.J. Humphreys and M. Hatherly
Pubbl/distr/stampa	Amsterdam ; ; Boston, : Elsevier, 2004
ISBN	1-281-02580-1 9786611025809 0-08-054041-4
Edizione	[2nd ed.]
Descrizione fisica	1 online resource (659 p.)
Altri autori (Persone)	HatherlyM
Disciplina	671.3/6
Soggetti	Recrystallization (Metallurgy) Electronic books.
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 (p. 557-615) and index.
Nota di contenuto	Front Cover; RE-CRYSTALLIZATION AND RELATED ANNEALING PHENOMENA; Copyright Page; CONTENTS; Colour plates; Symbols; Abbreviations; Preface to the first edition; Preface to the second edition; Acknowledgements; Chapter 1. INTRODUCTION; 1.1 The annealing of a deformed material; 1.2 Historical perspective; 1.3 Forces, pressures and units; Chapter 2. THE DEFORMED STATE; 2.1 Introduction; 2.2 The stored energy of cold work; 2.3 Crystal plasticity; 2.4 Cubic metals which deform by slip; 2.5 Cubic metals which deform by slip and twinning; 2.6 Close packed hexagonal (CPH) metals; 2.7 Deformation bands 2.8 Shear bands 2.9 The microstructures of deformed two-phase alloys; Chapter 3. DEFORMATION TEXTURES; 3.1 Introduction; 3.2 Deformation textures in face-centred cubic (FCC) metals; 3.3 Deformation textures in body-centred cubic (BCC) metals; 3.4 Deformation textures in close packed hexagonal (CPH) metals; 3.5 Fibre textures; 3.6 Factors which influence texture development; 3.7 Theories of deformation texture development; Chapter 4. THE STRUCTURE AND ENERGY OF GRAIN BOUNDARIES; 4.1 Introduction; 4.2 The orientation relationship between grains; 4.3 Low angle grain boundaries 4.4 High angle grain boundaries 4.5 The topology of boundaries and

grains; 4.6 The interaction of second-phase particles with boundaries; Chapter 5. THE MOBILITY AND MIGRATION OF BOUNDARIES; 5.1 Introduction; 5.2 The mobility of low angle grain boundaries; 5.3 Measurements of the mobility of high angle boundaries; 5.4 Theories of the mobility of high angle boundaries; 5.5 The migration of triple junctions; Chapter 6. RECOVERY AFTER DEFORMATION; 6.1 Introduction; 6.2 Experimental measurements of recovery; 6.3 Dislocation migration and annihilation during recovery
6.4 Rearrangement of dislocations into stable arrays 6.5 Subgrain coarsening; 6.6 The effect of second-phase particles on recovery; Chapter 7. RECRYSTALLIZATION OF SINGLE-PHASE ALLOYS; 7.1 Introduction; 7.2 Factors affecting the rate of recrystallization; 7.3 The formal kinetics of primary recrystallization; 7.4 Recrystallization kinetics in real materials; 7.5 The recrystallized microstructure; 7.6 The nucleation of recrystallization; 7.7 Annealing Twins; Chapter 8. RECRYSTALLIZATION OF ORDERED MATERIALS; 8.1 Introduction; 8.2 Ordered structures
8.3 Recovery and recrystallization of ordered materials 8.4 Grain growth; 8.5 Dynamic recrystallization; 8.6 Summary; Chapter 9. RECRYSTALLIZATION OF TWO-PHASE ALLOYS; 9.1 Introduction; 9.2 The observed effects of particles on recrystallization; 9.3 Particle stimulated nucleation of recrystallization; 9.4 Particle pinning during recrystallization (Zener drag); 9.5 Bimodal particle distributions; 9.6 The control of grain size by particles; 9.7 Particulate metal-matrix composites; 9.8 The interaction of precipitation and recrystallization; 9.9 The recrystallization of duplex alloys
Chapter 10. THE GROWTH AND STABILITY OF CELLULAR MICROSTRUCTURES

Sommario/riassunto

Related Annealing Phenomena fulfills the information needs of materials scientists in both industry and academia. The subjects treated in the book are all active research areas, forming a major part of at least four regular international conference series. This new 2nd edition ensures the reader has access to the latest findings, essential to those working at the forefront of research in universities and laboratories. For those in industry, the book highlights applications of the research and technologically important examples. In particular, the 2nd edition builds on the significant pr