

1. Record Nr.	UNINA9910146740903321
Titolo	Neutrons and synchrotron radiation in engineering materials science [[electronic resource]] : from fundamentals to superior materials characterization // edited by Walter Reimers ... [et al.]
Pubbl/distr/stampa	Weinheim, : Wiley-VCH, 2007
ISBN	1-282-37221-1 9786612372216 3-527-62193-8 3-527-62192-X
Descrizione fisica	1 online resource (462 p.)
Altri autori (Persone)	ReimersW <1943-> (Walter)
Disciplina	620.11272
Soggetti	Synchrotron radiation Materials - Testing Materials - Analysis Materials - Effect of radiation on 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 and index.
Nota di contenuto	Neutrons and Synchrotron Radiation in Engineering Materials Science; Contents; Preface; List of Contributors; Part I General; 1 Microstructure and Properties of Engineering Materials; 2 Internal Stresses in Engineering Materials; 3 Texture and Texture Analysis in Engineering Materials; 4 Physical Properties of Photons and Neutrons; 5 Radiation Sources; Part II Methods; 6 Introduction to Diffraction Methods for Internal Stress Analyses; 7 Stress Analysis by Angle-Dispersive Neutron Diffraction; 8 Stress Analysis by Energy-Dispersive Neutron Diffraction 9 Residual Stress Analysis by Monochromatic High-Energy X-rays10 Residual Stress Analysis by White High Energy X-Rays; 11 Diffraction Imaging for Microstructure Analysis; 12 Basics of Small-Angle Scattering Methods; 13 Small-Angle Neutron Scattering; 14 Decomposition Kinetics in Copper-Cobalt Alloy Systems: Applications of Small-Angle X-ray Scattering; 15 B3 Imaging; 16 Neutron and Synchrotron-Radiation-Based Imaging for Applications in Materials

Science - From Macro- to Nanotomography; 17 -Tomography of Engineering Materials; 18 Diffraction Enhanced Imaging
Part III New and Emerging Methods
19 3D X-ray Diffraction Microscope;
20 3D Micron-Resolution Laue Diffraction; 21 Quantitative Analysis of Three-Dimensional Plastic Strain Fields Using Markers and X-ray Absorption Tomography; 22 Combined Diffraction and Tomography;
Part IV Industrial Applications; 23 Diffraction-Based Residual Stress Analysis Applied to Problems in the Aircraft Industry; 24 Optimization of Residual Stresses in Crankshafts; Index

Sommario/riassunto

Besides its coverage of the four important aspects of synchrotron sources, materials and material processes, measuring techniques, and applications, this ready reference presents both important method types: diffraction and tomography. Following an introduction, a general section leads on to methods, while further sections are devoted to emerging methods and industrial applications. In this way, the text provides new users of large-scale facilities with easy access to an understanding of both the methods and opportunities offered by different sources and instruments.
