

1. Record Nr.	UNINA9910146748703321
Titolo	Modern developments in X-ray and neutron optics // Alexei Erko [and three others], editors
Pubbl/distr/stampa	Berlin, Germany : , : Springer-Verlag, , [2008] ©2008
ISBN	3-540-74561-0
Edizione	[1st ed. 2008.]
Descrizione fisica	1 online resource (XXIV, 534 p. 299 illus., 5 illus. in color.)
Collana	Springer Series in Optical Sciences, , 0342-4111 ; ; 137
Classificazione	530 UH 5100 UN 6700 UQ 5100 UX 1320
Disciplina	539.7213
Soggetti	Neutron optics X-ray optics
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 and index.
Nota di contenuto	Theoretical Approaches and Calculations -- X-Ray and Neutron Optical Systems -- The BESSY Raytrace Program RAY -- Neutron Beam Phase Space Mapping -- Raytrace of Neutron Optical Systems with RESTRAX -- Wavefront Propagation -- Theoretical Analysis of X-Ray Waveguides -- Focusing Optics for Neutrons -- Volume Effects in Zone Plates -- Nano-Optics Metrology -- Slope Error and Surface Roughness -- The Long Trace Profilers -- The Nanometer Optical Component Measuring Machine -- Shape Optimization of High Performance X-Ray Optics -- Measurement of Groove Density of Diffraction Gratings -- The COST P7 Round Robin for Slope Measuring Profilers -- Hartmann and Shack-Hartmann Wavefront Sensors for Sub-nanometric Metrology -- Extraction of Multilayer Coating Parameters from X-Ray Reflectivity Data -- Reflection/Refraction Optics -- Hard X-Ray Microoptics -- Capillary Optics for X-Rays -- Reflective Optical Arrays -- Reflective Optical Structures and Imaging Detector Systems -- CLESSIDRA: Focusing Hard X-Rays Efficiently with Small Prism Arrays -- Multilayer Optics Developments -- Neutron Supermirror Development -- Stress

Reduction in Multilayers Used for X-Ray and Neutron Optics --
Multilayers with Ultra-Short Periods -- Specially Designed Multilayers
-- Diffraction Optics -- Diffractive-Refractive Optics: X-ray Crystal
Monochromators with Profiled Diffracting Surfaces -- Neutron Multiple
Reflections Excited in Cylindrically Bent Perfect Crystals and Their
Possible use for High-Resolution Neutron Scattering -- Volume
Modulated Diffraction X-Ray Optics -- High Resolution 1D and 2D
Crystal Optics Based on Asymmetric Diffractors -- Thermal Effects
under Synchrotron Radiation Power Absorption.

Sommario/riassunto

This volume describes modern developments in reflective, refractive and diffractive optics for short wavelength radiation as well as recent theoretical approaches to modelling and ray-tracing the X-ray and neutron optical systems. It is based on the joint research activities of specialists in X-ray and neutron optics from 11 countries, working together under the framework of the European Programme for Cooperation in Science and Technology (COST, Action P7) in the period 2002--2006. The chapters are written by leading specialists from European laboratories, universities and large facilities. In addition to new ideas and concepts, the contents provide a large amount of practical information about recently implemented devices and methods.
