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Titolo	X-ray and neutron reflectivity : principles and applications // Jean Daillant, Alain Gibaud
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Descrizione fisica	1 online resource (XXIII, 331 p.)
Collana	Lecture Notes in Physics
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Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Principles -- The Interaction of X-rays (and Neutrons) with Matter -- Statistical Aspects of Wave Scattering at Rough Surfaces -- Specular Reflectivity from Smooth and Rough Surfaces -- Diffuse Scattering -- Neutron Reflectometry -- Applications -- Statistical Physics at Crystal Surfaces -- Experiments on Solid Surfaces -- X-ray Reflectivity by Rough Multilayers -- Reflectivity of Liquid Surfaces and Interfaces -- polymer Studies.
Sommario/riassunto	The book is the first comprehensive introduction to x-ray and neutron reflectivity techniques and illustrates them with many examples. After a pedagogical introduction, the interplay between the statistics of rough surfaces and interfaces and the scattering of radiation is considered in detail. Specular reflectivity and diffuse scattering are discussed next. The approximations are rigorously introduced and many experimental effects are discussed. In the case of neutron reflectivity, particular attention is paid to the reflectivity of polarized neutrons from magnetic multilayers, which allows the determination of in-plane magnetization profiles. Many applications are reviewed in the second part: rough surfaces, interfaces and multilayers, liquid surfaces and soft-condensed matter, and thin polymer films. In each case the underlying physics is first introduced, then specific experimental methods are described. The book addresses researchers and graduate students.

