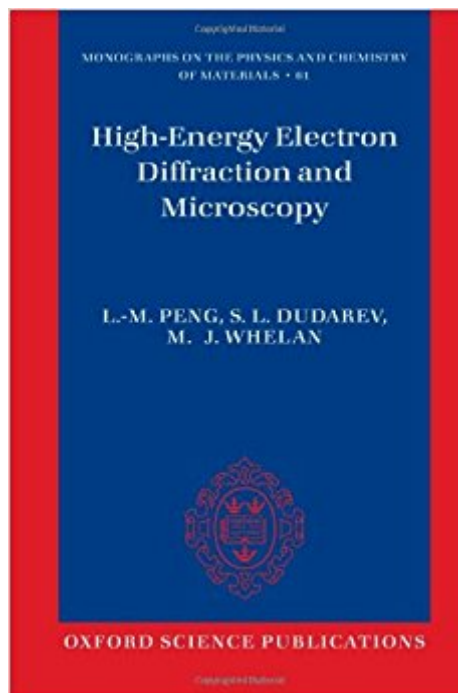




The book was found

# High Energy Electron Diffraction And Microscopy (Monographs On The Physics And Chemistry Of Materials)



## Synopsis

High Energy Electron Diffraction and Microscopy provides a comprehensive introduction to high energy electron diffraction and elastic and inelastic scattering of high energy electrons, with particular emphasis on applications to modern electron microscopy. Starting from a survey of fundamental phenomena, the authors introduce the most important concepts underlying modern understanding of high energy electron diffraction. Dynamical diffraction in transmission (THEED) and reflection (RHEED) geometries is treated using a general matrix theory, where computer programs and worked examples are provided to illustrate the concepts and to familiarize the reader with practical applications. Diffuse and inelastic scattering and coherence effects are treated comprehensively both as a perturbation of elastic scattering and within the general multiple scattering quantum mechanical framework of the density matrix method. Among the highlights are the treatment of resonance diffraction of electrons, HOLZ diffraction, the formation of Kikuchi bands and lines and ring patterns, and application of diffraction to monitoring of growing surfaces. Useful practical data are summarised in tables including those of electron scattering factors for all the neutral atoms and many ions, and the temperature dependent Debye-Waller factors given for over 100 elemental crystals and compounds.

## Book Information

Series: Monographs on the Physics and Chemistry of Materials (Book 61)

Paperback: 560 pages

Publisher: Oxford University Press; 1 edition (May 26, 2011)

Language: English

ISBN-10: 0199602247

ISBN-13: 978-0199602247

Product Dimensions: 9.2 x 1.2 x 6 inches

Shipping Weight: 1.8 pounds

Average Customer Review: Be the first to review this item

Best Sellers Rank: #2,361,865 in Books (See Top 100 in Books) #69 in [Books > Science & Math > Experiments, Instruments & Measurement > Electron Microscopes & Microscopy](#) #818 in [Books > Science & Math > Physics > Solid-State Physics](#) #1373 in [Books > Science & Math > Physics > Mechanics](#)

## Customer Reviews

... has the potential to become one of the classic reference books in electron microscopy. \* Bulletin

of the Microscopical Society of Canada \* Although the book is mathematically based, the authors take care to provide a physical interpretation whenever possible, for example by the use of diagrams... The serious electron microscopist will find it a sound investment. \* Micron \* This is a superb book. It is certainly the most thorough, unified and comprehensive treatment of high-energy electron diffraction (HEED) theory to appear for many years...In summary this is a book that all laboratories working in electron microscopy and surface science must have. It is also a highly readable textbook, which is unusually clearly written and complete. \* Acta Crystallographica \*

L.-M. Peng, Yangtze Professor of Nanoscale Science and Technology at Peking University; elected Fellow of Institute of Physics in 2000 and awarded the Qiu Shi Prize for Outstanding Young Scientist in Physics in 1998. Currently serves as an Associate Editor of the "International Journal of Nanoscience", a member of the Advisory Editorial Board of Ultramicroscopy and a member of the Editorial Board, MICRON. S.L.Dudarev, Principal Scientist at EURATOM/UKAEA Fusion Association and Senior Research Fellow of Linacre College, Oxford. Received DSc in Theoretical and Mathematical Physics from Moscow Engineering Physics Institute in 1994. Held visiting positions at Melbourne University, Max-Planck Institute for Solid State Research in Stuttgart and Hong-Kong Polytechnic University. Currently involved in the development of a comprehensive programme on mathematical modelling of fusion materials. M.J.Whelan, FRS, Emeritus Professor of Microscopy of Materials in the Department of Materials, Oxford University. Emeritus Fellow of Linacre College, Oxford. --This text refers to the Hardcover edition.

[Download to continue reading...](#)

High Energy Electron Diffraction and Microscopy (Monographs on the Physics and Chemistry of Materials) Electron microscopy for beginners: Easy course for understanding and doing electron microscopy (Electron microscopy in Science) Electron Diffraction in the Transmission Electron Microscope (Microscopy Handbooks) Scanning Electron Microscopy, X-Ray Microanalysis, and Analytical Electron Microscopy: A Laboratory Workbook Introduction to Scanning Tunneling Microscopy (Monographs on the Physics and Chemistry of Materials) Electron Microprobe Analysis and Scanning Electron Microscopy in Geology Liquid Cell Electron Microscopy (Advances in Microscopy and Microanalysis) Transmission Electron Microscopy and Diffractometry of Materials (Graduate Texts in Physics) Cell Biology of Tooth Enamel Formation: Functional Electron Microscopic Monographs (Monographs in Oral Science, Vol. 14) Scanning Electron Microscopy and X-Ray Microanalysis: A Text for Biologists, Materials Scientists, and Geologists Scanning Electron Microscopy: Applications to Materials and Device Science Transmission Electron Microscopy: A

Textbook for Materials Science Transmission Electron Microscopy: A Textbook for Materials Science (4 Vol set) Transmission Electron Microscopy: A Textbook for Materials Science:2nd (Second) edition Transmission Electron Microscopy: Physics of Image Formation and Microanalysis (Springer Series in Optical Sciences,) Scanning Electron Microscopy: Physics of Image Formation and Microanalysis (Springer Series in Optical Sciences) High Fiber Recipes: 101 Quick and Easy High Fiber Recipes for Breakfast, Snacks, Side Dishes, Dinner and Dessert (high fiber cookbook, high fiber diet, high fiber recipes, high fiber cooking) Quantum Electrodynamics: Gribov Lectures on Theoretical Physics (Cambridge Monographs on Particle Physics, Nuclear Physics and Cosmology) The Chemistry of Medical and Dental Materials: RSC (RSC Materials Monographs) Dynamic Light Scattering: The Method and Some Applications (Monographs on the Physics and Chemistry of Materials)

[Contact Us](#)

[DMCA](#)

[Privacy](#)

[FAQ & Help](#)