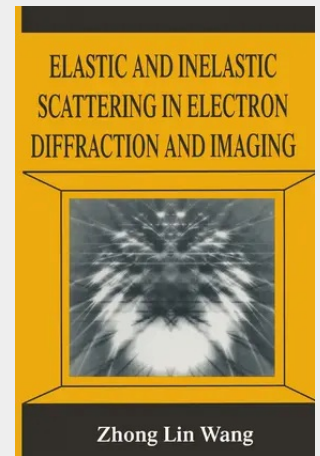


Elastic and Inelastic Scattering in Electron Diffraction and Imaging

Elastic and inelastic scattering in transmission electron microscopy (TEM) are important research subjects. For a long time, I have wished to systematically summarize various dynamic theories associated with quantitative electron microscopy and their applications in simulations of electron diffraction patterns and images. This wish now becomes reality. The aim of this book is to explore the physics in electron diffraction and imaging and related applications for materials characterizations. Particular emphasis is placed on diffraction and imaging of inelastically scattered electrons, which, I believe, have not been discussed extensively in existing books. This book assumes that readers have some preknowledge of electron microscopy, electron diffraction, and quantum mechanics. I anticipate that this book will be a guide to approaching phenomena observed in electron microscopy from the prospects of diffraction physics. The SI units are employed throughout the book except for angstrom (Å), which is used occasionally for convenience. To reduce the number of symbols used, the Fourier transform of a real-space function $P(r)$, for example, is denoted by the same symbol $P(u)$ in reciprocal space except that r is replaced by u . Upper and lower limits of an integral in the book are $(-\infty, \infty)$ unless otherwise specified. The $(-\infty, \infty)$ integral limits are usually omitted in a mathematical expression for simplification. I very much appreciate opportunity of working with Drs. J. M. Cowley and J. C. H. Spence (Arizona State University), J.

Elastic and inelastic scattering in transmission electron microscopy (TEM) are important research subjects. For a long time, I have wished to systematically summarize various dynamic theories associated with quantitative electron microscopy and their applications in simulations of electron diffraction patterns and images. This wish now becomes reality. The aim of this book is to explore the physics in electron diffraction and imaging and related applications for materials characterizations. Particular emphasis is placed on diffraction and imaging of inelastically scattered electrons, which, I believe, have not been discussed extensively in existing books. This book assumes that readers have some preknowledge of electron microscopy, electron diffraction, and quantum mechanics. I anticipate that this book will be a guide to approaching phenomena observed in electron microscopy from the prospects of diffraction physics. The SI units are employed throughout the book except for angstrom (Å), which is used occasionally for convenience. To reduce the number of symbols used, the Fourier transform of a real-space function $P(r)$, for example, is denoted by the same symbol $P(u)$ in reciprocal space except that r is replaced by u . Upper and lower limits of an integral in the book are $(-\infty, \infty)$ unless otherwise specified. The $(-\infty, \infty)$ integral limits are usually omitted in a mathematical expression for simplification. I very much appreciate opportunity of working with Drs. J. M. Cowley and J. C. H. Spence (Arizona State University), J.



246,09 €

229,99 € (zzgl. MwSt.)

Nicht mehr lieferbar

Artikelnummer: 9780306449291

Medium: Buch

ISBN: 978-0-306-44929-1

Verlag: Springer US

Erscheinungstermin: 31.03.1995

Sprache(n): Englisch

Auflage: 1. Auflage 1995

Produktform: Gebunden

Gewicht: 1940 g

Seiten: 448

Format (B x H): 152 x 229 mm

