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Soggetti	Materials science Lasers Photonics Nanotechnology Nanoscale science Nanoscience Nanostructures Nanotechnology Solid state physics Characterization and Evaluation of Materials Optics, Lasers, Photonics, Optical Devices Nanoscale Science and Technology Solid State Physics
Lingua di pubblicazione	Inglese
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Livello bibliografico	Monografia
Note generali	Includes index.
Nota di contenuto	Introduction and historical background -- Electron Waves and Wave Propagation -- The geometry of electron diffraction patterns -- Kinematical Theory of Electron Diffraction -- Dynamical Theory of Electron Diffraction for Perfect Crystals -- Electron optics -- Lens aberrations and Aberration Correction -- Electron Sources -- Electron Detectors -- Instrumentation and experimental techniques -- Crystal symmetry -- Crystal structure and bonding -- Diffuse Scattering -- Atomic resolution electron imaging -- Imaging and characterization of crystal defects -- Strain Measurements and Mapping -- Structure of Nanocrystals, Nanoparticles and Nanotubes.

## Sommario/riassunto

This volume expands and updates the coverage in the authors' classic 1992 book, "Electron Microdiffraction." As the title implies, the focus of the book has changed from electron microdiffraction, or convergent beam electron diffraction, to electron nanodiffraction and the applications of electron diffraction from single crystals as well as general structure analysis of single crystals, powders, and nanostructures. Advanced Transmission Electron Microscopy provides a comprehensive treatment of theory and practice, and is written at a level suitable for advanced undergraduate students and graduate students and researchers in materials science, chemistry, and physics. Practical guides are provided for interpretation and simulation of electron diffraction patterns.

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