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Nota di contenuto	Part A: Electron and Ion Microscopy -- Kirkland et al.: Atomic Resolution Transmission Electron Microscopy -- Nellist: Scanning Transmission Electron Microscopy -- Ross & Minor: In situ Transmission Electron Microscopy -- Plitzko & Baumeister: Cryoelectron TEM -- Erdmann et al: Scanning Electron Microscopy -- Thiel: Variable Pressure Scanning Electron Microscopy -- Botton, Pradhudev: Analytical Electron Microscopy -- Campbell et al: High-Speed Electron Microscopy -- Bauer: LEEM, SPLEEM and SPELEEM -- Feng & Scholl: Photoemission Electron Microscopy -- Tromp: Spectroscopy with the Low Energy Electron Microscope -- Van Aert: Model-Based Electron Microscopy -- Hawkes & Krivanek: Aberration Correctors, Monochromators, Spectrometer -- Hlawacek: Ion Microscopy.-Kelly: Atom-Probe Tomography -- Part B: Holography, Ptychography and Diffraction -- Dunin-Borkowski et al.: Electron Holography.-Rodenburg & Maiden: Ptychography -- Zuo: Electron Nanodiffraction -- Musumeci & Li: High-Energy Time-Resolved Electron Diffraction -- Spence: Diffractive Imaging of Single Particles --

Part C: Photon-based Microscopy -- Diaspro et al: Fluorescence Microscopy -- Sahl et al.: Far-Field Fluorescence Microscopy -- Jacobson et al: Zone-Plate X-Ray Microscopy -- Lin et al: Microcomputed Tomography -- Part D: Applied Microscopy -- Huey et al: Scanning Probe Microscopy in Materials Science -- Leary & Midgeley: Electron Tomography in Materials Science -- Sutter: Scanning Tunneling Microscopy in Surface Science -- Hamidian et al: Visualizing electronic quantum matter -- Ma et al (Terasaki): Microscopy of Nanoporous Crystals -- Wen: Biomedical X-Ray Phase-Contrast Imaging and Tomography -- Amrein & Stamov: Atomic Force Microscopy in the Life Sciences -- Jones: Microscopy in Forensic Sciences.

Sommario/riassunto

This book features reviews by leading experts on the methods and applications of modern forms of microscopy. The recent awards of Nobel Prizes awarded for super-resolution optical microscopy and cryo-electron microscopy have demonstrated the rich scientific opportunities for research in novel microscopies. Earlier Nobel Prizes for electron microscopy (the instrument itself and applications to biology), scanning probe microscopy and holography are a reminder of the central role of microscopy in modern science, from the study of nanostructures in materials science, physics and chemistry to structural biology. Separate chapters are devoted to confocal, fluorescent and related novel optical microscopies, coherent diffractive imaging, scanning probe microscopy, transmission electron microscopy in all its modes from aberration corrected and analytical to in-situ and time-resolved, low energy electron microscopy, photoelectron microscopy, cryo-electron microscopy in biology, and also ion microscopy. In addition to serving as an essential reference for researchers and teachers in the fields such as materials science, condensed matter physics, solid-state chemistry, structural biology and the molecular sciences generally, the Springer Handbook of Microscopy is a unified, coherent and pedagogically attractive text for advanced students who need an authoritative yet accessible guide to the science and practice of microscopy.
