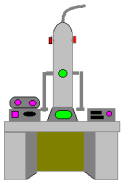


New Titles

Biomedical Electron Microscopy - Illustrated Methods & Interpretations by Arvid B Maunsbach & Björn A Afzelius



This atlas explains how best to evaluate electron micrographs and presents an easy-to-use source that will illustrate both the correct image as well as a variety of incorrect images that result from any number of technical/environmental errors. By presenting correct and incorrect images side by side researchers and students have an immediate reference should questions arise.

This comprehensive work illustrates optimal preparation methods in biological electron microscopy compared with common methodological problems. As well as the presentation of basic methodologies of TEM such as fixation, microtomy, the authors also endeavour to illustrate more specialised techniques such as negative staining, autoradiography, cytochemistry, immuno electron microscopy and computer-assisted image analysis.

Key Features:

- Written by the leaders in biological electron microscopy
- Illustrates both optimal and suboptimal or artefactual results in a variety of EM disciplines
- Introduces workers in the field on how to 'read and 'interpret' electron micrographs.

Contents:

Preface; Acknowledgements; Micrograph interpretation; Fixatives; Fixative vehicles; Fixative application; Dehydration and embedding; Freezing and freeze substitution; Support films; Ultramicrotomy; Section staining; Microscopy; Image recording; Photographic and digital printing; Negative staining; Autoradiography; Cytochemistry; Immunocytochemistry; Freeze fracture; and shadowing; Sampling and quantitation; Image processing; 3-D reconstructions; Appendix; Practical methods; Index.

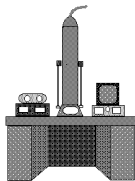
B328 Illustrated methods in biomedical EM 600pp casebound

Electron Microscopy in Microbiology by A Holzenburg and M Hoppert

This book provides detailed descriptions of electron microscopy techniques relevant to all fields of microbial research. In numerous protocols, all standard techniques required for the structural characterisation of unicellular organisms and subcellular components are described. 160pp

Contents:

Specimen support films for TEM; Preparation techniques for TEM; Negative staining; Metal shadowing; Visualisation of nucleic acids; Cryo-immersion fixation; Freeze dried, metal shadowed specimens, Freeze fracturing and freeze etching; Thin section studies; Chemical fixation; Embedding media for immunocytochemistry; Cryofixation and cryosubstitution; Cryofixation for cryoultramicrotomy



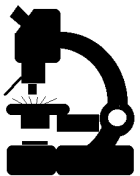
B332 Electron Microscopy in Microbiology

Fluorescence Microscopy 2nd Edition by B Herman

A comprehensive revision of a successful book that combines the theoretical and practical aspects of fluorescence microscopy. The book describes the principles involved, the equipment required and the major applications of fluorescence microscopy. Detailed practical advice is provided to allow readers to use the methods and applications without recourse to other sources. A comprehensive trouble-shooting section ensures that the reader is also able to overcome any problems encountered with the techniques described.

Contents:

Introduction to fluorescence; The fluorescence microscope; Practical fluorescence microscopy; Applications of fluorescence microscopy; Quantitative fluorescence microscopy; Digitised video microscopy; Single & multiphoton confocal laser scanning microscopy; Fluorescence photomicroscopy; Trouble shooting; Further reading; Index



B334 Fluorescence microscopy 184pp

Scientific Papers and Presentations by Martha Davis

Scientific papers and Publications provides a *concise guide to writing what must be written*: proposals, literature reviews, theses, journal articles, slide presentations, posters or grants. The author also discusses conventions in writing, proof reading, copy writing as well as methods for searching and citing scientific literature, composing reviews, preparing data presentations, communicating visually, and public speaking. No other reference provides guidelines and practical advice for so many forms of communication. Advice laden appendices include actual example of papers annotated by the author.

Key features

- Provides protocols and criteria for a wide range of written and spoken communication
- Presents logical, sensible approaches to communicating with diverse audiences
- Written in conversational style for easy reading
- Includes guidelines, examples, processes and answers to questions about theses, proposals, posters, slide presentations, publications and related issues
- Helps to improve overall communication skills
- Serves as companion handbook to your style manual
- Detailed, annotated appendices provide practical examples and commentary

B337 Scientific Papers and Presentations 209pp Paperback

Biological Specimen Preparation for Transmission Electron Microscopy
by Audrey M Glauert and Peter R Lewis

This, the latest volume in the 'Practical Methods in Electron Microscopy' series, contains all the necessary information for anyone wishing to obtain electron micrographs showing the most accurate ultrastructural detail in thin sections of any type of biological specimen.

For the first time in a textbook of this kind, the molecular events occurring during fixation are analysed in detail. The reasons for choosing particular specimen preparation methods are explained and guidance is given on how to modify established techniques to individual requirements.

This volume was written by two acknowledged experts in the application of transmission electron microscopy to biological problems and it is an essential guide to all the latest reliable methods for use by beginners and experts alike.

B338 Biological Specimen Prep etc 1998, 320pp, paperback

B339 Biological Specimen Prep etc hardback

Biomedical Applications of Microprobe Analysis
by P Ingram, J Shelburne, V Roggli, A LeFurgey

This book is a combination reference/laboratory manual for the use of microprobe analysis in both clinical diagnostic and research settings. Also called microchemical microscopy, microprobe analysis uses high energy bombardment of cells and tissue in combination with high resolution EM or confocal microscopy to provide a profile of the ion, metal, and mineral concentrations present in a sample. This allows insight into the physiology and pathophysiology of a wide variety of cells and tissues.

B341 Biomedical applications of microprobe analysis 448pp, casebound

Fluorescent and Luminescent Probes 2E
A Practical Guide to Technology for Quantitative Real-Time Analysis
by W T Mason

The use of fluorescent and luminescent probes to measure biological function in living and dead cells has increased dramatically since the publication of the first edition due to their improved speed, safety, and power of analytical approach. This new edition contains 19 new chapters, over two thirds new material and is a must for all life scientists using optical probes.

The contents include discussions of new optical methodologies for detection of proteins, DNA and other molecules, as well as probes for ions, receptors, cellular components and gene expression. Emerging and advanced technologies for probe detection such as confocal laser scanning microscopy are also covered. This book will be essential reading for those embarking on work in the field or using new methods to enhance their research.

Key features:

- Revised and updated with 19 new chapters
- Describes emerging technologies and probes in detail
- **The** reference work for scientists wishing to use optical probes

Coverage includes:

- Single and multiphoton confocal microscopy
- Applications of green fluorescent protein and chemiluminescent reporters to gene expression studies
- Applications of new optical probes for imaging proteins in gels as exemplified in high throughput screening techniques for proteomics, probes and detection technologies for imaging membrane potential in live cells
- Use of optical probes to detect microorganisms
- Raman and confocal raman microspectroscopy
- Fluorescent lifetime imaging microscopy
- Digital CCD cameras and their application in biological microscopy

B342 Fluorescent and luminescent probes 2E 630pp paperback

Cytochemical Staining Methods for Electron Microscopy
by P R Lewis and D P Knight ed Audrey Glauert

In this latest volume 14 in the Practical Methods in Electron Microscopy Series, the staining techniques for TEM are described including contrast staining for ultrastructural studies, specific cytological staining methods, and enzyme cytochemical techniques.

The chemical basis of cytochemical methods is discussed and analysed in a straightforward manner and with great clarity. This will help all researchers and students to choose between the bewildering variety of published technical procedures. Electron Microscopists will find this volume to be an invaluable and compact source-book for all those cytochemical techniques that have proved to be both reliable and convenient to use.

B344 Cytochemical Staining Methods for EM 321pp Paperback Hardback

Advanced Computing in Electron Microscopy by E J Kirkland

A modern easily readable work with an associated CD-ROM filled with immediately applicable PC programs. The introduction covers terminology and general techniques of transmission electron microscopy in both scanning and imaging modes. Chapters 3 and 4 cover basic background of linear systems transfer theory for electron microscopes with some typical Fourier space techniques and artefacts. Chapters 5 to 7 include stepwise image formation derived from the interaction of electrons with atoms with the image calculation for very thin objects and the dynamical diffraction in terms of the multislice method.

The final chapter is directly related to the operation of the CD-ROM. Excellent literature hints appear in every chapter comprising books for further reading and there is an exhaustive final reference list.

A high quality book for expert and less experienced workers alike

B345 Advanced Computing in EM 250pp with CD-ROM Hardback

Advances in Imaging and Electron Physics Volume 107
edited by Peter W Hawkes, Benjamin Kazan and Tom Mulvey

Advances in Imaging and Electron Physics merges two long running serials - *Advances in Electronics & Electron Physics* and *Advances in Optical & Electron Microscopy*. The series features extended articles on the physics of electron devices (especially semiconductor devices), particle optics at high and low energies, microlithography, image science and digital image processing, electromagnetic wave propagation, electron microscopy, and the computing methods used in all these domains.

Contents:

J.P. Bird, R. Akis, D. Ferry and M. Stopa, Magneto-Transport as a probe of Electron Dynamics in Open Quantum Dots. *M.A. Karim*, External Optical Feedback Effects in DFB Semiconductor Lasers. *A. Rosenauer and B. Gerthsen*, Atomic Scale Strain and Composition Evaluation from High-Resolution Transmission Electron Microscopy Images. *R.C. Staunton*, Hexagonal Sampling in Image Processing, *J. Wood*, The Group Representation Network: A General Approach to Variant Pattern Classification.

B347 Advances in Imaging and Electron Physics Volume 107

Advances in Imaging and Electron Physics Volume 108
edited by Martin Berz, Kyoko Makino, Khodr Shamseddine, and Weishi Wan

A reference work for researchers in electrical engineering, optical science and technology, materials science, image processing and mechanical engineering.

Contents:

Dynamics, Differential Algebraic Techniques, Fields. Maps: Calculation. Maps: Properties. Spectrometers. Repetitive Systems.

B348 Advances in Imaging and Electron Physics Volume 108

Understanding the Light Microscope by Daniel J Goldstein

Understanding the Light Microscope consists of four original computer programs with an explanatory book. The book provides understanding at a deeper level than exists in currently available texts and in a form accessible to microscope users, particularly biologists. It covers simple ray optics, the aberrations of "real" (thick) lenses, polarised light and the influence of diffraction imaging. The book can be read alone, but appreciation of its contents is greatly enhanced when used in conjunction with the programs. The Zernicke program allows simulation of the effects of aperture, spherical aberration and focus of the objective lens as well as coherence of the illumination. There is a range of imaging systems including; Bright Field; Phase Contrast; Dark Field; Schlieren; Modulation Contrast; Apodization; Interference Microscopy; Fluorescence; and Confocal Scanning.

The **Köhler program** is interactive and is intended to teach the operation of Bright Field and Phase Contrast microscopes. Microscope settings can be made random for adjustment practice. The **Nicol program** simulates aspects of quantitative Polarised Light microscopy.

The handbook acts not only as a guide to the use of the programs but also as an introduction to diffraction theory applied to the microscope. The level is intermediate between an elementary text book and rigorous standard texts on the theory of optical microscopy.

Key Features:

- Aids insight into microscope operation and limitations
- The approach is non-mathematical yet in-depth
- Ideal for learning assignments
- Includes a help function for all four programs
- The programs have been tried and tested by 2nd and 3rd year biology undergraduates

B349 Understanding the Light Microscope Computer Programs and Book paperback 160pp

Electronic Handbook of Optical Constants of Solids by Edward Palik & Gorachand

The Electronic Handbook of Optical Constants takes the highly praised five-volume set, *Handbook of Optical Constants of Solids*, to a new level of 'information mining' with seamless integration of dynamic data tables, 2D and 3D displays, property calculations and technical information. The program is designed for material scientists, spectroscopists, and optical device designers working with dielectric materials including metals, semiconductors and insulators.

The CD-ROM features Database Pathways, Data Representation Tools, Extensive Graphics, Calculation Pathways, Information Pathways and Export Results.

B350 Electronic Handbook of Optical Constants CD-ROM and spiral wire bound

Introduction to Immunocytochemistry 2nd Edition by J M Polak & S Van Noorden

Immunocytological Techniques are essential in diagnosis and biomedical research. This new edition which has been extensively rewritten and updated describes the rationale behind the various techniques, explains the problems of specificity and sensitivity, and provides troubleshooting advice. Practical instructions for immunostaining methods using fluorescent, enzyme and gold labels are also outlined in detail.

This book is a must for all those involved in light microscope immunocytochemistry.

Partial Contents:

Requirements for immunocytochemistry; Specificity problems and essential control; Enhancement of standard methods; Multiple immunostaining; Post embedding immunocytochemistry for the TEM; *In-vitro* methods for testing antigen/antibody reactions; Applications of Immunocytochemistry. 160pp Paperback.

B300 Introduction to Immunocytochemistry 2nd Edition

Atomic Force Microscopy/Scanning Tunneling Microscopy 3
 edited by Samuel H Cohen & Marcia L Lightbody

Based on the proceedings of the third Atomic Force Microscopy/Scanning Tunneling Microscopy symposium, the purpose of the meeting being to provide an interface between scientists, engineers, representatives of industry, government and academia. The papers have been written by experts in probe microscopy from around the world, representing a wide range of disciplines, including physics, biotechnology, nanotechnology, chemistry and materials science.

Contents and Contributors

- * Keynote paper: A practical approach to understanding metrology and its applications; *C A Brown*
- * Applications of Scanning Probe Microscopy in materials science; Examples of surface modification and quantitative analysis; *P. von Blanckenagen*
- * Scanning Probe Microscopy with potential applications in forensics; *J Vesenka, E Morales*
- * Atomic manipulation of hydrogen on hydrogen-terminated silicon surfaces with the Scanning Tunneling Microscope; *D H Huang, Y Yamamoto*
- * Apollo 11 Lunar samples: An examination using tapping mode Atomic Force Microscopy and other microscopic methods; *E C Hammond, et al*
- * Novel micromachined sensors for Scanning Near-Field Microscopy; *W Scholz, et al*
- * Imaging of cell surface structure by Scanning Probe Microscopy; *V A Fedirko, et al*
- * A force limitation for successful observation of atomic defects; Defect trapping of the Atomic Force Microscopy tip; *I Y Sokolov et al*
- * A new approach to examine interfacial interaction potential between a thin solid film or a droplet and a smooth substrate; *R Mu, et al*
- * Nanometer scale patterning of surfaces using self-assembly chemistry. 1. Preliminary studies of polyaniline electrodeposition on self-assembled mixed monolayers; *W A Hayes, C Shannon*
- * Local rate of electroless copper deposition by Scanning Tunneling Microscopy; *C J Weber, et al*
- * Atomic Force Microscopy of olivine; *C Wilson, et al*
- * The study of sublimation rates and nucleation and growth of TNT and PETN on silica and graphite surfaces by Optical and Atomic Force Microscopy Ellipsometry; *Y S Tung, et al*
- * Peculiarities of the Scanning Tunneling Microscopy probe on porous gallium phosphide; *V M Ichizli, et al*
- * Influence of doping concentration on the etching rate of GaAs studied by Atomic Force Microscopy; *R S Freitas, et al*
- * Comparative Scanning Tunneling Microscopy studies of CoFe₂O₄ nanoparticles of ferrofluids in acidic medium; *D Dai, et al*
- * From laboratory measurements to the first in-situ analysis of pristine cometary grains; *J Romstedt, et al*
- * Synthesis of prebiotic and oligonucleotides on clay mineral surfaces: A Scanning Force Microscopy study; *T L Porter, et al*
- * Surface structure and intercalative polymerization studies of smectite clay thin films; *T L Porter, et al*
- * Atomic Force Microscopy - a new complementary tool in asphalt research compared to Scanning Electron Microscopy; *L Löber, et al*

B363 Atomic Force Microscopy/Scanning Tunneling Microscopy 3

Electron Microscopy and Analysis 2nd Edition by P J Goodhew and F J Humphries

A comprehensive introductory text, extensively revised and up-dated to cover the physical basis and operation of the common types of electron microscope with illustrations of their applications. In addition, electron microscopy is compared with other modern techniques for examining both crystalline and non-crystalline materials.

Contents:

Microscopy with light and electrons; Electrons and their interaction with the specimen; Electron diffraction; The transmission electron microscope; Chemical analysis in the electron microscope; Electron microscopy and other techniques.

B 364 EM and analysis 2nd edition

Practical Stereology 2nd Edition by John C Russ & Robert T Dehoff

Stereology is the science that relates three dimensional-structure to the two-dimensional images that can be measured. This technique is common in microscopy of biological tissue samples and man-made materials. This book covers the applications and terminology in both fields and emphasises sampling strategies to avoid bias due to directionality and non-uniformity. The classic techniques that measure size distributions, surface curvature etc that are extremely useful are covered as they appear not to have been covered in other recent texts. This text covers the use of simple manual procedures using counting and grids but also the use of modern desktop computers for image analysis and processing to obtain and interpret stereological data.

B419 Practical stereology 2nd edition