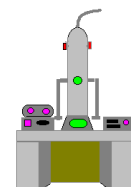


## Books on Microscopy and Related Subjects

**Transmission Electron Microscopy - Biological**
**A Manual of Applied Techniques for Biological Electron Microscopy**  
 by Michael J Dykstra

This very thorough procedural manual is filled with time-tested approaches to the full range of techniques employed by biological electron microscopists. It is carefully structured to maximise its usefulness, and clearly defines the objectives of each technique, the materials needed, the steps involved and the results expected. Common difficulties are noted. The author also provides cytochemistry, immunocytochemistry and photographic methods.

**B312** A Manual of Applied Techniques for Biological TEM 270pp Spiral bound

**Biological Electron Microscopy, Theory, Techniques, and Troubleshooting**  
 by Michael J Dykstra

This work is a basic introduction to the fundamentals of specimen preparation, instrumentation, and photography for the advanced undergraduate level student. The text has valuable explanations of the basic principles of fixation, describes a wide range of approaches to obtain usable ultrastructural work, and details strategies for solving common problems encountered in all phases of electron microscopy work

**B313** Biological EM etc. 380pp

**Artifacts in Biological Electron Microscopy**  
 edited by Richard F E Crang & Karen L Klomparens

This instructive volume highlights the obvious artifactual problems that can confront microscopists in transmission, scanning and analytical electron microscopy. Contributors identify the underlying physical and chemical causes of specific artifacts and offer suggestions for correcting or avoiding them.

**B314** Artifacts in Biological EM 254pp

**Stains and Cytochemical Methods by M A Hayat**

This volume presents a complete discussion of the principles and practise of cytochemical procedures for TEM. Professor Hayat includes new stains providing increased specificity, as well as the more commonly used techniques.

**B310** Stains and Cytochemical Methods 474pp

**Practical Electron Microscopy - A Beginners Illustrated Guide by Elaine Hunter**

An extensively illustrated laboratory manual of TEM techniques for the life sciences technician, student or researcher. The methods and techniques outlined have been tested for over ten years in clinical and research laboratory situations and are entirely reliable. 192pp

**B274** Practical EM paperback

**Rapid Freezing, Freeze Fracture and Deep Etching Edited by N J Severs & D M Shotton**

Includes novel developments such as freeze fracturing and shadowing under low temperature and ultra-high vacuum, improvements in rapid freezing and cytochemical methods utilising lectins and antibodies for labelling specific cellular components. The topics are covered by researchers instrumental in their development and applications.

**B249** Rapid Freezing, Freeze Fracture and Deep Etching 320pp

**Cryopreparation of Thin Biological Specimens for Electron Microscopy  
Methods and Applications by N Roos & N J Morgan**

The basic principles of TEM cryo techniques are explained in this guide. Prior knowledge of EM is assumed but not of cryo techniques. Contents:

Freezing methods; Cryoultramicrotomy; Section transfer to TEM; Imaging & analysis of frozen hydrated specimens in the TEM; Vitrified thin films & cryosections; Cryosections & immunocytochemistry; Other low temperature methods; Safety; References.

**B268** Cryopreparation of thin biological specimens

**Negative Staining & Cryo Electron Microscopy - The Thin Film Techniques  
by J R Harris**

This book provides detailed practical methods for specimen preparation for negative staining and cryo electron microscopy of thinly spread samples of biological particulates. The different possibilities are emphasised and the benefits to be gained by the various techniques clearly explained. Contents include:

Introduction; *Negative staining*; historical background and technical development; preparative procedures; some specialised approaches and problems; selected applications; *Unstained vitrified specimens*; Technical background; preparation procedures; selected applications; *Future prospects*; Computer processing for 2D & 3D image reconstruction.

**B278** Negative staining etc 224pp

**Three-Dimensional Electron Microscopy of Macromolecular Assemblies  
by Joachim Frank**

This is the first systematic introduction to single particle methods for reconstruction. It covers correlation alignment, classification, 3-D reconstruction, restoration and interpretation of the resulting 3-D images of macromolecular assemblies.

- Presents methods that offer an alternative to crystallographic techniques for molecules that cannot be crystallised
- Describes methods that have been instrumental in exploring the three dimensional structure of
- Nuclear pore complex • Calcium release channel • Ribosome • Chaperonins

**Contents:** Introduction: EM of Macromolecular Assemblies: Two-Dimensional Averaging Techniques: Multivariate Statistical Analysis and Classification of Images: 3-D Images of Macromolecules: Example for application: Calcium Release Channel: Appendix 1:  
: Software Implementations: Appendix 2: Macromolecular Assemblies Reconstructed from Micrographs of Single Macromolecules: Bibliography: Subject Index.

**B298** 3-D EM of Macromolecular Assemblies

**Electron Tomography 3-D Imaging with the Transmission Electron Microscope  
edited by Joachim Frank**

Electron tomography covers the theory, working methods and applications of electron tomographic techniques for imaging asymmetric noncrystalline biological specimens.

Contributors discuss topics such as image formation, overcoming artifacts due to missing angular data, and the visualisation of three-dimensional scalar data.



**B319** Electron Tomography 412pp