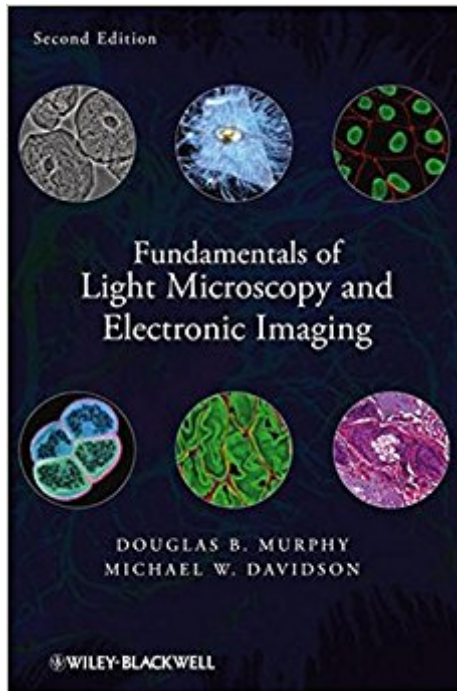




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Fundamentals Of Light Microscopy And Electronic Imaging



Synopsis

Fundamentals of Light Microscopy and Electronic Imaging, Second Edition provides a coherent introduction to the principles and applications of the integrated optical microscope system, covering both theoretical and practical considerations. It expands and updates discussions of multi-spectral imaging, intensified digital cameras, signal colocalization, and uses of objectives, and offers guidance in the selection of microscopes and electronic cameras, as well as appropriate auxiliary optical systems and fluorescent tags. The book is divided into three sections covering optical principles in diffraction and image formation, basic modes of light microscopy, and components of modern electronic imaging systems and image processing operations. Each chapter introduces relevant theory, followed by descriptions of instrument alignment and image interpretation. This revision includes new chapters on live cell imaging, measurement of protein dynamics, deconvolution microscopy, and interference microscopy. PowerPoint slides of the figures as well as other supplementary materials for instructors are available at a companion website:

www.wiley.com/go/murphy/lightmicroscopy

Book Information

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Customer Reviews

“This should be provided to all beginning graduate students entering microscopy labs. It describes the complicated hardware of the system, while also explaining the physics principles of microscopy on a simplistic level for basic biologists. The authors achieve a perfect balance of theory and methods.” (Doody's, 15 November 2013) It should be particularly useful to

researchers getting started in the field of microscopy as well as seasoned professionals. Summing Up: Highly recommended. Graduate students, researchers/faculty, and professionals/practitioners. • (Choice, 1 October 2013) • In summary, Fundamentals of Light Microscopy, Second Edition is a recommended starting point for the novice in microscopy and electronic imaging. • (Journal of Biomedical Optics, 1 February 2013)

"This book will provide individuals without background knowledge in optical physics, electronics, or image processing with many of the basic facts they need to know to understand both the power and limitations of their images." • Cell Biology Education on the First Edition Fundamentals of Light Microscopy and Electronic Imaging, Second Edition provides a coherent introduction to the principles and applications of the integrated optical microscope system, covering both theoretical and practical considerations. It expands and updates discussions of multi-spectral imaging, intensified digital cameras, signal colocalization, and uses of objectives, and offers guidance in the selection of microscopes and electronic cameras, as well as appropriate auxiliary optical systems and fluorescent tags. Written in simple, clear language, the book is divided into three sections covering optical principles in diffraction and image formation, basic modes of light microscopy, and components of modern electronic imaging systems and image processing operations. Each chapter introduces relevant theory, followed by descriptions of instrument alignment and image interpretation. Including new sections on live cell imaging, measurement of protein dynamics, deconvolution, multiphoton microscopy, and superresolution microscopy, Fundamentals of Light Microscopy and Electronic Imaging, Second Edition features the following chapters: Fundamentals of Light Microscopy Light and Color Illuminators, Filters, and the Isolation of Specific Wavelengths Lenses and Geometrical Optics Diffraction and Interference in Image Formation Diffraction and Spatial Resolution Phase Contrast Microscopy and Darkfield Microscopy Properties of Polarized Light Polarization Microscopy Differential Interference Contrast (DIC) Microscopy and Modulation Contrast Microscopy Fluorescence Microscopy Fluorescence Imaging of Dynamic Molecular Processes Confocal Laser Scanning Microscopy Two-Photon Excitation Fluorescence Microscopy Superresolution Imaging Imaging Living Cells with the Microscope Fundamentals of Digital Imaging Digital Imaging Processing

This is a fantastic book. The style is straightforward and the graphics provide an excellent description of the concepts of the optical mechanisms. The use of color and the ability to convey complex ideas simply is an exceptionally good element of presentation. The book covers almost all

elements of modern microscopy. Specifically:1. Classic microscopy2. Phase contrast and darkfield. I especially like the simplicity of his presentation since I have used this approach on various samples.3. Fluorescence microscopy4. Polarized techniques5. Superresolution6. Digital ImagingThe book is an excellent combination of introductory explanation and a basis for in depth understanding. Again, I especially liked the graphics and found the authors approach very worthwhile. This is a book for both beginners and intermediate users. It allows one to explore all the dimensions of a good microscope.

This is an expensive book, but the combination of theory, technology, and practice with clarity of presentation make this the best book I have read on microscopes and imaging. I strongly recommend it to enthusiasts in microscopy. I assume most professionals in the field already have this book in their reference library.

This is a comprehensive text of light microscopy and electronic imaging. It covers the traditional topics of brightfield, darkfield, DIC, and phase contrast but it also goes into confocal and ultra high resolution techniques. It is amply illustrated with colorful diagrams that elucidate the principles of optical microscopy. Highly recommended.

Product exactly as advertised.

Good compilation of most forms of microscopy. Excellent resource.

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