Contents

CHAPTER 11: MEASURING THE REAL POINT SPREAD FUNCTION OF HIGH NUMERICAL APERTURE MICROSCOPE OBJECTIVE LENSES

Rimas Juškaitis

CHAPTER 12: PHOTON DETECTORS FOR CONFOCAL MICROSCOPY

Jonathan Art

CHAPTER 13: STRUCTURED ILLUMINATION METHODS

Rainer Heintzmann

CHAPTER 14: VISUALIZATION SYSTEMS FOR MULTI-DIMENSIONAL MICROSCOPY IMAGES

N.S. White

CHAPTER 15: AUTOMATED THREE-DIMENSIONAL IMAGE ANALYSIS METHODS FOR CONFOCAL MICROSCOPY

Badrinath Roysam, Gang Lin, Muhammad-Amri Abdul-Karim, Omar Al-Kofahi, Khalid Al-Kofahi, William Shain, Donald H. Szarowski, and James N. Turner

CHAPTER 36: PRACTICAL CONFOCAL MICROSCOPY

Alan R. Hibbs, Glen MacDonald, and Karl Garsha

CHAPTER 37: SELECTIVE PLANE ILLUMINATION MICROSCOPY

Jan Huisken, Jim Swoger, Steffen Lindek, and Ernst H.K. Stelzer

CHAPTER 38: CELL DAMAGE DURING MULTI-PHOTON MICROSCOPY

Karsten König

CHAPTER 39: PHOTOBLEACHING

Alberto Diaspro, Giuseppe Chirico, Cesare Usai, Paola Ramoino, and Jurek Dobrucki

CHAPTER 40: NONLINEAR (HARMONIC GENERATION) OPTICAL MICROSCOPY

Ping-Chin Cheng and C.K. Sun

CHAPTER 41: IMAGING BRAIN SLICES

Ayumu Tashiro, Gloster Aaron, Dmitriy Aronov, Rosa Cossart, Daniella Dumitriu, Vivian Fenstermaker, Jesse Goldberg, Farid Hamzei-Sichani, Yuji Ikegaya, Sila Konur, Jason MacLean, Boaz Nemet, Volodymyr Nikolenko, Carlos Portera-Cailliau, and Rafael Yuste

CHAPTER 42: FLUORESCENT ION MEASUREMENT

Mark B. Cannell and Stephen H. Cody

CHAPTER 43: CONFOCAL AND MULTI-PHOTON IMAGING OF LIVING EMBRYOS

Jeff Hardin

CHAPTER 44: IMAGING PLANT CELLS

Nuno Moreno, Susan Bougourd, Jim Haseloff, and José A. Feijó

APPENDIX 1: PRACTICAL TIPS FOR TWO-PHOTON MICROSCOPY

Mark B. Cannell, Angus McMorland, and Christian Soeller

APPENDIX 2: LIGHT PATHS OF THE CURRENT COMMERCIAL CONFOCAL LIGHT MICROSCOPES USED IN BIOLOGY

James B. Pawley

APPENDIX 3: MORE THAN YOU EVER REALLY WANTED TO KNOW ABOUT CHARGE-COUPLED DEVICES

James B. Pawley