Biomedical Optical Imaging

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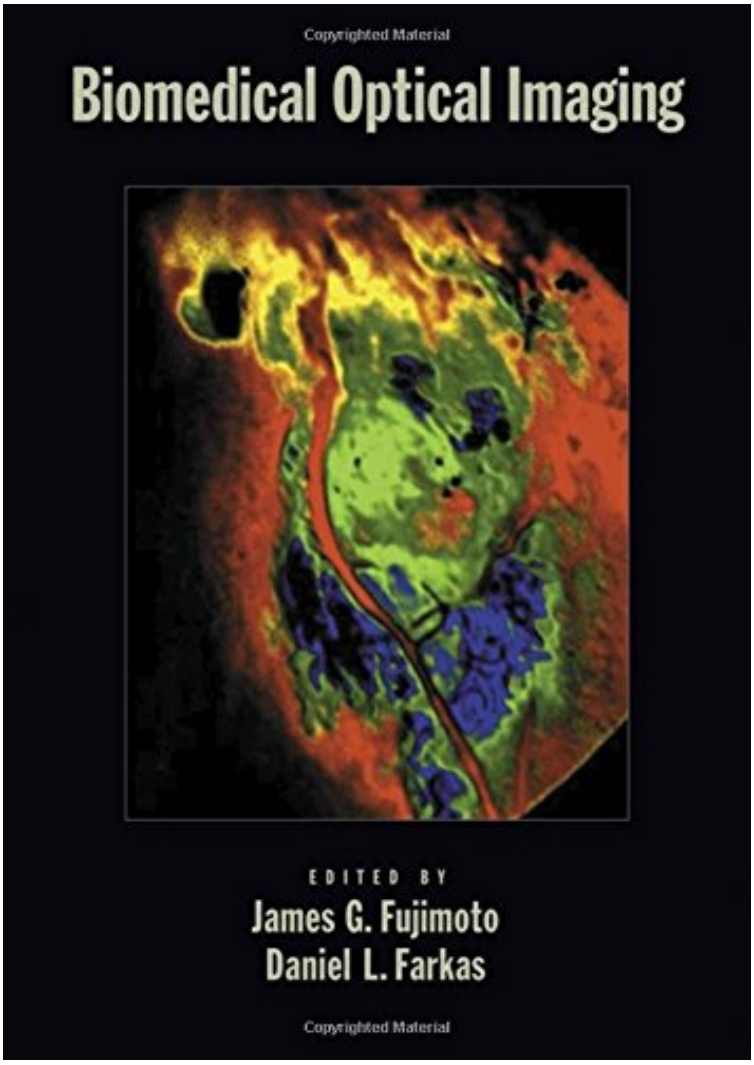

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James G. Fujimoto, Daniel Farkas : Biomedical Optical Imaging before purchasing it in order to gage whether or not it would be worth my time, and all praised Biomedical Optical Imaging:

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Biomedical optical imaging is a rapidly emerging research area with widespread fundamental research and clinical applications. This book gives an overview of biomedical optical imaging with contributions from leading international research groups who have pioneered many of these techniques and applications. A unique research field spanning the

microscopic to the macroscopic, biomedical optical imaging allows both structural and functional imaging. Techniques such as confocal and multiphoton microscopy provide cellular level resolution imaging in biological systems. The integration of this technology with exogenous chromophores can selectively enhance contrast for molecular targets as well as supply functional information on processes such as nerve transduction. Novel techniques integrate microscopy with state-of-the-art optics technology, and these include spectral imaging, two photon fluorescence correlation, nonlinear nanoscopy; optical coherence tomography techniques allow functional, dynamic, nanoscale, and cross-sectional visualization. Moving to the macroscopic scale, spectroscopic assessment and imaging methods such as fluorescence and light scattering can provide diagnostics of tissue pathology including neoplastic changes. Techniques using light diffusion and photon migration are a means to explore processes which occur deep inside biological tissues and organs. The integration of these techniques with exogenous probes enables molecular specific sensitivity.

About the AuthorJames G. Fujimoto is Professor of Electrical Engineering and Computer Science at the Massachusetts Institute of Technology, where he works on the development and application of femtosecond laser technology and studies ultrafast phenomena and biomedical optics. He received his bachelors, masters, and doctorate degrees from M.I.T. Books by the Same Author/Editor: Optical Coherence Tomography of Ocular Diseases |a C. A. Puliafito, M. R. Hee, J. S. Schumann and J. G. Fujimoto Ultrafast Phenomena X |a P. F. Barbara, J. G. Fujimoto, W. H. Know and W. Zinth Ultrafast Phenomena XI |a T. Elsaesser, J. Fujimoto, D. Wiersma and W. Zinth Optical Coherence Tomography of Ocular Diseases, 2nd edition |a J. S. Schuman, C. A. Puliafito and J. G. Fujimoto Everyday OCT: A Handbook for Clinicians and Technicians |a J. S. Schuman, C. A. Puliafito and J. G. Fujimoto Daniel Farkas is Vice Chairman for Research in the Department of Surgery and Director of the Minimally Invasive Surgical Technologies Institute at the Cedars-Sinai Medical Center in Los Angeles. He is also a Research Professor in Biomedical Engineering at the University of Southern California, and Adjunct Professor at the Robotics Institute at Carnegie Mellon University. Farkas was trained in theoretical physics in Romania, and holds a Ph.D. in Biophysics and Biochemistry from the Weizmann Institute in Israel. Books by the Same Author/Editor: Optical Diagnostics of Living Cells and Biofluids, Progress in Biomedical Optics, Vol. 2678 |a T. Asakura, D. L. Farkas, R. Leif and A. V. Priezzhev Functional Imaging and Optical Manipulation of Living Cells and Tissues, Progress in Biomedical Optics, Vol. 2983 |a D. L. Farkas and B. J. Tromberg Optical Investigations of Biological Systems In Vitro and In Vivo, Progress in Biomedical Optics, Vol. 3260 |a D. L. Farkas, R. Leif and B. J. Tromberg Manipulation by Light in Biology and Medicine: The Laser Microbeam and Optical Tweezers, Enabling Techniques in Bioimaging |a Karl Otto Greulich and D. L. Farkas (editor) Optical Diagnostics of Living Cells II, Progress in Biomedical Optics, Vol. 3604 |a D. L. Farkas, R. C. Leif and B. J. Tromberg Optical Diagnostics of Living Cells III, Progress in Biomedical Optics, Vol. 3921 |a D. L. Farkas and R. C. Leif Gene Therapy and Tissue Engineering in Orthopaedic and Sports Medicine, Methods in Bioengineering |a J. Huard, F. Fu and D. L. Farkas (editor) Optical Diagnostics of Living Cells IV, Progress in Biomedical Optics, Vol. 4260 |a D. L. Farkas and R. C. Leif Optical Diagnostics of Living Cells V, Progress in Biomedical Optics and Imaging, Vol. 4622 |a D. L. Farkas and R. C. Leif Manipulation and Analysis of Biomolecules, Cells and Tissues I, Progress in Biomedical Optics and Imaging, vol. 4962 |a D. Nicolau, J. Enderlein, R. C. Leif and D. L. Farkas Manipulation and Analysis of Biomolecules, Cells and Tissues II, Progress in Biomedical Optics and Imaging, Vol. 5322 |a D. Nicolau, J. Enderlein, R. C. Leif and D. L. Farkas Imaing, Manipulation and Analysis of Biomolecules, Cells and Tissues III, Progress in Biomedical Optics and Imaging, Vol. 5699 |a D. Nicolau, J. Enderlein, R. C. Leif, D. L. Farkas and R. Raghavachari Imaging, Manipulation and Analysis of Biomolecules, Cells and Tissues IV, Progress in Biomedical Optics and Imaging, Vol. 6088 Imaging, Manipulation and Analysis of Biomolecules, Cells and Tissues, Progress in Biomedical Optics and Imaging, Vol. 6441 |a D. L. Farkas, D. Nicolau and R. C. Leif