



Optical design for biomedical imaging

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Research output: Book/Report › Book

25

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Abstract

Designing an efficient imaging system for biomedical optics requires a solid understanding of the special requirements of the optical systems for biomedical imaging and the optical components used in the systems. However, a lack of reference books on optical design (imaging and illumination) for biomedical imaging has led to some inefficient systems. This book fills the gap between biomedical optics and optical design by addressing the fundamentals of biomedical optics and optical engineering, and biomedical imaging systems. The first half provides a brief introduction to biomedical optics and then covers the fundamentals of optics, optical components, light sources, detectors, optical imaging system design, and illumination system design. This also includes important issues related to biomedical imaging, such as autofluorescence from optical materials. The second half of the text covers various biomedical imaging techniques and their optical systems, along with design examples.

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Optical Design for Biomed has been added to your Cart. Add to Cart. Buy Now. This is a practical guide to the optical engineering issues in biomedical imaging systems design. Well written, clear and concise, it is a good review of important bio-medical optical systems - the design methods and challenges. The print-quality of the diagrams - many with fine lines that are really faint - was pretty poor in my copy. Read more. Designing an efficient imaging system for biomedical optics requires a solid understanding of the special requirements of the optical systems for biomedical imaging and the optical components used in the systems. However, a lack of reference books on optical design (imaging and illumination) for biomedical imaging has led to some inefficient systems. This book fills the Designing an efficient imaging system for biomedical optics requires a solid understanding of the special requirements of the optical systems for biomedical imaging and the optical components used in the systems. However, a lac Department of Optics and Mechatronics Engineering, Pusan National University 30 Jangjeong-dong, Geumjeong-gu, Busan, 46241, South Korea Interests: Fiber optic laser sources; Optical fiber sensors and measurement systems; Optical imaging systems for biomedical applications; Precision 3D photonic imaging systems. It is expected that this Special Issue, "Optical Devices and Systems for Biomedical Applications", of Applied Science will provide succinct information on the optics of biomedicine. To do so, your contribution as an author or a reviewer is welcome and much appreciated. Any optics, fiber and bulk, that can lead us to the wonderful world of biomedical fields are also welcome to this Special Issue. Biomedical optical imaging is one of the most relied-upon tools in healthcare for diagnosis and treatment of diseases. It's used to identify abnormalities in the human body while minimizing collateral damage to healthy tissue. Most biomedical optical imaging techniques are based on phase or amplitude variations in light interacting with tissue and organs. Examples of techniques include The optimization tools in OpticStudio automatically improve the performance of biomedical imaging designs based on user-defined constraints. The tolerancing tools help engineers incorporate manufacturing and assembly limits into design constraints to ensure manufacturability and production efficiency. These tools save time by eliminating manual tests of design iterations. Optical Design: Applying the Fundamentals is written for engineers and scientists who have some The Biomedical Engineering Handbook, Third Edition - 3 Volume Set: Biomedical Engineering Fundamentals (The Biomedical Engineering Handbook, Fourth Edition). 1,180 Pages · 2014 · 540 KB · 41,367 Downloads · New! Known as the bible of biomedical engineering, The Biomedical Engineering Handbook, Fourth Edition Biomedical Engineering and Design Handbook, Volume 1: Second Edition, Biomedical Engineering. 686 Pages · 2009 · 4.52 MB · 7,728 Downloads · New! A State-of-the-Art Guide to Biomedical Engineering and D...