Optical Devices in Ophthalmology and Optometry: Technology, Design Principles and Clinical Applications

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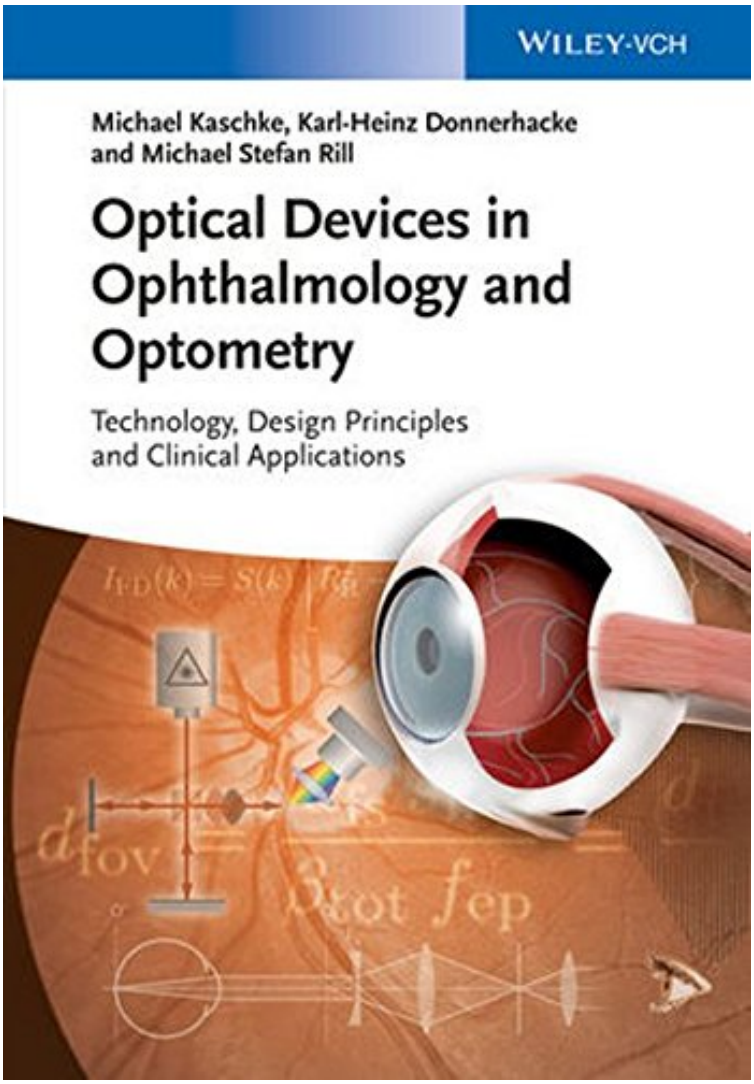

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Michael Kaschke, Karl-Heinz Donnerhacke, Michael Stefan Rill : Optical Devices in Ophthalmology and Optometry: Technology, Design Principles and Clinical Applications before purchasing it in order to gage whether or not it would be worth my time, and all praised Optical Devices in Ophthalmology and Optometry: Technology, Design Principles and Clinical Applications:

Medical technology is a fast growing field. This new title gives a comprehensive review of modern optical technologies alongside their clinical deployment. It bridges the technology and clinical domains and will be suitable in both technical and clinical environments. It introduces and develops basic physical methods (in optics, photonics, and metrology) and their applications in the design of optical systems for use in medical technology with a special focus on ophthalmology. Medical applications described in detail demonstrate the advantage of utilizing optical-photonic methods. Exercises and solutions for each chapter help understand and apply basic principles and methods. An associated website run by the authors will include slides to facilitate the teaching/training of this material, and typical images collected by the described methods, eg videos of endoscopy or navigation, OCT, etc.

This unique and timely compendium is an excellent way to stay on top. It is written in a manner that makes the technology and corresponding clinical applications understandable, even for those with limited technical knowledge. (Doodys, 2 October 2015) Optical Devices in Ophthalmology and Optometry is a timely, highly readable, and beautifully illustrated text that fulfills the need to bridge technical and clinical optics. In whole or part, it is an invaluable reference or basic text for Optometry, Ophthalmology, and Vision Science. (Optometry Vision Science, 1 May 2015) The book is clearly written with many excellent illustrations. (Optics and Photonics News, 31 October 2014) Optical Devices in Ophthalmology and Optometry sets a very high standard for biomedical optics textbooks. I am impressed with the integration of the mathematical physics, the explanations of the fundamental physics with the emphasis on physical insights, the instrument design principles and their relation to the function of resulting medical device, and the clear explanations of the coupling between the optical properties of the eye and the coupling with the optical devices. (Journal of Biomedical Optics, 1 July 2014) From the Back CoverMedical technology is a fast growing field. Optical Devices in Ophthalmology and Optometry gives a comprehensive review of modern optical technologies in ophthalmology and optometry alongside their clinical deployment. It bridges the technology and clinical domains and will be suitable in both technical and clinical environments. The book introduces and develops basic physical methods (in optics, photonics, and metrology) and their applications in the design of optical systems for use in ophthalmic medical technology. Medical applications described in detail demonstrate the advantage of utilizing optical photonic methods. Exercises and solutions for each chapter help understand and apply basic principles and methods. From the contents: Structure and Function of the Human Eye Optics of the Human Eye Visual Disorders and Major Eye Diseases Introduction to Ophthalmic Diagnosis and Imaging Determination of the Refractive Status of the Eye Optical Visualization, Imaging, and Structural Analysis Optical Coherence Methods for Three-Dimensional Visualization and Structural Analysis Functional Diagnostics LaserTissue Interaction Laser Systems for Treatment of Eye Diseases and Refractive ErrorsAbout the AuthorMichael Kaschke received his Ph.D. and Dr. sc. nat. degrees both from the University of Jena in 1986 and 1988, respectively, for his research in the field of ultra-short light pulses and spectroscopy. Before joining Carl Zeiss, he was a research scientist at the Max-Born-Institute Berlin, Max-Planck-Institute Gttingen, and invited visiting scholar at IBM Research Center Yorktown Heights, N.Y., working on high-power fs-laser pulses and their matter interaction. He is also a professor for medical technology at the Karlsruhe Institute of Technology, Germany. Michael Kaschke is President and CEO of the Carl Zeiss AG, a technology leader in optics, optoelectronic, and medical technology headquartered in Oberkochen, Germany. He joined Carl Zeiss in 1992 and has held since then several research and management positions in the company predominantly in the medical business. Karl-Heinz Donnerhacke received his Ph.D. degree from the University of Jena, Germany, in 1976 for his research in the field of high power gas lasers. He spent over 25 years of his career working at Carl Zeiss in laser development and laser application in medicine. During this time, he also joined the University of Jena and the Physical-Technical Institute of the Academy of Sciences as a research scientist. Until his retirement he was Director of RD in the Ophthalmic Instruments Division of Carl Zeiss for more than 15 years and later Director of RD for Ophthalmic Diagnostic Instruments at Carl Zeiss Meditec AG. Since 2003, Dr. Donnerhacke has been adjunct professor for ophthalmic technology at the Ernst Abbe University of Applied Sciences Jena, Germany and the Technical University Ilmenau, Germany. Currently, he is also a technical consultant in the field of ophthalmic devices. Michael Stefan Rill received his Ph.D. degree from the Institute of Applied Physics at the Karlsruhe Institute of Technology, Germany, in 2010 for his research in the field of 3D photonic metamaterials. He subsequently worked as a sales manager at Nanoscribe GmbH in Eggenstein-Leopoldshafen, Germany, and as a scientific assistant to the CEO at Carl Zeiss in Oberkochen, Germany. As of 2013, Dr. Rill holds a position as product manager for cataract surgery systems at Carl Zeiss in Jena, Germany.