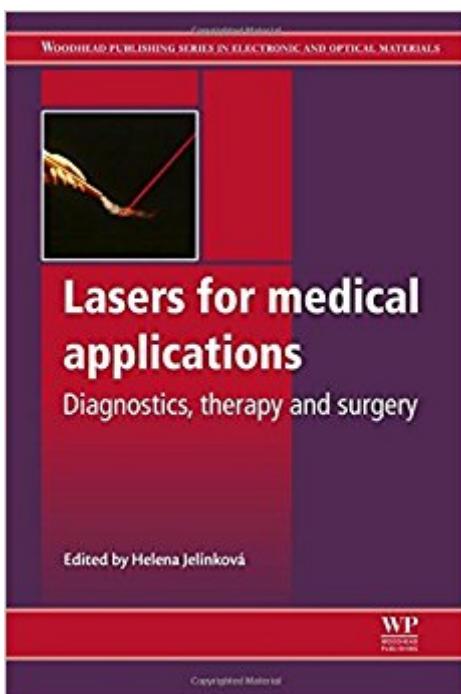


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Lasers For Medical Applications: Diagnostics, Therapy And Surgery (Woodhead Publishing Series In Electronic And Optical Materials)



Synopsis

Lasers have a wide and growing range of applications in medicine. Lasers for Medical Applications summarises the wealth of recent research on the principles, technologies and application of lasers in diagnostics, therapy and surgery. Part one gives an overview of the use of lasers in medicine, key principles of lasers and radiation interactions with tissue. To understand the wide diversity and therefore the large possible choice of these devices for a specific diagnosis or treatment, the respective types of the laser (solid state, gas, dye, and semiconductor) are reviewed in part two. Part three describes diagnostic laser methods, for example optical coherence tomography, spectroscopy, optical biopsy, and time-resolved fluorescence polarization spectroscopy. Those methods help doctors to refine the scope of involvement of the particular body part or, for example, to specify the extent of a tumor. Part four concentrates on the therapeutic applications of laser radiation in particular branches of medicine, including ophthalmology, dermatology, cardiology, urology, gynecology, otorhinolaryngology (ORL), neurology, dentistry, orthopaedic surgery and cancer therapy, as well as laser coatings of implants. The final chapter includes the safety precautions with which the staff working with laser instruments must be familiar. With its distinguished editor and international team of contributors, this important book summarizes international achievements in the field of laser applications in medicine in the past 50 years. It provides a valuable contribution to laser medicine by outstanding experts in medicine and engineering. Describes the interaction of laser light with tissue. Reviews every type of laser used in medicine: solid state, gas, dye and semiconductor. Describes the use of lasers for diagnostics.

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"This book provides comprehensive and concise theoretical foundations of laser radiation delivery systems and laser medicine. It could be used as a textbook for advanced undergraduate and graduate students in biosciences, and would be a valuable handbook for medical doctors and researchers in the field of medical systems."--Optics & Photonics News, May 22, 2014

Helena Jelinkova is Professor of Applied Physics in the Faculty of Nuclear Sciences and Physical Engineering at the Czech Technical University in Prague. Professor Jelíková is internationally renowned for her research on solid state lasers and their applications in such areas as medicine.

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