Laser-Tissue Interactions

Fundamentals and Applications

- An extensively revised new edition of a standard reference and textbook on lasers in medicine
- Includes a comprehensive set of questions and solutions at the end of each chapter
- Describes the latest medical breakthroughs
- Serves as an essential guide for graduate students, scientists, and medical practitioners alike

This book has become the standard textbook and reference guide to an important and rapidly growing field. It provides a thorough description of the fundamentals and applications of modern laser medicine, discussing in detail the “basics” such as optical and thermal properties of tissue, various types of hard and soft tissue ablation, optical breakdown and its related effects. Special attention is paid to mathematical tools (Monte Carlo simulations, Kubelka–Munk theory) and tried-and-trusted techniques (photobiomodulation, photodynamic therapy, laser-induced interstitial thermotherapy, and more). In turn, the application section reviews clinically relevant methods in modern laser treatment, while the last chapter covers today’s standards for laser safety, with a careful selection of essential guidelines published by the Laser Institute of America. Each chapter closes with a set of problems (and solutions), allowing readers to test their acquired knowledge. This fourth edition has undergone major revisions and updating to reflect the latest developments and references. Major improvements include 60 color illustrations, a review of the various LASIK techniques in ophthalmology, and a discussion of laser applications in endodontics and implantology. The chapters addressing lasers in ophthalmology, dentistry, urology and dermatology/cosmetics have all been extensively revised and updated. Its wealth of research photographs, illustrations, tables and comprehensive summaries make this book an essential guide for graduate students, scientists and medical practitioners alike.

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