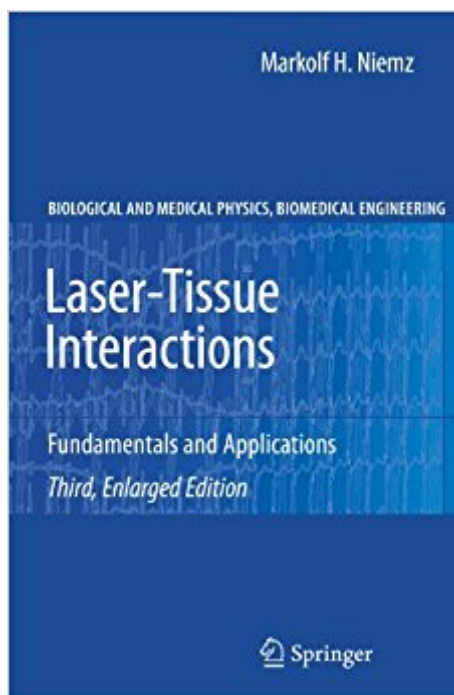




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# Laser-Tissue Interactions: Fundamentals And Applications (Biological And Medical Physics, Biomedical Engineering)



## Synopsis

Medical practitioners, scientists and graduate students alike will find this exhaustive survey a vital learning tool. It provides a thorough description of the fundamentals and applications in the field of laser-tissue interactions. Basic concepts such as the optical and thermal properties of tissue, the various types of tissue ablation, and optical breakdown and its related effects are treated in detail. The author pays special attention to mathematical tools (Monte Carlo simulations, the Kubelka-Munk theory etc.) and approved techniques (photodynamic therapy, laser-induced interstitial thermotherapy etc.). A section on applications reviews clinically relevant methods in modern medicine using the latest references.

## Book Information

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From the reviews: "... the author has provided a comprehensive background with examples describing the basics of laser-tissue interaction ... an extremely useful reference companion."

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Laser-Tissue Interactions by M.H.Niemz has become a standard reference and textbook in this rapidly growing field. It provides a thorough description of the fundamentals and applications of modern laser medicine. Basic concepts, such as optical and thermal properties of tissue, the various types of tissue ablation, and optical breakdown and its related effects, are treated in detail. Special attention is given to mathematical tools (Monte Carlo simulations, the Kubelka-Munk theory etc.) and well-proven techniques (photodynamic therapy, laser-induced interstitial thermotherapy, etc.). The part on applications reviews clinically-relevant methods in laser treatment using the latest references. The last chapter covers today's standards of laser safety with a careful selection of essential guidelines published by the Laser Institute of America. Numerous research photographs, illustrations, tables, and comprehensive summaries make this book a useful guide for graduate students, scientists, and medical practitioners. This third edition has been completely revised, and expanded, including the addition of 40 comprehensive questions and solutions providing readers the chance to immediately test their understanding and also to prepare for related exams.

From the reviews of an earlier edition

"... the author has provided a comprehensive background with examples describing the basics of laser-tissue interaction ... an extremely useful reference companion." Lasers in Surgery and Medicine

This book provides a concise review of laser-tissue interaction. It begins by introducing a brief theoretical foundation in tissue optics and moves on to describing various interaction and ablation mechanisms. The chapters are very well organized, the materials are well presented, and equations are used only when necessary. A large chapter is dedicated to introducing various medical applications of lasers in different clinical fields. The materials in this book are very suitable for scientists, engineers, and physicians involved in biomedical optics. However, since the release of this book, significant progress has been made in this area, which requires the author to substantially

update information and development in the next edition.

This is an excellent book for anyone working in this field. The book covers everything from the basic theory to the latest applications. Detailed descriptions of each type of interaction mechanism and detailed references on each type of application are given. The second edition has been completely revised and updated. Highest ratings by Prof. Berns and Prof. van Gemert in their own classes. A MUST for your book shelf.

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