

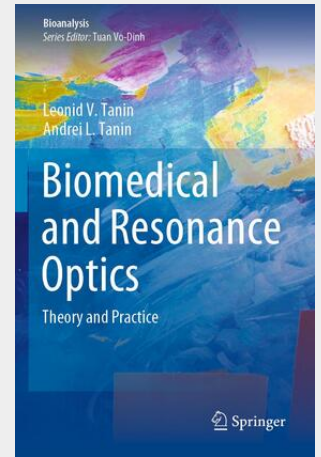
Tanin

Biomedical and Resonance Optics

Theory and Practice

This book discusses fundamentally new biomedical imaging methods, such as holography, holographic and resonant interferometry, and speckle optics. It focuses on the development of holographic interference microscopy and its use in the study of phase objects such as nerve and muscle fibers subjected to the influence of laser radiation, magnetic fields, and hyperbaric conditions. The book shows how the myelin sheath and even the axon itself exhibit waveguide properties, enabling a fresh new look at the mechanisms of information transmission in the human body. The book presents theoretically and experimentally tested holographic and speckle-optical methods and devices used for investigating complex, diffusely scattering surfaces such as skin and muscle tissue. Additionally, it gives broad discussion of the authors' own original fundamental and applied research dedicated to helping physicians introduce new contact-less methods of diagnosis and treatment of diseases of the cardiovascular and neuromuscular systems into medical practice. The book is aimed at a broad spectrum of scientific specialists in the fields of speckle optics, holography, laser physics, morphology and cytochemistry, as well as medical professionals such as physiologists, neuropathologists, neurosurgeons, cardiologists and dentists.

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