1. Record Nr. UNINA9910886079903321

Autore	Xia Wenfeng
Titolo	Biomedical Photoacoustics : Technology and Applications / / edited by Wenfeng Xia
Pubbl/distr/stampa	Cham : , : Springer Nature Switzerland : , : Imprint : Springer, , 2024
ISBN	3-031-61411-9
Edizione	[1st ed. 2024.]
Descrizione fisica	1 online resource (608 pages)
Disciplina	571.4
Soggetti	Biophysics Acoustics Materials - Analysis Imaging systems Nuclear medicine Bioanalysis and Bioimaging Imaging Techniques Nuclear Medicine
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Principles of photoacoustic imaging -- Principles and applications of multi-scale photoacoustic microscopy -- Principles and applications of photoacoustic tomography -- Handheld probes for photoacoustic and ultrasound imaging -- Principles and applications of photoacoustic endoscopy -- Wavefront shaping-assisted photoacoustic imaging -- Nanocomposite materials for all-optical photoacoustic and ultrasound imaging -- X-ray induced acoustic imaging -- Multimodal optical and photoacoustic imaging -- Photoacoustic image reconstruction -- Quantitative photoacoustic imaging -- Deep learning enhanced photoacoustic image reconstruction -- Deep learning in quantitative photoacoustic imaging -- Contrast agent for photoacoustic imaging -- Technical validation of photoacoustic imaging systems using phantoms -- Pre-clinical photoacoustic imaging of tumor stroma and liver fibrosis -- Photoacoustic imaging in pre-clinical cancer research -- Photoacoustic spectrum analysis -- Photoacoustic mesoscopy for melanoma microvascualture imaging in vivo -- High-resolution in vivo

	photoacoustic imaging based on a Fabry-Perot scanner -- Photoacoustic neuroimaging -- Intravascular photoacoustic imaging: instrumentation and applications -- Photoacoustic breast imaging -- Photoacoustic imaging of interventional medical devices -- Preclinical and clinical applications of LED-based photoacoustic imaging.
Sommario/riassunto	Photoacoustic imaging (also called optoacoustic imaging) is a hybrid modality based on the generation and detection of ultrasound in response to optical absorption of tissue. It combines advantages from both optical and ultrasound imaging, providing functional, molecular and microstructural information of tissue at scalable spatial resolution and depth. This technology has undergone exponential growth over the last two decades, and it is now widely viewed as one of the most exciting biomedical imaging modalities. This book introduces the technology and applications with chapters written by leading international research groups. It will be of interest to a wide range of audiences, including postgraduate students and researchers in physics and engineering as well as biomedical and clinical sciences. Chapters 8, 16, 17 and 21 are available open access under a Creative Commons Attribution 4.0 International License via link.springer.com.