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Nota di contenuto	Optical coherence tomography in brain gliomas detection and peritumoral white matter state evaluation -- Two Photon Fluorescence Lifetime Imaging of Reduced nicotinamide adenine dinucleotide in Brain Research -- Types of Raman Scattering Techniques for Neurodegenerative Diseases -- Drosophila brain advanced multiphoton imaging -- Myelin imaging -- Brainbow: Principle, Technique and Applications -- Photoacoustic Imaging of Brain -- Photodynamic therapy of brain diseases -- Advanced Magnetic Resonance Imaging (MRI) of Brain -- Indirect imaging -- Multimodal Noninvasive Imaging Strategies for Clinically Monitoring Degenerative Disorders of the Brain -- Machine learning approach in brain imaging -- Transgenic Brain mapping Techniques in Drosophila melanogaster -- Behavioural phenotyping to study cognitive and non-cognitive symptoms in the rodent model of Alzheimer's disease.

Sommario/riassunto

The book reviews the recent developments in brain imaging and their technological advancements to understand molecular mechanisms associated with neurological disorders and basic behaviors in humans and rodents at the structural, molecular, and functional levels. It discusses the usefulness of advanced optical microscopy techniques, including optical coherence tomography (OCT), miniscope, multiphoton fluorescence (2PF & 3PF), adaptive optics, harmonic generation, and Raman microscopy for understanding pathomechanism of brain disorders and pathological and physiological changes associated with neurodegenerative diseases. Also, the book presents conventional imaging modalities, including Magnetic Resonance Imaging (MRI), for delineating underlying mechanisms and precise early diagnosis of neurological disorders. This book is a useful resource for neuroscientists and researchers working in biomedical engineering and optics.