

1. Record Nr.	UNINA9910726272103321
Titolo	Functional Neuroradiology : Principles and Clinical Applications // edited by Scott H. Faro, Feroze B. Mohamed
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2023
ISBN	3-031-10909-0
Edizione	[2nd ed. 2023.]
Descrizione fisica	1 online resource (1501 pages)
Disciplina	780 616.804757
Soggetti	Radiology Neurology Psychiatry Neurosciences Neuroscience
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Part I Diffusion and Perfusion Imaging -- Physical Principles of Diffusion Imaging -- Clinical Applications of Diffusion -- Physical Principles of MR Perfusion and Permeability Imaging: Gadolinium Bolus Technique -- Non-gadolinium Perfusion Technique (Arterial Spin Labeling) -- Clinical Applications of MR Perfusion Imaging -- Stroke: Clinical Application of Perfusion and Diffusion -- Clinical Applications of Dynamic Contrast-Enhanced (DCE) Permeability Imaging -- Part II Magnetic Resonance Spectroscopy -- Magnetic Resonance Spectroscopy: Physical Principles -- Magnetic Resonance Spectroscopy: Clinical Applications -- Part III Multi Modality Functional Neuroradiology -- Functional Imaging-Based Diagnostic Strategy: Intra-axial Brain Masses -- Functional Neuroimaging of Epilepsy -- Functional Neuroradiology of Traumatic Brain Injury -- Functional MRI of Multiple Sclerosis -- Functional Neuroradiology of Psychiatric Diseases.-Neuroimaging of Pain -- Part IV BOLD Functional MRI: Physical Principles -- Principles of BOLD Functional MRI -- fMRI Scanning Methods -- Experimental Design and Data Analysis for fMRI

-- Challenges in fMRI and Its Limitations -- Neurovascular Uncoupling in Functional MR Imaging -- Functional Connectivity MR Imaging -- Clinical Challenges of Functional MRI -- Part V BOLD Functional MRI: Clinical Applications -- fMRI of Language Systems: Methods and Applications -- Functional MRI Studies of Memory in Aging, Mild Cognitive Impairment, and Alzheimer's Disease -- fMRI Wada Test: Prospects for Presurgical Mapping of Language and Memory -- fMRI of Human Visual Pathways -- Brain Mapping for Neurosurgery and Cognitive Neuroscience -- Pediatric Applications of fMRI -- fMRI of the Central Auditory System -- fMRI of Epilepsy -- Applications of fMRI to Psychiatry -- Applications of fMRI to Neurodegenerative Disease -- Applications of MRI to Psychopharmacology -- Functional MRI: Cognitive Neuroscience Applications -- Part VI Diffusion Tensor Imaging -- Diffusion Tensor Magnetic Resonance Imaging: Physical Principles -- Issues in Translating Imaging Technology and Presurgical Diffusion Tensor Imaging -- White Matter: Functional Anatomy of Key Tracts -- Epilepsy: Clinical Applications of Diffusion Tensor Imaging -- DTI and fMRI: Review of Complementary Techniques -- Part VII Beyond Proton Imaging. Magnetoencephalography: Epilepsy and Brain Mapping -- PET-CT/MR Imaging in Head and Neck Cancer: Physiologic Variations, Pitfalls, and Directed Applications -- Simultaneous PET and MR Imaging of the Human Brain -- The Role of Molecular Imaging in Personalized Medicine -- Metabolic Magnetic Resonance Imaging: A Case for Bioscales in Medicine -- Part VIII Functional Spine and CSF Imaging -- Functional MRI of the Spinal Cord: Diffusion-Weighted, Diffusion Tensor Imaging, and Fiber Tractography -- MRI of Hydrocephalus and CSF Velocity Imaging -- Part IX: Neuroanatomical Brain Atlas -- Neuroanatomical Atlas of Key Presurgical and Cognitive Eloquent Cortex Regions -- Normal Anatomic Atlas of Common White Matter Tracts Using DTI -- fMRI Paradigms -- Part X: Major Advancements -- Diffusion kurtosis (DKI) and Neurite Orientation Dispersion and Density Imaging (NODDI): Principles and Emerging clinical applications -- Radiogenomics of Brain Tumors: Principles and clinical emerging clinical applications -- Autism: Review of Functional Neuroradiology research and emerging clinical applications -- Traumatic Brain Injury: Review of Functional Neuroradiology research and emerging clinical applications -- Alzheimer's Dementia: Review of Functional Neuroradiology research and emerging clinical applications -- Chemical Exchange Saturation Transfer MR Imaging (CEST): Principles and emerging clinical applications. -Resting State fMRI: Principles and clinical applications -- Phase Contrast CSF flow of the brain: Principles and clinical applications -- Brain and Spine Tractography: Principles and Clinical applications -- Machine Learning.

## Sommario/riassunto

This new edition fully updates and expands Faro and Mohamed's Functional Neuroradiology, a gold standard, comprehensive introduction to the state-of-the-art functional imaging in neuroradiology, including the physical principles and clinical applications of Diffusion, Perfusion, Permeability, MR spectroscopy, Positron Emission Tomography, BOLD fMRI and Diffusion Tensor Imaging. With chapters written by internationally distinguished neuroradiologists, neurologists, psychiatrists, cognitive neuroscientists, and physicists, Functional Neuroradiology is divided into 12 major sections, including: Diffusion and Perfusion Imaging, Magnetic Resonance Spectroscopy and Chemical Exchange Saturation Transfer Imaging, Multi-Modality Functional Neuroradiology, BOLD Functional MRI, Diffusion Tensor Imaging, Presurgical Brain Tumor Mapping, Emerging neuroimaging techniques, Functional Spine and Hydrocephalus imaging, and Neuroanatomical Gray and White matter

Brain Atlases. This second edition is fully updated throughout and includes more than 15 new chapters on topics such as: Brain tumor Radiogenomics, CNS Tumor Surveillance and Functional MR Perfusion Imaging, CNS Machine Learning, Focused Ultrasound therapy, TBI Sports Related Injury, and CNS Lymphatic system. By offering readers a complete overview of functional imaging modalities and techniques currently used in patient diagnosis and management, as well as emerging technology, Functional Neuroradiology is a vital information source for physicians and cognitive neuroscientists involved in daily practice and research.

---