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Titolo

In the last thirty years, Magnetic Resonance has generated a wide revolution in biomedical research and in medical imaging in general. More recently, the "in vivo" studies of the human brain were extended by new original ways to the dynamic study of function and metabolism of the human brain. The enormous interest in expanding the investigation of the brain is emphasizing the search for new NMR methods capable of extracting information of so-far obscure aspects of the brain function. In fact, many quantitative approaches have been proposed in order to complement the information obtained by functional MRI, and several multimodal and multiparametric approaches have been developed to exploit the information, either functional or structural, made available by the flexible contrast generation typical of MRI, and to combine it with complementary information. The XII workshop of the International School on <wbr>>Magnetic Resonanceand Brain <wbr>>Function, held in Erice between 17 April and 6 May, 2016, was specially devoted to novel approaches aimed at better structural characterization of brain diseases, and at investigating frontiers MRI approaches to better understand the brain function. The papers included in this eBook offer a broad overview of the subjects covered during the Workshop, including applications of multiparametric MRI to neurological diseases, multimodal combination of MRI with electrophysiology, advanced methods for the investigation of brain networks and of brain

physiology, and perspectives towards brain state reading.