

Cutoff-free travelling wave MR Imaging

The use of travelling waves has been successfully implemented to generate magnetic resonance images (MRI) at 7 T using whole-body systems. With this approach, samples with larger fields of view can be imaged using conventional RF coils and waveguides with different cross-sections. One of the significant limitations is the specific cutoff frequency, determined by the bore which can be higher than most Larmor frequencies commonly in use for MR imaging and spectroscopy today. To overcome this limitation a parallel-plate waveguide was employed because its cut-off frequency is zero for the lowest-order transverse magnetic mode so all frequencies can propagate. In this talk, we will review some of these recent results and discuss some possible further works.

Short CV

Alfredo O. Rodriguez earned his B.Sc. degree in physical engineering from Universidad Autonoma Metropolitana-Atzacapozalco 1990, Mexico, and his Ph.D. degree in physics (magnetic resonance imaging) in 1997 from the University of Nottingham, Britain. There he worked under the supervision of Sir Peter Mansfield, Nobel Laureate in Physiology or Medicine in 2003, in RF coil developing and flow imaging. He joined the Department of Electrical Engineering of the Universidad Autonoma Metropolitana-Iztapalapa, Mexico in 1998. His scientific interests include development and electromagnetic simulation of RF coils for MRI applications, development of functional MR imaging (BOLD studies of pain and malnutrition with animal models), novel application of MRI, and the use of the travelling wave concept to generate images of greater regions of interest at lower magnetic fields.

