ULTRA HIGH FIELD MRI: 7-TESLA

The 7T group in the UMC Utrecht Center for Image Sciences is focused on the development and clinical application of new ultra high field MRI techniques. This multi-disciplinary group of scientists works on mathematical modelling of nuclear spin dynamics, design and building of RF and gradient coils, pulse sequence development as well as clinical evaluation of new MRI technology in patients and volunteers.

RESEARCH FIELD

Imaging is not restricted to high resolution morphology alone. Different functional (perfusion, diffusion, fMRI, electrical-property (imaging) and metabolic (multi-nuclear spectroscopy, CEST) imaging methods are developed and applied in clinical studies as well.

Small vessel disease is one of the main clinical research topics besides many neurological diseases (schizophrenia, ALS, neuro-oncology, epilepsy). Outside the brain the group focuses on several tumor type in the body (breast, prostate, rectal, liver, pancreas), the heart and musculo-skeletal applications.

The research activities are closely related to patient care. For selected patient groups (pituitary gland adenoma’s, brain tumours, epilepsy, brain aneurysms) the 7T platform provides additional information supporting clinical decision making in complex care.