Postdoctoral research position at NeuroSpin/CEA Saclay - France
Ultra-high field MRI physics at 11.7T

Project

A unique 11.7 Tesla whole-body scanner, designed by the Commissariat à l'Energie Atomique (CEA) in Saclay France, delivered its first in vivo images on volunteers recently in 2024 (https://doi.org/10.21203/rs.3.rs-3931535/v1) and shows great promises for human brain exploration. The challenges for optimal exploitation of the scanner are great and span a wide range, e.g. RF field inhomogeneity, static field inhomogeneity, acquisition speed, motion/physiological noise correction to achieve ultra-high resolution images of unprecedented quality. The AROMA project (https://aroma-h2020.com/) is a European funded project which gathers the expertise of CEA, the University of Glasgow, DZNE Bonn, the University of Maastricht, ETH Zurich and Skope MRT to tackle these fundamental problems. In this context, a postdoctoral position of 2-3 years is available to carry out research at CEA in these fields. The tasks incorporate developping novel parallel transmission RF pulse design schemes, gradient-magnet interaction measurements, scanner characterization (field monitoring), benchmarking and in vivo brain imaging scans at 11.7T in coordination with the other partners to leverage the methods developed throughout the project.

Description of the organization

NeuroSpin is a neuroimaging-dedicated laboratory located in the suburb of Paris-France (Saclay). It is part of the Joliot institute of CEA. In addition to the whole-body 11.7 Tesla scanner, the center hosts a 3 and 7 Tesla magnet for human brain studies, as well as 7, 11.7 and 17.2 Tesla magnets for animal studies. The successful candidate will be part of the physics team of NeuroSpin and will work under the responsibility of Dr. Nicolas Boulant, head of the 11.7T project.

Candidate profile

The candidate should have a PhD in physics, medical physics, biomedical or electrical engineering with experience in MRI. Some background and experience in parallel transmission is desired (Matlab, Python, algebra, optimization) but not required. The candidate should have strong problem-solving skills, as well as good written and oral communication skills in English.

Send application (cover letter, CV, list of publications, 2 references) to Dr. Nicolas Boulant (nicolas.boulant@cea.fr) and Dr. Caroline Le Ster (caroline.lester@cea.fr). The position is available until filled. Salary is evaluated based on experience and credentials. The position is for 2 years with a possible 1-year extension.
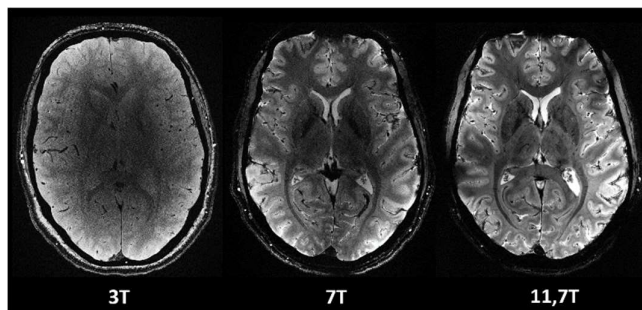
First in vivo brain images acquired at 11.7T versus 3T and 7T with same protocol parameters.