M-CUBE
MetaMaterials-MRI

METAMATERIALS ANTENNA FOR ULTRA-HIGH FIELD MRI

PhD in the field of metamaterial antennas devoted to Magnetic Resonance Imaging

Université catholique de Louvain, Belgium, is a partner of the MCube European project, devoted to Magnetic Resonance Imaging (MRI). In two words, MRI consists of exciting protons in some voxels and then to measure with antennas the energy released by those protons (*). The MCube project proposes to improve the homogeneity of images through the development of metamaterial antennas. Metamaterials are structured materials that have unique properties at some resonant frequencies (**).

For a further description of the project, please visit: http://www.mcube-project.eu/

In this context, the antenna team of UCL is responsible for the development of 3D metamaterials (e.g. based on arrays of wires, with a preliminary prototype already developed at UCL) and for numerical simulations, for which an initial software, based on the method of moments, has been developed at UCL. The antenna group of UCL started its activities in 2002; it now counts 10 researchers and is active in the field of multiple-antenna systems, metamaterials and numerical methods devoted to antenna arrays, with a very wide range of applications, from Space exploration to traffic radar.

The antenna team of UCL is looking for a young researcher ready to work on the above areas. The candidate should have a degree in Electrical Engineering or a Masters in Physics, be ready to engage into a PhD program, have a good background in electromagnetics, good programming skills (Matlab and/or C), and should be fluent in English.

Contact person: Prof. Christophe Craeye: Christophe.craeye@uclouvain.be

Start date: as soon as possible

(*) https://en.wikipedia.org/wiki/Magnetic_resonance_imaging
(**) https://en.wikipedia.org/wiki/Metamaterial