

BSc/MSc-project

Title: Magnetic Resonance Imaging and Spectroscopy Technology (MRI, MRS)

Description: Magnetic Resonance Imaging and Spectroscopy (MRI/MRS) are challenging techniques, but also safe and extremely flexible. They provide non-invasive and detailed tissue characterization *in vivo*. Magnetic fields of typically 1.5-3 tesla are used for humans, and a 7 tesla human scanner at Hvidovre Hospital is also available as a result of a national collaboration involving DTU, DRCMR and other partners.

There are hundreds of MRI and MRS techniques and more are constantly being developed, refined, validated and employed for clinical or research uses at Danish MRI sites operating at different field strengths. There is a need for additional talented people to get involved, and interested students are encouraged to express interest, so project ideas can be discussed. There are possibilities for projects that are oriented toward physics, electronics, method development, statistics, medical applications, brain function, and more.

Required qualifications:

Different backgrounds are of interest, and projects matching yours can likely be proposed. It is a clear advantage to have had one or preferably more of the courses 31540, 31545 or 31547 (see <http://www.cmr.elektro.dtu.dk/education/courses-and-their-correlation>). MRI can be quite challenging, and most projects are therefore only suited for MSc students.

Responsible institution:

DTU Elektro/Compute and Danish Research Centre for MR, DRCMR,
<http://www.cmr.elektro.dtu.dk> , <http://www.compute.dtu.dk>, <http://drcmr.dk/>

Contact information: Lars Hanson, lgh@elektro.dtu.dk or those mentioned below.

Allowed no of students per report: 1-2

DTU supervisors: Esben T. Petersen, Axel Thielscher, Kristoffer Madsen, Tim Dyrby, Jan Ardenkjær-Larsen or Lars G. Hanson, depending on subject. See web for their interests and mail addresses.