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**What**

Master project

**Where**

Amsterdam UMC location AMC  
Department of Radiology

**About**

Magnetic Resonance  
Elastography in the pancreas

**When**

To be discussed

**Time**

From 3 to 6 months (or longer)

**What is in it for you**

An interdisciplinary project  
where you learn about  
application and/or optimization  
in quantitative MRI methods.

**What is required**

Master student (e.g. biomedical  
technology/engineering or  
physics) with an affiliation with  
MR techniques and preferable  
with experience in MATLAB

Master student project

Titel: Application of Magnetic Resonance Elastography in  
the pancreas

Magnetic Resonance Elastography (MRE) is an MR technique  
that uses an external vibration and an phase-locked MR  
sequence to non-invasively estimate soft tissue visco-elastic  
properties, such as stiffness. There are multiple applications  
to be explored as tissue stiffness can differ between healthy  
and diseased tissue.

At the Amsterdam UMC location AMC the application of  
MRE in the pancreas is currently being explored in patients  
suffering from pancreatic adenocarcinoma. The hypothesis  
is that tissue shear stiffness could be a potential biomarker  
to predict treatment efficacy. The application in the  
pancreas is not evident and therefor optimization is  
necessary. At the moment we are working on optimization  
of data acquisition (e.g. breathing patterns pancreas position  
or influence of patient preparation), post-processing (e.g.  
phase-unwrapping and implementation of artificial neural  
networks) and validation using ex-vivo measurements  
(together with pathology and/or TUE).

This is an interdisciplinary project and involves technical  
optimization and clinical implementation. Therefore, the  
exact content of a master project is flexible and can be  
discussed based on preferences.

With this project we are looking for a master student to do  
their 3 or 6 months research project with us. You are  
interested in quantitative MR methods and have a  
background in biomedical sciences, engineering or physics  
(or similar). For this project MATLAB experience is preferred.

If you are interested please send you motivation letter and  
resume to [a.vanschelt@amsterdamumc.nl](mailto:a.vanschelt@amsterdamumc.nl).