

Post-Doc Position: Vascular 4D Flow MRI Methods in humans at Ultra High Magnetic Field (7T and 10.5T)

The Center for Magnetic Resonance Research (CMRR, www.cmrr.umn.edu), University of Minnesota, is looking for a Post-Doctoral Associate to develop 4D Flow MRI methods on Ultra High Magnetic Field (UHF) Human MR Scanners (7T and 10.5T) equipped with 16-channel RF Transmission technology.

This research is part of an ambitious, multi-departmental effort towards resolving dynamic Blood Velocity patterns and Vessel Wall stress at very high spatial and temporal resolution, aiming at defining new biomarkers. Clinical targets include cerebral aneurysms, cerebral arteriovenous malformations and aorta aneurysms. Several teams bring unique expertise to this research:

- Ultra High Field MR Methods: **Prof. P.F. Van de Moortele**
- Interventional Neuroradiology: **Prof B. Jagadeesan**
- Neurosurgery: **Prof A. Grande**
- Fluid Dynamics: **Prof F. Coletti**

Responsibilities / duties:

Development and optimization of MR methods (MR Sequence, RF Pulse design, Sparse acquisition strategies, Image reconstruction) aiming at exploiting to their full extent Ultra High Field human scanners operating at 7T and 10.5T equipped with multi-channel transmit and receive technology.

Mentoring and Context:

The candidate, whose primary mentor will be Dr. Van de Moortele (MR Physics and Methods), will work in a rich mentoring environment, including Interventional Neuroradiology (Dr. Jagadeesan) and Neurosurgery (Dr. Grande). Dr. Coletti and his team bring expertise in fundamental and applied fluid dynamic physics, building 3D-printed phantom replica of actual vascular lesions to be measured with 4D Flow MRI.

The CMRR, renown as a pioneer center in High Field methods and engineering, hosts 6 human whole body Siemens MR scanners (including two 7T and one 10.5T) and two animal systems (9.4T and 16.4T).

Required Qualifications:

- Ph.D. or equivalent in physics, engineering, computer science or biomedical engineering.
- Training/experience in Signal or Image processing
- Programming skills (e.g. Matlab, C++)

Preferred Qualifications:

- The ideal candidate has a solid background in **Fluid Dynamics (preferably)**, or in **MR Physics**

Candidates are invited to submit their application online with the names of at least two referees:

www1.umn.edu/ohr/employment, posting # 320148

For any question please feel free to contact:

Pierre-Francois Van de Moortele, Associate Professor, CMRR - University of Minnesota
Email: vande094@umn.edu www.cmrr.umn.edu/facultystaff/pfvdm
Front desk: +1-612-626-2001