



Postdoc & PhD positions in ultra-high field (7 Tesla) MRI

Recently the German Science Foundation (DFG) has approved funding for our research unit “Fast Mapping of Quantitative MR biosignatures at Ultra-high Magnetic Field”. In this collaborative project, we aim to establish “MR biosignature imaging”, which will combine chemical exchange saturation transfer (CEST), X-nuclei MRI, and microstructural imaging with fast acquisition



techniques and methods from data sciences. We expect that the MR biosignature imaging will reveal early signs of neuro-degeneration, tissue degeneration in chronic diseases, and provide insight into cancer risk factors. We are convinced that such an MR biosignature scan would provide a more comprehensive insight into disease processes than the sum of the individual contrasts. To achieve these goals, we will unify the efforts of MRI physicists, engineers, data scientists as well as clinicians.

The research unit will build on a strong research environment and infrastructure in Erlangen. Outstanding research groups in the field of data science, machine learning, and electrical engineering will contribute by working closely with the researchers of the University Hospital Erlangen (UKER), i.e. with three recently established research groups focusing on novel MR contrasts and UHF MRI, and with collaborating clinical researchers. A dedicated clinical 7T system will be used, offering unique possibilities for combining cutting-edge technological and clinical research.

In the following areas we will have open positions:

- **PhD position;** topic: X-nuclei (^{23}Na & ^{39}K) imaging
- **PhD position;** topic: Diffusion MRI & QSM
- **PostDoc position;** topic: CEST MRI
- **4 years PostDoc position;** topic: Parallel transmission (pTx) pulse design

You will benefit from: close interactions between the involved researchers (Sebastian Bickelhaupt, Katharina Breininger, Lena Gast, Florian Knoll, Frederik Laun, Andreas Maier, Armin Nagel, and Moritz Zaiss) and with our clinical partners (Arnd Dörfler, Jürgen Winkler, Anke Dahlmann, and Sabine Ohlmeyer). We are looking for candidates with degrees in physics, computer science, mathematics, engineering, or similar topics.

If you are interested, do not hesitate to send an email to:

Prof. Armin Nagel (armin.nagel@uk-erlangen.de)