

## Invitation to the INM-4: Medical Imaging Physics 23. January 2019

The INM-4 is happy to invite physics students of TU Dortmund to visit the institute's MRI, PET and MEG facilities.

### Program:

#### Lectures and Talks

10:30	Welcome to the INM
10:45	Introduction to MRI
11:30	Magnetoencephalography
12:00	<i>lunch break</i>
13:00	Introduction to PET
13:30	Neuroanatomy
14:00	<i>break</i>

#### Practical Sessions

*Visitors will be able to experience modern imaging technology hands on at our 3T, 7T and 9.4T MRI scanners.*

14:15	Practical Session I: MRI contrasts and beyond
16:15	<i>break</i>
16:30	Practical Session II: MRI hardware workshop and PET guided tour
17:30	<i>end</i>

Please register no later than **14. January 2019** via [w.worthoff@fz-juelich.de](mailto:w.worthoff@fz-juelich.de) (Subject: 'Excursion TU Dortmund 2019'). Please provide full name, address, nationality, date and place of birth. A valid ID (passport or national ID card) is required to enter Forschungszentrum. Maximum number of participants: 20, first come, first served.

## **Forschungszentrum Jülich and the Institute of Neuroscience and Medicine - Medical Imaging Group**

Forschungszentrum Jülich is one of the founding members of the Helmholtz Association and one of the largest research centres in Europe, employing a staff of 5,300. The campus houses nine research institutes with 53 sub-institutes working in the areas of energy and climate research, bio- and geosciences, medicine and neuroscience, complex systems, simulation science, and nanotechnology. In 2007, Forschungszentrum Jülich and RWTH Aachen University founded the Jülich Aachen Research Alliance (JARA) as part of the German Excellence Initiative, and the Institute of Neuroscience and Medicine (INM) is part of JARA-BRAIN (investigating psychological and neurological diseases). INM comprises approximately 380 scientific and technical staff and is divided into nine sub-institutes that conduct research into key technologies to “Decode the Human Brain” (Helmholtz Research Programme 2015-2019, 3rd funding period).

The activities of the Applicant’s Institute – Medical Imaging Physics, INM-4 (approx. 80 scientific and technical staff) – focus on the development, experimental validation and the clinical implementation of novel brain imaging methods (MRI, PET, fMRI, MR-PET, MEG). The INM-4 built a world-wide unique platform for translational neurological research based on combined ultra-high-field magnetic resonance imaging and positron emission tomography – TRANSFOR (BMBF, Siemens medical systems, Forschungszentrum Jülich), i.e., a human 9.4T MR-PET hybrid system. Furthermore, the Institute houses a 9.4T animal MR scanner, 3T and 7T MRI systems, a 3T MR-PET scanner, a human PET scanner, as well as an MEG system.

Concerning training and research, the Institute’s activities are embedded in national and international networks and collaborations. Jülich is also very highly regarded by international postdoctoral scientists with Humboldt scholarships (5th place for non-university research institutions) and Marie Skłodowska-Curie fellowship holders. INM-4 is a partner in the EU COST action TD 1007 – Bimodal PET-MRI Molecular Imaging Technologies and Applications for in vivo Monitoring of Disease and Biological Processes. The institute is involved in three Helmholtz Portfolio programs – Drug Research, Technology & Medicine, and Detector Technology and Systems Platforms. Prof. Shah is one of the three coordinators of the Helmholtz Alliance ICEMED – Imaging and Curing Environmental Metabolic Diseases. INM-4 is a leading partner in the EU-FP7-Cooperation TRIMAGE – an optimised trimodality (PET/MR/EEG) imaging tool for schizophrenia. In the framework of JARA, researchers from Aachen University Hospital will soon begin their experiments at our institute as part of the BMBF funded project APIC – Structural and Functional Changes to the Brain Induced by Antipsychotic Medication, and we are currently running a BMBF study together with the University of Düsseldorf entitled “cerebral network dysfunctions in patients with hepatic encephalopathy”. The Helmholtz Association is also a partner in the large-scale pan-European research infrastructure EuroBioImaging.