

1 PHD POSITION

COGNITIVE NEUROSCIENCE & NEUROIMAGING

(3 YEARS)

GIGA - CRC - HUMAN IMAGING
UNIVERSITY OF LIÈGE - BELGIUM

PhD position is available at the GIGA-CRC- Human Imaging of the University of Liège.

Research topic: Brain and Body Temperature dynamics, Alzheimer's Disease, Sleep & Memory Consolidation

Summary

Sleep promotes heat loss through extremities and in line with this, a consistent decrease in brain temperature during non-rapid eye movement (NREM) sleep is observed across all mammals measured so far. In preclinical Alzheimer's Disease (AD), subtle disruptions in the organization of sleep-wake rhythms are observed. Because the mild decrease in temperature during sleep can enhance neuroprotection, a key question is whether sleep protects from AD development through its modulation of temperature.

To understand the potential impact of sleep-dependent temperature modulation in neurodegeneration, a combination of techniques including core body and peripheral temperature measurements, EEG-based sleep-wake staging, cognitive assessment, blood-based biomarkers and magnetic resonance spectroscopy (MRS)-based brain thermometry will be used.

Qualifications and requirements

- Candidates should be self-driven, have excellent communication and organizational skills and be able to work independently as well as part of a team;
- Candidates must have an MSc in any related discipline (engineering, MR Physics, biomedical sciences, cognitive neuroscience, biology, etc.);
- Both experience with MRI imaging and coding skills (e.g. Matlab, R, Python) as well as experience in conducting experiments with humans are a bonus;

GIGA-R – CRC Human Imaging

B30, 8 Allée du VI Août, Quartier Agora, B-4000 Liège, Belgium

Tel +32 4 366 23 16 Fax +32 4 366 29 46

<https://www.gigacrc.uliege.be>

- Mastery of English is a requirement; mastery of French is a bonus.
- The PhD is expected to be completed over a duration of 4 years. In addition to the 3-years fellowship that is currently secured, the selected candidate will be supported by the promoters to apply for a nominal fellowship in the first year of the project.

Work environment

GIGA-CRC Human Imaging is a highly collaborative group of 10 research teams including biologists, psychologists, neurologists, chemists, physicists and engineers, with diverse expertise in sleep, cognition, aging, brain disorders and neuroimaging with the aim to better characterize the structure and function of the human brain, and why this breaks down in disease.

We have access to top of the range equipment: 3T and 7T MRI (Siemens), PET scan (Siemens), electrophysiology labs (High-density EEG, EEG-TMS, EEG-fMRI, sleep unit), radiochemistry lab and cyclotron (IBA), all located within the same building.

Quality of life

- Liège is a vibrant city and well connected to other major cities (Brussels, Cologne, Paris);
- Green & pleasant campus;
- Welcoming community where the focus is on collaboration (rather than competition) between research group

Application

Applicants are invited to apply by 18th of January 2026. Interviews via Teams will take place on 22nd and 23rd of January and successful candidates will be invited for an on-site visit. Please prepare for your application the following documents in one, merged PDF:

- CV (include a short [3-5 sentences] description of your Msc thesis);
- grade list during your BSc and MSc;
- contact information for two referees;
- a 1-page research statement, outlining why temperature in neurodegeneration is in your opinion an exciting research area, and which specific topics deserve further investigation in preclinical AD.

Applications can be sent to marieke.hoekstra@uliege.be. Informal enquiries can be send to marieke.hoekstra@uliege.be and Christina.Schmidt@uliege.be. Candidates shortlisted for the interview via Teams and the on-site visit will be asked to give a research presentation.

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