4 year PhD Position in Neuroimaging

at the Social, Cognitive, and Affective Neuroscience Unit
Faculty of Psychology, University of Vienna, Austria

Project: Cluster of Excellence "Neuronal Circuits in Health and Disease"

Deadline: 30 June 2025
Expected Starting Date: until 31 October 2025
Application via the CoE Open Call https://coe.univie.ac.at/?page_id=55

Job Description

This position offers a unique opportunity to develop expertise in cutting-edge neuroimaging techniques, functional connectivity analyses, and behavioral neuroscience. The ideal candidate should have a strong background and interest in neuroimaging (e.g., fMRI, nipype, nilearn, SPM, DCM) and data science methods (e.g., Python). They should also be enthusiastic about methods development (e.g., MRS, functional connectivity) and committed to making these methods accessible to interdisciplinary researchers within the SCAN-Unit and the CoE Neuronal Circuits in Health and Disease.

Our Offer

- Fully funded PhD positions for 4 years, full-time (30hrs/week), gross salary of 14 × 2,786.10 EUR (B1), approx. net wage 28,900 EUR/year.
- Be part of a stimulating, interdisciplinary scientific community in the SCAN-Unit and the CoE
- Supervision and mentorship from an experienced team working at the forefront of social neuroscience and decision-making research
- Opportunity to conduct research in dynamic, international teams led by world-class scientists within the CoE

- Opportunities for training, conferences, and international collaborations
- A vibrant, supportive academic community committed to open science and scientific impact, and promoting work-life balance and diversity (https://scan-psy.univie.ac.at/research/lab-mission/)

Requirements

- Master's degree or equivalent [1][2] in neuroscience, biology, genetics, physiology, bioinformatics, biochemistry, psychology, and human medicine by employment start (should be no later than 31.10.2025). We highly encourage applications from students with a background in computer science, machine learning, artificial intelligence, physics, or mathematics, who are interested in applying their skills to neurobiology.
- Research experience in relevant scientific areas.

- Fully completed application form submitted before the relevant deadline, including references submitted by referees.
- Full details of two referees with institutional email address, at least one of them should be the Master's project supervisor.
- High level of both spoken and written English (official certificate is not required)

Academic Description of the Project

This PhD position aims at developing methods to advance our understanding of GABAergic neurotransmission in the context of social and affective processes. The goal is to establish robust and reliable methods to investigate the relationship between markers of GABA functions and how they relate to functional brain connectivity and behavior.

GABA is a crucial neuromodulator that plays an important role in brain physiology and pathology; however, its influence on affective and cognitive processes remains poorly understood. One reason for this gap in understanding is the difficulty of accurately measuring GABA concentrations in the human brain. Magnetic resonance spectroscopy (MRS), when combined with neuroimaging and behavioral experiments, offers a promising method for non-invasive, in vivo measurements. Nevertheless, applying GABA MRS methods is particularly challenging in key brain regions, such as the amygdala and its connected areas, due to their ventral location within the brain.

In collaboration with an experienced, more senior PhD student, a senior MRI scientist (Dr. Ronald Sladky), and consulting from cluster collaborators the candidate will focus on developing and applying advanced MRS methods to measure GABA concentrations in the amygdala and connected brain regions. This work involves optimizing acquisition protocols, conducting pilot studies, and applying these methods to a sample of healthy participants. The candidate will implement functional connectivity methods, particularly addressing the emerging topics of functional connectivity fingerprints and gradients, which will be related to GABA gene expression maps using public datasets. With our two-pronged approach, we can pave the way to fundamentally improved, non-invasive in vivo GABA quantification methodologies.

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[1] Applicants with non-European Master's degrees will be asked to provide GPA scores.

[2] Applicants with a degree equivalent to Master's degree can only apply if: (a) They hold a 4 years Bachelor (BA or BSc) with First Class Honours and 240 ECTS in a Life Sciences related subject. (b) Provide the degree certificate and academic transcripts at the time of application submission. (c) They possess extensive research experience.

About the CoE

The CoE brings together leading Austrian neuroscientists to explore the diversity and functional specializations of GABAergic cells, a key neuronal lineage critical to nervous system function and essential across all brain networks. Impairments in their function are linked to disorders like schizophrenia, autism, and epilepsy. With its focus on GABAergic cells, the CoE aims to integrate a range of cutting-edge concepts, methodologies, and tools from basic and clinical neurobiology to understand fundamental brain functions and the processes by which they become susceptible to diseases.

Successful candidates will become members of the Excellent Brains PhD Program of the CoE. The training will be distributed over the five participating institutions, offering a comprehensive and collaborative learning experience. It will include joint seminars, workshops, journal clubs, methodological courses and special courses focused on GABAergic cells. Additionally, students will have the opportunity to participate in up to three lab rotations in different institutions of the CoE, gaining hands-on experience in cutting-edge research and fostering interdisciplinary collaborations. Each student will be supervised by two experienced and internationally renowned supervisor and a mentor. The training will also provide a career development program along with workshops focused on soft skills development.

The successful candidate will join the Social Cognitive and Affective Neuroscience Unit (https://scan-psy.univie.ac.at/) and work under close supervision and mentoring by PI Prof. Claus Lamm and Dr. Ronald Sladky.

Applications and Inquiries

For more information about the application process or the research of the SCAN-Unit, please

contact us by email at ronald.sladky@univie.ac.at or apply directly to the open call via

the Excellent Brains website: https://coe.univie.ac.at/?page_id=55