



## PhD-Student Position

### Method Development in the field of 3D MR Spectroscopic Imaging

**Location:** [Support Center for Advanced Neuroimaging](#), Institute for Diagnostic and Interventional Neuroradiology, [University Hospital and Inselspital Bern](#), Bern, Switzerland

**Start date:** between April and September 2019

**Duration:** 48 Months

**Gross salary:** (pre-employer/employee and income tax): 47'040–50'040 CHF/year

**Project description:** This position is available in the frame work of the Swiss National Science Foundation funded project entitled “*Introduction of High Field Optimized Fast 3D MR Spectroscopic Imaging for IDH Typing of Gliomas and Assisted Surgical Neuro Navigation*”. The general aims of the study are to investigate the application of MR-spectroscopy in the initial diagnosis (lesion typing), and therapy monitoring of brain tumors (gliomas). The study will compare available pulse sequences for high resolution MRSI (EPSI) with a novel MRSI pulse sequence with optimized k-space sampling strategy, combined with spectral editing for optimal detection of 2-hydroxy-glutarate.

**Research environment:** This project is hosted by University Hospital Bern, Switzerland and the successful candidate will work in the Support Center for Advanced Neuroimaging (SCAN) which is part of the Institute for Diagnostic and Interventional Neuroradiology that operates two 1.5 Tesla scanners, three 3 Tesla scanners and, from the second quarter of 2019 onwards, have access to a 7 Tesla scanner. The University Hospital Bern belongs to the Insel Gruppe AG, and with a total of 8300 employees, is the biggest hospital group in Switzerland.

**Your profile:** You should have a master's degree in (applied) physics, biomedical or electrical engineering, or a similar degree with an equivalent academic level. You should have proven experience in developing numerical algorithms and/or applications in JAVA or C++, favourably applied to processing of biomedical data. Experience in the field of *MRI/MRS-technology* and/or *MR-pulse sequence development* would be an advantage, but is not a required. Interest in applied research in the field of biomedical methodology should motivate your application.

**Your responsibilities:** Your responsibilities will further development and phantom testing of the pulse EPSI pulse sequences on a 3T and a 7T scanner. Further development of (parallelized) post processing and quantification algorithms (in collaboration with another PhD student), and development of software to produce Dicom-typed image stacks of metabolic information on which neurosurgeons can navigate during their interventions.

**Eligibility:** The successful applicant should have at the time of recruitment have an MSc degree, and not already have been awarded a doctoral degree.

**How to apply:** Please send your CV and motivation letter to Johannes Slotboom (PhD) preferably by e-mail to [johannes.slotboom@insel.ch](mailto:johannes.slotboom@insel.ch), or by surface mail to University Hospital Bern / Inselspital, Institute for Diagnostic and Interventional Neuroradiology (DIN/SCAN), Freiburgstrasse 10, CH-3010 Bern, Switzerland.