Translational Imaging Center, Bern:

Currently Available Methods and Ongoing Projects

Lecture series with speakers from Bern organized by the Translational Imaging Center @ sitem-insel in Bern on current methods and applications at our center

Towards robust quantitative magnetic resonance imaging of the abdomen

Dr. Joseph Woods

Department of Diagnostic, Interventional and Pediatric Radiology,
Quantitative MR Imaging Science Lab

Wednesday, 02 July 2025, 16:00

In this talk, I will present my work on enhancing the robustness of arterial spin labeling (ASL) for cerebral perfusion imaging and introduce my current efforts in developing an open-source, phase-cycled balanced steady-state free precession (bSSFP) sequence for quantitative liver relaxometry. My research in ASL has focused on the challenges of low signal-to-noise ratio and quantification inaccuracies caused by variable arterial transit times (ATTs) in the brain. I will discuss three main solutions to these issues: Protocol timing optimization to reduce sensitivity to ATT variability while improving measurement precision. The integration of velocity- and spatially-selective ASL in a single acquisition to ensure robust perfusion measurements, even in cases of severely delayed blood flow. Utilization of ultra-high field (7T) MRI to boost signal and spatial resolution. Currently, I am developing a flexible bSSFP sequence using pypulseq, an open-source, vendor-neutral pulse sequence development framework, enabling me to rapidly implement different readout trajectories and sequence designs. I will share my experience of this development process and present recent results from multi-echo, phase-cycled bSSFP acquisitions using various readout strategies.

The lecture will broadcast via zoom
@https://unibe-ch.zoom.us/j/61954796127?pwd=b25nSWVIVi9PWlV4Vlp3NXpMdjRQdz09

and **do spread the word** to anybody potentially interested *(for further info: bernd.jung@insel.ch).*