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Tuesday, July 11, 2023, 12:00 hrs  
Seminar Room C402

## Guest Lecture

Dr Robert Barry

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# Realizing sub-second and sub-millimeter spinal cord fMRI at 7 Tesla

Magnetic resonance imaging of the human spinal cord at 7 Tesla offers new opportunities to visualize structures with high spatial resolution and enhanced conspicuity, and to detect functional networks with greater sensitivity. Sub-millimeter in-plane fMRI acquisitions are desirable and achievable, but published studies have had modest temporal resolution (>2 sec). Using a custom-built 7T pTx spine coil, we demonstrate sub-second and sub-millimeter cervical cord fMRI for the first time. Employing a 3D multi-shot sequence with appropriate phase corrections and NORDIC denoising, our data demonstrate temporal signal-to-noise ratios comparable to those of supra-second protocols, and we replicate bilateral functional connectivity patterns previously published in the cord. Realizing sub-second and sub-millimeter spinal cord fMRI opens new avenues of discovery that echo what has been reported through high spatiotemporal resolution brain fMRI.

**This talk will be given in a joint guest lecture session with Dr Daniel Papp.**