“An ultra-high field fMRI exploration of the human auditory cortex”

The layers of the neocortex each have a unique anatomical connectivity and functional role. Their exploration in the human brain, however, has been severely restricted by the limited spatial resolution of non-invasive measurement techniques. We exploited the sensitivity and specificity of ultra-high field fMRI at 7 Tesla to investigate responses to natural sounds at deep, middle and superficial cortical depths of the human auditory cortex. We compared the performance of a T2*w (GE-EPI) to a T2w (3D GRASE) fMRI dataset, and observed that while encoding and decoding analyses profited from the coverage and sensitivity of GE-EPI, the 3D GRASE dataset achieved higher specificity in topographic maps. We next examined sound processing throughout the depth of primary (PAC) and non-primary auditory cortex, and results suggest that a relevant transformation in sound processing takes place between middle and superficial PAC possibly serving as a first computational step towards sound abstraction.

Date: Monday, September 25, 2017

Time: 11:00 am

Location: Fisher Room,
Robarts Research Institute

If you require information in an alternate format or if any other arrangements can make this event accessible to you, please contact Denise Soanes at dsoanes4@uwo.ca