

**Thursday 10th November 4pm – Maynooth University Psychology Department**

**Prof. Riikka Mottonen (Dept of Experimental Psychology, Oxford)**

The role of the motor system in speech perception



Riikka Mottonen is Associate Professor and MRC Career Development Fellow at the Dept of Experimental Psychology, Oxford. She is head of the Communication and Cognition Research Group. Research in the group has investigated speech communication as well as sign language. Riikka and her group are particularly interested in the multisensory and sensory-motor mechanisms underlying communication through speech.

Research in the group employs both imaging (MRI, EEG, MEG) and stimulation (TMS, tDCS) techniques. <https://www.psy.ox.ac.uk/research/riikka-mottonen>

**Abstract:**

The link between speech perception and production is still poorly understood. Growing evidence shows that regions in the motor cortex that control the movements of the articulators (e.g., lips) activate during listening to speech. Whether these motor regions contribute to speech perception is under active debate. Transcranial magnetic stimulation (TMS) provides a powerful tool to investigate the role of the articulatory motor cortex in speech perception. In this talk, I will first present evidence that TMS-induced disruption of the lip motor representation impairs discrimination of speech sounds that differ in the place of articulation, supporting the idea that the articulatory motor cortex contributes to speech perception. I will then present evidence that the TMS-induced disruption of the lip motor representation modulates early auditory-cortex responses to speech sounds measured using electro- and magnetoencephalography. I will argue that these findings show that the auditory and motor cortex interact during speech processing. I will also discuss the effect of attention on these auditory-motor interactions and the role of the motor system in speech comprehension in adverse conditions.