**Category**  
Hearing and Language

**Project title**  
How does tACS enhance speech perception?

**Associated Researcher(s)**  
Bob Carlyon, Camilla Nord, Matt Davis

**Project details**  
Brain stimulation using transcranial Alternating Current Stimulation (tACS) synchronised with sounds has been shown to modulate the perception of speech (1). However, the neural and perceptual mechanisms by which tACS changes speech perception remain undetermined. Degraded speech becomes more intelligible when signals are clearer, or when prior predictions are more accurate. These two factors have dissociable effects on neural activity (2,3). Experiments combining tACS with concurrent brain imaging and behavioural measures can determine which tACS-induced changes to brain activity directly cause changes in speech perception. By targeting more specific neural and perceptual processes we can help listeners that struggle to understand speech due to hearing or language impairments.

**References and URL(s)**

**Reference**  
(1) https://doi.org/10.1162/jocn_a_01490  
(2) https://doi.org/10.1073/pnas.1523266113  
(3) https://doi.org/10.1371/journal.pbio.1002577

**User ID**  
Fionnuala Murphy