

## **Cross-linguistic Perception of Voiceless Fricatives**

### **- A Magnetoencephalography-study**

This study investigates whether an effect of linguistic experience can be seen in the reactions of the human auditory cortex. The responses of the auditory cortex to contrasts between voiceless fricatives have been recorded using magnetoencephalography. Three different sound contrasts were tested on a group of 14 Polish and a group of 14 German subjects. The contrasts are of different phonological status for the two groups in order to assess a possible influence of the native phonological system on the behavior of the auditory cortex: A phoneme-contrast that is part of Polish and German inventory, a Polish phoneme-contrast that is difficult to identify for German listeners, and a German allophone-contrast.

Using MEG, the response of neurons to auditory events can be recorded with precise temporal resolution. It is possible to track automatic and preconscious processing of percepts and the results of several studies suggest that the native language exerts influence even at this level of neural processing.

This study employs the oddball-paradigm: Standard stimuli are repetitively presented while deviant stimuli are interspersed at infrequent times. The repeating standard stimuli creates a sensory representation and when a deviant is presented, the mismatch between this sensory percept and the new stimulus causes the neurons to fire more strongly. The more clearly a mismatch is perceived, the stronger the neural response will be.

This talk will report insights into recording and analyzing MEG-data and will present and discuss preliminary results that have been obtained so far.