ACOUSTICS2008/1824 MEG Recordings of Amplitude-modulated Noise and Tonal Stimuli in Healthy Adult Listeners

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Amplitude modulation (AM) provides very important auditory information for the perception of complex sounds by normal listeners as well as cochlear implant users. The present study used a 122-channel wholehead magnetoencephalography (MEG) system to record auditory responses to amplitude-modulated pure tones and broadband noises in six healthy male adult subjects. The stimuli were presented in blocks of twenty with a brief silence in between, and the AM rates for both types of stimuli were at 20, 40, and 80 Hz. At least 80 artifact-free trials were collected for each stimulus. As expected, the MEG data showed a significant bilateral effect of AM rate in the N1m component. There was also strong evidence that the neural representations of both the unmodulated pure tone and noise stimuli in the auditory regions of both hemispheres could be significantly affected by the global context of block design stimulus presentation.