
10:15 - 10:30

Using Level-Dependent Latencies to Identify Dominant SFOAE Sources

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It is thought that stimulus frequency otoacoustic emissions (SFOAE) are generated at low levels by linear-coherent reflections from spatially-varying irregularities (place-fixed sources). At higher levels, SFOAEs are dominated either by: A) nonlinear distortion for which latency should be short (wave-fixed sources), or B) place-fixed sources for which latency should be longer, but reduced in comparison to responses at lower levels. The latter could be attributed to a basal shift and/or broadening of the traveling wave. The current study used phase gradient slopes to estimate latency. SFOAEs were elicited in normal-hearing adults from 0.5-4 kHz, with a primary frequency ratio (suppressor to probe) of 1.02-1.03 at 65 frequency steps per octave. Probe levels (Lp) were 40, 50, 60, 65, and 70 dB SPL in different conditions, and suppressor levels were 15 dB above Lp. At low levels, phase gradient slopes were steep, consistent with long delays and place-fixed sources. As Lp increased, latencies were slightly reduced, consistent with a basal shift of the traveling wave. Although latencies were not short enough to indicate nonlinear distortion as the dominant component at high levels, it cannot be completely ruled out as contributing to the response.

10:30 - 10:45

Standardization of Spatial and Speech Audiometry Using Phonemic Contrasts

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Understanding one talker in the presence of concurrent speech poses difficulty for many people. This "cocktail-party effect" phenomenon was examined by analyzing the effects of energetic and informational masking. This study examined the effects of energetic and informational masking when two words, spoken by the same person are heard simultaneously. The Modified Rhyme Test (MRT) was used for both target words and masker words. Ten normal hearing subjects, 5 female and 5 male, were instructed to identify target words in diotic and spatial presentations of two-talker and three-talker tasks. The distribution of errors was analyzed by place and manner of articulation. Analysis of incorrect responses showed that listeners indicated that they heard middle place-of-articulation phonemes more than front or back phonemes, independent of the actual spoken phonemes of the talker and masker. Intelligibility predictions from the articulation index, used as a model for energetic masking, produced levels below actual listener performance. Speech maskers affected the distribution of manner-of-articulation errors differently than noise (energetic) maskers. Long duration consonants and fricatives were more salient cues for intelligibility than voicing or stop cues.

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