

Keynote 1: Tuesday, December 8, 1:30-2:30pm

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**Acoustic sensitivity of the vocal tract as
a guide to understanding articulation**

Understanding the relation of speech articulation and the acoustic characteristics of speech has been goal of research in phonetics and speech science for many years. One method of studying this relation is with acoustic sensitivity functions that, when calculated for a specific vocal tract configuration, can be used to predict the direction in which the resonance frequencies (formants) will shift in response to a perturbation of the vocal tract shape. Projected onto the anatomical configuration of the articulators, the sensitivity functions provide a means of generating hypotheses concerning why articulatory movements are executed in both canonical and idiosyncratic patterns. This talk will summarize some recent efforts to investigate the relation of articulation and acoustics by means of sensitivity functions, vocal tract modeling, simulation of speech, and kinematic analysis based on articulography. [Supported by NIH R01-DC011275 and NSF BCS-1145011].