

Abstract Submitted  
for the DFD08 Meeting of  
The American Physical Society

**Aeroacoustic source spectrum for fricative consonant speech sounds**<sup>1</sup> DANIEL LEONARD, MICHAEL KRANE, Penn State University — The aeroacoustic source spectrum is experimentally determined for flow within an open-ended duct. The source region comprises a jet, formed at a constriction within the duct, which then interacts with an obstacle placed further downstream. The physical model dimensions are commensurate with a life-size vocal tract to enable study of the physics of human speech sound production. Two methods are used to estimate the aeroacoustic source spectrum. The first estimate results from inverse-filtering radiated sound measured outside the duct. The transfer function between the source and microphone locations is constructed from two-microphone-method measurements of the acoustic field inside the duct. The second estimate uses measurements of the jet flow near the obstacle as input to aeroacoustic theory. Comparison of the two estimates is presented.

<sup>1</sup>Acknowledge support from NIH, PSU ARL E&F program.

Michael Krane  
Penn State University

Date submitted: 02 Aug 2008

Electronic form version 1.4