

Abstract Submitted  
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**Voice energy budget estimation based on high-fidelity aeroelastic-aeroacoustic simulations**<sup>1</sup> LUCY ZHANG, FEIMI YU, Rensselaer Polytechnic Institute, MICHAEL KRANE, ARL, Pennsylvania State University, GLOTTAL JET AERODYNAMICS COLLABORATION — In this talk, an accounting of phonation energy budget is estimated using high-fidelity aeroelastic-aeroacoustic simulations. The aeroelastic-aeroacoustic simulations are performed with the immersed finite element method formulation with proper capturing of aeroacoustics and control of computational domain boundaries using the perfectly matched layers. Vocal folds mimic the multilayer elliptical rubber model in a physical experiment. Flow work terms are computed from the control volume analysis and are decomposed to identify power transfer mechanisms, which are categorized into input, output, and loss terms. Finally, laryngeal acoustic efficiency is computed based on these terms.

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