

Abstract Submitted
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Dynamic and energetic relevance of glottal jet asymmetry¹ JUBIAO YANG, Rensselaer Polytechnic Institute, MICHAEL KRANE, Pennsylvania State University, LUCY ZHANG, Rensselaer Polytechnic Institute — Numerical simulation of phonation is performed using the fully-coupled Immersed Finite Element Method (IFEM), for both half-space and full-space domains. The full and half-space domains are identical, except that symmetric flow and structure motion is enforced in the half-space domain simulations. We evaluate and examine various terms in the momentum and energy equations to assess the dynamic relevance of glottal jet symmetry, as well as energy utilization in phonation. Specifically, control volume analyses based on simulation results are used to estimate glottal resistance and aeroacoustic source strengths, the level and character of radiated sound, and the various types of work done by laryngeal flow.

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