

Abstract Submitted
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Investigating Cavitation Inception in a Flow Over an Open Cavity Using Large-Eddy Simulation¹ EHSAN SHAMS, SOURABH V. APTE, Oregon State University — A large-eddy simulation of flow over an open cavity corresponding to the experimental setup of Liu and Katz (Phy. Fluids, **20**, 2008) has been performed. The flow Reynolds number based on the cavity length and the free stream velocity is 190,500. The single-phase, finite-volume flow solver uses five million grid points with around two million points clustered to resolve the shear layer. The flow statistics, including mean and rms velocity fields and pressure coefficients, are compared with the experimental data to show reasonable agreements. Cavitation inception is predicted using a discrete bubble and a transport equation model. The cavitation inception occurs near the trailing edge similar to that observed in the experiments. Details of the simulation and the predictive capability of the models will be discussed in detail.

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