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Numerical Study of Laminar Flow over Acoustic Cavities[1]
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— Fluid flow over an open cavity often emits acoustic waves with certain natural frequencies dependent on the geometry of the cavity and the properties and flow conditions of the fluid. Numerical studies of this kind, Computational Aeroacoustics (CAA), pose a grave challenge to the accuracy and efficiency of numerical methods. This project examines the Space-Time Conservation Element Solution Element (CESE) method developed by Dr. S.C. Chang at NASA GRC and compares numerical results of two-dimensional flow to previous experimental data found in literature. The conclusion the project reached is that the test data agrees well with one of the modes of the predicted frequencies, and that further testing is needed to be able to match experimental results.

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