

MATERIALS AND STRUCTURES SYMPOSIUM (C2)
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ACOUSTIC-ELASTIC OF FLIGHT VEHICLE

Abstract

The analysis of response was only considered in fixed field in the prior work using the traditional computational method for the acoustic vibration, and the couple effect between the acoustic field, the structural displacement and flow field often was neglected. It is indicated that coupling between the structure and acoustic field can be significant. In this paper, a new aeroelastic-acoustics is presented. Large eddy simulation (LES) methodologies are used to perform the study of convergence nozzle, characteristic of flow field in Mach number 0.9 conditions is analyzed for code validation. The jet noise was predicted by using Lighthill acoustic theory. The CFD/CSD/CAA coupling is used to simulate rocket cabin, response of structure was also given.