Abstract Submitted
for the DFD07 Meeting of
The American Physical Society

Flowfield and Acoustic radiation from imperfectly expanded supersonic jets: Computational Studies[1] JUNHUI LIU, RAVI RAMAMURTI, KAZHIKATHRA KAILASANATH, Naval Research Laboratory, RAINALD LOHNER, George Mason University — This project involves the study of sound generated by supersonic jets like those emanating from the exhausts of high-performance military aircraft. This is a joint experimental/computational project with the University of Cincinnati. The flowfield and near-field noise from both convergent and convergent-divergent nozzles have been simulated. The emphasis is on imperfectly expanded or off-design conditions. The impact of grid resolution, initial and boundary conditions on the computed solutions have been assessed. Comparisons with analytical predictions on shock-cell spacing show very good agreement. Comparison to the experimental observations are underway and will be presented at the meeting.

[1]Sponsored by SERDP.

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Date submitted: 04 Aug 2007 Electronic form version 1.4