Abstract Submitted
for the DFD14 Meeting of
The American Physical Society

Numerical study of high-speed turbulent jets in crossflow PRAHLADH IYER, XIAOCHUAN CHAI, KRISHNAN MAHESH, University of Minnesota — Large-eddy Simulation (LES) is used to study (i) a sonic jet injected into a supersonic crossflow, and (ii) a supersonic jet injected into a subsonic crossflow, whose conditions are based on experiments by Santiago *et al.* (1997) and Beresh *et al.* (2005) respectively. An unstructured, finite volume compressible solver (Park & Mahesh 2007) along with the Dynamic Smagorinsky Model (DSM) (Moin *et al.* 1991) is used in the simulations. Qualitative and quantitative comparison with experiment show good agreement for both flows. Dynamic Mode Decomposition (DMD) of the three-dimensional flow field is performed to identify dominant frequencies and their corresponding flow features.

Prahladh S. Iyer
University of Minnesota

Date submitted: 24 Jul 2014 Electronic form version 1.4