

Abstract Submitted
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**Investigation of the Near-Field Acoustic Properties of Supersonic
Jets with Fluidic Enhanced Chevrons using Large-Eddy Simulations¹**

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Cincinnati — Since it has been found that chevrons reduce noise more effectively
in the underexpanded operating range, but fluidic injection with constant injection
mass flow rate is more effective in the overexpanded range, fluidic enhanced chevrons
(a combination of chevrons and fluidic injection) are investigated numerically based
on a MILES (Monotonically Integrated Large Eddy Simulations) approach. Both
overexpanded and underexpanded jet conditions are tested and results are compared
with experimental data. The mean flow field and the near-field noise spectra are
also compared with those from the case with fluidic injection alone and the case
with chevrons alone. It is found that fluidic enhanced chevrons have a larger impact
in the overexpanded operating range than that in the underexpanded range.

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