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Similarity Spectra Analysis of Jet Noise from a High-Performance Military Aircraft[1] KRISTI EPPS, KENT GEE, Brigham Young University — The noise footprint from high-performance jet aircraft impacts people, from military personnel to communities. However, the noise source mechanisms and radiation properties associated with high-thrust jet engines are not well understood. One method for analyzing these properties is to compare their spectra to models for different jet noise phenomena. This research presents comparisons between measured near-field spectra from a military jet engine with empirical similarity spectra for fine-scale mixing noise, large-scale mixing noise, and broadband shock-associated noise. The similarity spectra analysis yields spatial trends for the different spectral models, helping determine the relative importance of each type of noise radiation as a function of location. This method can be used to gain insights into noise changes for different engine conditions and to compare with other aircraft and jets of other scales and conditions.

[1]ONR, AFRL

Kristi Epps
Brigham Young University

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