

Abstract Submitted
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Investigation of noise production from a turbulent cylinder ZANE NITZKORSKI, KRISHNAN MAHESH, University of Minnesota — We investigate noise production by a cylinder in turbulent flow ($Re=10,000$ and $M=0.2$), using the Ffowcs-Williams and Hawkings acoustic analogy, where the sound sources are computed from a compressible direct numerical simulation. It has been shown that vortices passing through a data surface generate spurious noise if the quadrupole term is neglected. Our implementation of the acoustic analogy, hence, uses porous data surfaces as well as the volume term. We compare our solution to available results, examine the effect of the placement of the data surface on the noise calculation by using multiple surfaces, and the effect of different proposed correction schemes that try to compensate for neglecting the quadrupole noise.

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