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**Generation of sound by the scattering of entropy disturbances**
DANIEL BODONY, University of Illinois at Urbana-Champaign — The interaction of a convecting entropy disturbance, such as generated by a gas turbine combustor, with a solid object is known to generate sound. The sound generation is due to (i) the acceleration of the convected disturbance by the mean flow and (ii) satisfaction of the wall boundary condition on the object. This process, often called indirect combustion noise, is known to be present in modern gas turbine engines but its specific details are not known, including its overall contribution to the acoustic signature of the engine and its influence on the combustor. In this presentation computational and analytical results are presented to examine the sound field created by a localized entropy disturbance convecting in the vicinity of a symmetric thin body. Unsteady calculations of the compressible Euler equations are used to directly compute the radiated sound and are compared to analytical predictions based on rapid distortion theory. RDT is also used to develop the relevant scalings of the radiated sound.

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