

Abstract Submitted
for the DFD07 Meeting of
The American Physical Society

The Aeroacoustics of Turbulent Coanda Wall Jets CAROLINE LUBERT, JASON FOX, James Madison University — Turbulent Coanda wall jets have become increasingly widely used in a variety of industrial applications in recent years, due to the substantial flow deflection that they afford. A related characteristic is the enhanced turbulence levels and entrainment they offer, compared with conventional jet flows. This characteristic is, however, generally accompanied by a significant increase in the noise levels associated with devices employing this effect. As a consequence, the potential offered by Coanda devices is yet to be fully realized. This problem provides the impetus for the research detailed in this poster. To date, some work has been done on developing a mathematical model of the Turbulent Mixing Noise emitted by such a device, assuming that the surface adjoining the turbulent flow was essentially 2-D. This poster extends this fundamental model, through a combination of mathematical modeling and acoustical and optical experiments. The effect of a variety of parameters, including nozzle configuration and jet exit velocity will be discussed, and ways of reducing or attenuating the noise generated by such flow, whilst still maintaining the crucial flow characteristics, will be presented.

Caroline Lubert
James Madison University

Date submitted: 29 Jul 2007

Electronic form version 1.4