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Fluidic-Driven Ducted Heat Ejector DONAVON GERTY, ARI GLEZER, Georgia Institute of Technology — Unsteady, small-scale fluid mechanics and heat transport processes within a high-aspect ratio ducted heat ejector are investigated experimentally. The flow within the ducted ejector is entirely induced by time-periodic shedding of counter-rotating vortices from a planar vibrating reed that spans the entire width of the duct. The induced flow leads to enhanced convection heat transfer from the inner surfaces which is particularly attractive for low-power, densely-packed electronic hardware where heat is removed by direct conduction through the duct walls. The flow characteristics near the tip of the vibrating reed and within the duct are investigated using high-resolution particle image velocimetry (PIV). Of particular interest are the effects of variation in the reed motion and internal channel geometry on the induced small-scale motions and mixing and consequently on global and local heat transfer across the duct boundaries.

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