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Effect of Mach Number and Stagnation Temperature on the Performance of a Pulsed Jet Ejector GREG ACOSTA, ROBERT FREEMAN, ISAAC CHOUTAPALLI, The University of Texas - Rio Grande Valley — An experimental study was carried out to investigate the effect of Mach number and stagnation temperature on the performance characteristics of a pulsed jet ejector. The nozzle exit Mach number was varied from 0.3 to 0.8, and the temperature ratio was varied from 1.04 to 1.77. The thrust measurements on a free pulsed jet showed that the thrust varied marginally with the primary jet Mach number at a given pulsing frequency. The thrust measurements on the pulsed jet ejector showed that the thrust augmentation ratio is a weak function of the primary jet Mach number and is mainly dependent on the ejector area ratio An increase in the temperature ratio for the pulsed jet ejector with the primary jet operating at Mach 0.80, resulted in a decrease in thrust augmentation ratio The global flow field of the free pulsed jet showed that within the subsonic regime, the primary jet Mach number has a minimal effect on the centerline velocity decay and jet spreading for a given Strouhal number The phase averaged flow field showed that the vortex ring circulation varies minimally with the jet Mach number for a given Strouhal number The turbulence field showed that the magnitude of the peak turbulent stresses decreased as the jet Mach number is increased

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