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Gas-Puff Neutral Density Measurements Using PLIF[1] DAVID CHALENSKI, PIERRE GOURDAIN, BRUCE KUSSE, Laboratory of Plasma Studies, Cornell University — New experiments being considered for the 1 MA, 100-250 ns Cornell University COBRA pulser involve gas puff z-pinches. We are presently conducting proof-of-principle tests on diagnostics and hardware for these experiments. One of the requirements for these studies is the measurement of neutral density profiles of the injected gas puffs. For this we are considering a Planar Laser Induced Fluorescence (PLIF) method. PLIF is an ideal diagnostic for these measurements due to its non-invasive nature, good time (4ns) and spatial (100-300 μm) resolution. We present some initial results of PLIF measurements on our supersonic gas puff test stand using acetone as a fluorescent tracer and light from a 266 nm, frequency-quadrupled Nd:YAG as the excitation mechanism.

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