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Dense Plasma Injectors for the HyperV Plasma Jets¹ F DOUGLAS WITHERSPOON, RICHARD BOMGARDNER, ANDREW CASE, SARAH MESSER, SAMUEL BROCKINGTON, HyperV Technologies Corp. — HyperV is developing high velocity dense plasma jets for application to fusion and HEDP. The approach uses symmetric pulsed injection of high density plasma into a coaxial EM accelerator having a cross-section tailored to prevent formation of the blow-by instability. Work to date has focused on injection using ablative plasma sources, such as capillaries and sparkgaps, but injection of pure plasma, such as D and T, or high-Z gases such as Argon, require a different approach. We describe experiments and diagnostic measurements to develop small parallel plate railguns (MiniRailguns) to generate high density plasma pulses for injection into the coax gun. We also present a brief update of latest results from the 112 electrode sparkgap gun and the 64 capillary TwoPi plasma jet merging experiment, both of which have been upgraded with higher energy pulse forming networks to double the mass of ablatively injected plasma.

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