

Abstract Submitted  
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**Arrayed Diagnostic Development on the HyperV Plasma Accelerators** SAMUEL BROCKINGTON, ANDREW CASE, SARAH MESSER, RICHARD BOMGARDNER, F.D. WITHERSPOON, Hyper V Technologies — The sparkgap injected plasma accelerator is one of several coaxial railguns constructed at HyperV to accelerate dense plasmas to high velocities. A circumferential array of 112 high voltage tungsten electrodes ablates polyethylene to form and inject a toroidally shaped plasma into the annular breach at the rear of the accelerator. A pulse forming network then applies several hundred kiloamps to the coaxial electrodes to accelerate the plasma. A 4-chord laser deflectometer and a 32-sensor fast photodiode array are being developed to help resolve the structure, density, and velocity of the accelerated plasma jet for different accelerator parameters. We present details of the diagnostic designs and initial data. Work supported by the U.S. DOE Office of Fusion Energy Sciences.

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