

Abstract Submitted
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The HyperV 8000 μg , 50 km/s Plasma Railgun for PLX SAMUEL BROCKINGTON, ANDREW CASE, SARAH MESSER, LINCHUN WU, F. DOUGLAS WITHERSPOON, HyperV Technologies Corp. — HyperV has developed a gas fed, pulsed, plasma railgun which accelerates 8000 μg of argon to 50 km/s meeting the performance requirements originally specified for the Plasma Liner Experiment (PLX). The present 2.5 cm square-bore plasma railgun forms plasma armatures from high density neutral gas, pre-ionizes it electro-thermally, and accelerates the armature with 30 cm long parallel-plate railgun electrodes driven by a pulse forming network (PFN). A high voltage, high current linear array spark-gap switch and flexible, low-inductance transmission line were designed and constructed to handle the increased current load. We will describe these systems and present initial performance data from high current operation of the plasma rail gun from spectroscopy, interferometry, and imaging systems. Measurements of momentum, pressure, magnetic field, and other optical diagnostics will also be discussed as well as plans for upcoming experimentation to increase performance even further. Work supported by USDOE under DE-FG02-05ER54810 and DE-FG02-08ER85114.

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