Abstract Submitted
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Numerical Studies of High-Z Plasma in the HyperV Plasma Guns[1] LINCHUN WU, SARAH MESSER, F. DOUGLAS WITHERSPOON, HyperV Technologies Corp., DALE WELCH, CARSTEN THOMA, Voss Scientific, LLC, MIKE PHILLIPS, Advanced Energy Systems, I. NICK BOGATU, SERGEI GALKIN, FAR-TECH, Inc, JOE MACFARLANE, IGOR GOLOVKIN, Prism Computational Sciences — Numerical studies of railguns and coaxial guns at HyperV Technologies Corp. include simulations of hypervelocity plasma transport in the gun, plasma expansion out of the nozzle, and two or more jets merging in vacuum. Plasma detachment, merging jets temperature and charge state evolution are examined in these processes. High-Z materials, such as argon and xenon, are used throughout these simulations. The plasma moves with an initial velocity of 0-10 km/s (80-100 km/s for jet merging), the initial number density ranges from 10^{15}cm^{-3} to 10^{18}cm^{-3}, and the merging jets are several centimeters in radius. The LSP code is used to perform the simulations using improved fluid algorithms and equation-of-state models from Voss and atomic data from Prism.

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