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Numerical Modeling of Plasma-Liner Formation and Implosion for PLX-α[1] JASON CASSIBRY, University of Alabama in Huntsville, ROMAN SAMULYAK, Stony Brook University, KEVIN SCHILLO, University of Alabama in Huntsville, WEN SHIH, Stony Brook University, PETER STOLTZ, KRIS BECKWITH, Tech-X Coporation, SAMUEL LANGENDORF, SCOTT HSU, Los Alamos National Laboratory, PLX-α TEAM — Numerical simulations of spherically imploding plasma liners formed by merging hypersonic plasma jets have been performed using the FronTier and smooth particle hydrodynamics (SPH) codes in support of the PLX-α project. The physics includes radiation, Braginskii thermal conductivity and ion viscosity, and tabular EOS (LTE and non-LTE). Solid-angle-averaged and standard deviation of liner ram pressure and Mach number reveal variations in these properties during formation and implosion. Spherical-harmonic mode-number analysis of spherical slices of ram pressure at various radii and times provide a quantitative means to assess the evolution of liner non-uniformity. Simulations of 6 and 7 jets support near-term experiments, and synthetic spectra and line-integrated densities are compared with experimental data.

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