Abstract Submitted
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Simulation of the Radiative Properties of Merging Plasma Jets in the Plasma Liner Experiment[1] JOSEPH MACFARLANE, I. GOLOVKIN, P. WOODRUFF, Prism Computational Sciences, C. THOMA, D. WELCH, Voss Scientific, S.C. HSU, LANL, F.D. WITHERSPOON, HyperV Technologies — In Plasma Liner Experiments (PLX) to be performed at Los Alamos National Laboratory, a set of merging plasma jets will be used as the source of an imploding plasma liner for magneto-inertial fusion studies. To develop a good understanding of the compression and heating of the merging jets, Thoma et al. (this meeting) are performing hybrid particle-in-cell (PIC)-fluid simulations using the LSP code, complementing other efforts using hydrodynamics and two-fluid codes. Prism has been collaborating with Voss Scientific in adding equation-of-state (EOS) and radiation physics algorithms into LSP. In addition, we have updated our SPECT3D Imaging and Spectral Analysis package to post-process LSP output to generate high-resolution spectra and images that can be compared with experimental measurements. Here, we discuss radiation physics simulations relevant to merging plasma jets, including the role of radiation losses for candidate gases. For the plasma conditions expected, we will explore potential spectral and imaging measurements suitable for diagnosing key physical parameters in the experiments.

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