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Simulated Spectral and Imaging Diagnostics for the Plasma Liner Experiment IGOR GOLOVKIN, JOSEPH J. MACFARLANE, PAMELA WOODRUFF, Prism Computational Sciences, Inc., DALE WELCH, CARSTEN THOMA, NICHELLE BRUNER, Voss Scientific, LLC, SCOTT C. HSU, TOM AWE, LANL, F. DOUGLAS WITHERSPOON, HyperV Technologies Corp., JOHN THOMPSON, I. NICK BOGATU, FAR-TECH, Inc. — Imploding plasma liner formation using merging plasma jets will be tested on the Plasma Liner Experiment (PLX) at LANL. Several hydrodynamics and particle-in-cell codes (in particular, LSP) have been used to model the experiments. LSP is a hybrid particle-in-cell (PIC) code widely used to model various plasmas. We present the recent enhancements to a multi-dimensional collisional-radiative spectral analysis code, SPECT3D. It is designed to post-process the results of LSP or hydrodynamics codes and simulate experimentally observable spectra and images. This capability is important for successful planning and analysis of the PLX experiments. We will also discuss the models for computing detailed opacity and equation-of state data used in plasma dynamics simulations. This work is supported by the U.S. Department of Energy.

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