Abstract Submitted
for the GEC17 Meeting of
The American Physical Society

SPECT3D, Imaging and Spectral Analysis Package. IGOR GOLOVKIN, JOSEPH MACFARLANE, VIKTORIYA GOLOVKINA, Prism Computational Sciences — SPECT3D is a collisional-radiative spectral analysis package designed to compute detailed emission, absorption, or x-ray scattering spectra, filtered images, XRD signals, and other synthetic diagnostics. The spectra and images are computed for virtual detectors by post-processing the results of hydrodynamics simulations in 1D, 2D, and 3D geometries. SPECT3D can account for a variety of instrumental response effects so that direct comparisons between simulations and experimental measurements can be made. We will present new features of SPECT3D and highlight their application to the analysis of HEDP experiments. We will discuss a newly implemented capability to simulate scattering signatures from realistic experimental configurations, which include the influence of plasma non-uniformities and collecting scattered x-rays from a range of angles. Other improvements include support for a wider range of hydrodynamics codes and improved lineshape models for spectral lines from neutral atoms.

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Date submitted: 05 Jun 2017 Electronic form version 1.4