

Abstract Submitted
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The PLX- α project: Radiation-MHD Simulations of Imploding Plasma Liners Using USim¹ KRISTIAN BECKWITH, PETER STOLTZ, MADHUSUDHAN KUNDRAPU, Tech-X Corp, SCOTT HSU, Los Alamos National Laboratory, PLX- α TEAM — USim is a tool for modeling high energy density plasmas using multi-fluid models coupled to electromagnetics using fully-implicit iterative solvers, combined with finite volume discretizations on unstructured meshes. Prior work has demonstrated application of USim models and algorithms to simulation of supersonic plasma jets relevant to the Plasma Liner Experiment (PLX) and compared synthetic interferometry to that gathered from the experiment [1]. Here, we give an overview of the models and algorithms included in USim; review results from prior modeling campaigns for the PLX; and describe plans for radiation magnetohydrodynamic (MHD) simulation efforts focusing on integrated plasma-liner implosion and target compression in a fusion-relevant regime using USim for the PLX- α project.

[1] E. C. Merritt, A. L. Moser, S. C. Hsu, J. Loverich, and M. Gilmore; Phys. Rev. Lett. 111, 085003 (2013)

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