Abstract Submitted for the DPP09 Meeting of The American Physical Society

Hydrodynamic Modeling of the Plasma Liner Experiment  $(PLX)^1$ JASON CASSIBRY, University of AL in Huntsville, SCOTT HSU, Los Alamos National Laboratory, DOUG WITHERSPOON, HyperV Technologies, Inc., MARC GILMORE, University of New Mexico, UNIVERSITY OF AL IN HUNTSVILLE TEAM, LOS ALAMOS NATIONAL LABORATORY TEAM, HYPERV TECH-NOLOGIES TEAM, UNIVERSITY OF NEW MEXICO TEAM — Implosions of plasma liners in cylindrically or spherically convergent geometries can produce high pressures and temperatures with a confinement or dwell time of the order of the rarefaction timescale of the liner. The Plasma Liner Experiment (PLX), to be built at LANL, will explore and demonstrate the feasibility of forming imploding plasma liners with the spherical convergence of hypersonic plasma jets. Modeling will be performed using SPHC and MACH2. According to preliminary 3D SPHC results, high Z plasma liners imploding on vacuum with  $\sim 1.5 \text{MJ}$  of initial stored energy will reach  $\sim 100$  kbar, which is a main objective of the experimental program. Among the objectives of the theoretical PLX effort are to assist in the diagnostic analysis of the PLX, identify possible deleterious effects due to instabilities or asymmetries, identify departures from ideal behavior due to thermal and radiative transport, and help determine scaling laws for possible follow-on applications of  $\sim 1$  Mbar HEDP plasmas and magneto-inertial fusion. An overview of the plan to accomplish these objectives will be presented, and preliminary results will be summarized.

<sup>1</sup>This work is supported by the OFES-NNSA HEDLP Joint Program.

Jason Cassibry University of AL in Huntsville

Date submitted: 16 Jul 2009

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