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Effects of real viscosity on plasma liner formation and implosion from supersonic plasma jets KEVIN SCHILLO, JASON CASSIBRY, Univ of Alabama - Huntsville, SCOTT HSU, Los Alamos National Laboratory, PLX-ALPHA TEAM — The PLX-α project endeavors to study plasma liner formation and implosion by merging of a spherical array of plasma jets as a candidate standoff driver for magneto-inertial fusion (MIF). Smoothed particle hydrodynamics (SPH) is being used to model the liner formation and implosion processes. SPH is a meshless Lagrangian method to simulate fluid flows by dividing a fluid into a set of particles and using a summation interpolant function to calculate the properties and gradients for each of these particles. The SPH code was used to simulate test cases in which the number of plasma guns and initial conditions for the plasma were varied. Linear stabilizations were observed, but the possibility exists that this stabilization was due to the implementation of artificial viscosity in the code. A real viscosity model was added to our SPHC model using the Braginskii ion viscosity. Preliminary results for test cases that incorporate real viscosity are presented.

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