

Abstract Submitted  
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**Plasma jets interaction and merging simulation<sup>1</sup>** SERGEI A. GALKIN, I.N. BOGATU, J.S. KIM, FAR-TECH Inc. — The 3D particle LSP code is used for comprehensive analysis of plasma jets interaction dynamics. Merging of plasma jets and neutral gas jets are studied and compared for a wide range of parameters (density  $10^{12} - 10^{18} \text{cm}^{-3}$ , temperature 1-10 eV, jet velocity 10-1000 km/s, collision angle  $30^\circ - 120^\circ$ ). Different merging regimes of plasma jets were found. Collision angle and density of jets are crucial parameters for plasma jets interaction. Well focused merged plasma jets are observed for relatively low densities and velocities of jets. High turbulent plasma flows are observed for higher densities. Higher jet velocity leads to asymmetrical twisting flow. Neutral gas jets merging simulations show different behavior as against plasma jets. Neutral gas jets tends to scatter easily as they merge and even show a stronger scattering with a higher jet density. Effects of compressibility, viscosity, asymmetry in merging jets are being considered. The plasma liner formation and dynamics, including instabilities, are studied. The required parameters to form a plasma liner, and the spatial and temporal precision required for a liner implosion on target plasmas are investigated.

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Sergei Galkin  
FAR-TECH Inc.

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