

Abstract Submitted  
for the DPP16 Meeting of  
The American Physical Society

**Analysis of the effects of atomic mass, jet velocity, and radiative cooling on the dimensionless parameters of counter-propagating, weakly collisional plasma flows**<sup>1</sup> GILBERT COLLINS, JULIO VALENZUELA, FARHAT BEG, University of California, San Diego — We have studied the collision of counter-propagating plasma flows using opposing conical wire arrays driven by the 200kA, 150ns rise-time 'GenASIS' driver. These plasma flows produced weakly collisional, well-defined bow-shock structures\*. Varying initial parameters such as the opening angle of the array and the atomic mass of the wires allowed us to modify quantities such as the density contrast between jets, intra-jet mean free path ( $\lambda_{\text{mfp}}$ , scales with  $v$ , atomic mass  $A$ , and ionization state  $Z_i^{-4}$ ), Reynolds number ( $Re$ , scales with  $AZ$ ), and the Peclet number ( $Pe$ , scales with  $Z$ ). We calculate these dimensionless quantities using schlieren imagery, interferometry, and emission data, and determine whether they meet the scaling criteria necessary for the comparison to and subsequent study of astrophysical plasmas. \*J.C. Valenzuela-Ahumada *et al.*, *High Energy Density Physics*, (2015).

<sup>1</sup>This work was partially supported by the Department of Energy grant number DE-SC0014493

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Date submitted: 14 Jul 2016

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