

Abstract Submitted  
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**Diagnostics for the Identification and Characterization of Laboratory Collisionless Shocks**<sup>1</sup> COLIN ADAMS, MARK GILMORE, ALAN LYNN, ELIZABETH MERRITT, University of New Mexico, SCOTT HSU, AUNA MOSER, JOHN DUNN, Los Alamos National Laboratory — A diagnostic suite comprised of a multi-chord interferometer, schlieren imaging system, survey spectrometer, magnetic probe array, electrostatic probe, and a fast camera are utilized to diagnose astrophysically-relevant collisionless shocks formed by the head-on collision of high-Mach-number plasma jets. Plasma jets with densities of order  $10^{13} \text{ cm}^{-3}$  at temperatures of a few eV collide with a relative velocity of about 200 km/s in a free-space region tens of centimeters in size, far from the walls of the vacuum chamber. We present details of the diagnostics under development, discuss the diagnostic plan for characterizing collisionless shock formation and evolution, and show diagnostic results of interactions between the jets on length scales substantially smaller than collisional scales, suggesting the presence of effects beyond classical Coulomb interactions.

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Colin Adams  
University of New Mexico

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