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Temporally Resolved Ion Fluorescence Measurements of the Interaction of a Field-Parallel Laser Produced Plasma and an Ambient Magnetized Plasma R. S. DORST, P. V. HEUER, A. S. BONDARENKO, D. B. SHAFFER, G. CONTANTIN, S. VINCENA, S. TRIPATHI, W. GEKELMAN, M. WEIDL, Univ of California - Los Angeles, D. WINSKE, Los Alamos National Laboratory, C. NIEMANN, Univ of California - Los Angeles — We present measurements of the collisionless coupling between an exploding laser-produced plasma (LPP) and a large, magnetized ambient plasma. The LPP was created by focusing the Raptor laser (400J, 40ns) on a planar plastic target embedded in the ambient Large Plasma Device (LAPD) plasma at the University of California, Los Angeles. The resulting ablated material moved parallel to the background magnetic field, interacting with the ambient plasma along the full 17m length of the LAPD. A high temporal and spectral resolution monochromator measured fluorescence from debris and ambient ions to determine the debris velocity distribution by charge state and study the fast electron precursor to the LPP. Measurements are compared to hybrid simulations of quasi-parallel shocks.

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