

Abstract Submitted
for the DPP06 Meeting of
The American Physical Society

Expansion of a laser created plasma in a cusp magnetic field¹ MAYO VILLAGRÁN-MUNIZ, UNAM, ANDREW COLLETTE, WALTER GEKELMAN, UCLA, HUGO SOBRAL, JULIO HERRERA, UNAM — The use of a magnetic field with a laser-created plume is especially interesting, as the magnetic field can be used to help better control the dynamic properties of these transient and energetic plasmas[1]. Previous experiments were carried out striking a carbon target with a 1.5 J, infrared Nd:YAG laser pulse of 10 ns, immersed in a background magnetized plasma (1 kG) [2]. In this work we created a magnetic cusp starting at the target and follow the plasma dynamics by fast photography with an intensified camera (ICCD) placed orthogonal to the plasma expansion direction. Spectroscopic analysis of the atom and ion emission lines were performed and different velocities distributions were obtained by time of flight (TOF), for different configurations of the magnetic field (straight or cusp) and background plasma parameters. We will present the perturbation caused by the plasma plume into the background magnetized plasma, measured with magnetic probes. [1]. P.B. Parks, Phys. Plasmas **12**, 102510 (2005). [2]. M. VanZeeland and W. Gekelman, Phys. Plasmas **11**, 320 (2004).

¹Work supported by the Basic Plasma Science Facility (BAPSF-UCLA) and UC-MEXUS.

Andrew Collette
UCLA

Date submitted: 21 Jul 2006

Electronic form version 1.4