

Abstract Submitted
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Plasma dynamics of laser produced plasma plumes propagating in an axial magnetic field¹ MARIO FAVRE, Instituto de Fisica, Pontificia Universidad Catolica de Chile, MARCELO RUIZ, Departamento de Fisica, Universidad Tecnica Federico Santa Maria, EDMUND WYNDHAM, FELIPE VELOSO, HEMAN BHUYAN, Instituto de Fisica, Pontificia Universidad Catolica de Chile — We have performed experimental studies of the effect of static axial magnetic fields on the plasma dynamics of laser produced carbon and titanium plasmas. The laser plasmas are produced in vacuum, with a Nd:YAG laser, 3.5 ns, 340 mJ at 1.064 μm , operating at 10 Hz, and propagate in static magnetic fields of maximum value ~ 0.2 T. Laser plasma features are characterized using 50 ns time resolved plasma imaging, time and space resolved visible spectroscopy and Faraday cup measurements. The presence of the magnetic field is found to affect plasma dynamics, plasma emission and plasma ions energy spectrum. Based on these measurements, a detailed analysis of the confinement effects of the magnetic field on the laser plasma will be presented.

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