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Time and space correlated investigations of confinement effects due to static axial magnetic fields acting on laser produced carbon plasmas[1] MARIO FAVRE, EDMUND WYNDHAM, FELIPE VELOSO, HEMAN BHUYAN, SEBASTIAN REYES, Instituto de Física, Pontificia Universidad Católica de Chile, HUGO MARCELO RUIZ, Departamento de Física, Universidad Técnica Federico Santa María, Chile, LUIS SEBASTIAN CABALLERO-BENDIXSEN, Center for Energy Research, University of California-San Diego, U.S.A. — We present further detailed studies of the dynamics and plasma properties of a laser produced Carbon plasma expanding in a static axial magnetic field. The laser plasmas are produced in vacuum, $\sim 1 \cdot 10^{-6}$ Torr, using a graphite target, with a Nd:YAG laser, 3.5 ns, 340 mJ at 1.06 μm, focused at $\sim 2 \cdot 10^{9}$ W/cm^2, and propagate in static magnetic fields of maximum value $\sim$0.2 T. 15 ns time and spaced resolved OES is used to investigate plasma composition. 50 ns time resolved plasma imaging is used to visualize the plasma dynamics. A mm size B-dot probe is used, in combination with a Faraday cup, to characterize the interaction between the expanding plasma and the magnetic field. As a result of time and space correlated measurements, unique features of the laser plasma dynamics in the presence of the magnetic field are identified, which highlight the confinement effects of the static magnetic field

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