

Abstract Submitted
for the DPP16 Meeting of
The American Physical Society

Axial characterization of particle beams emitted by conical wire array Z-pinches¹ GONZALO MUNOZ-CORDOVEZ, FELIPE VELOSO, VICENTE VALENZUELA-VILLASECA, MILENKO VESCOVI, MARIO FAVRE, EDMUND WYNDHAM, Pontificia Universidad Catolica de Chile — The dynamics of the plasma and the emission of particle beams from tungsten conical wire arrays are experimentally studied in the Llampudken generator (400 kA in 300 ns) [1]. Particles are detected axially using biased Faraday cups and silicon substrates located at tens of centimeters above the array at different heights. Several ion pulses with kinetic energy ~ 90 eV preceded by an electron beam are measured using time of flight (ToF), whereas the deposition of tungsten on silicon substrates is observed. In addition, ToF indicates that the emission of the beam occurs during the formation of the precursor (i.e., during the implosion of the array) observed by time-resolved laser probing and XUV imaging. The results might indicate that outflows from conical wire arrays propagate much further away than the observations made after laser and XUV images from conical arrays suggesting densities below the detection limits of these diagnostics. [1] H. Chuaqui, et al. Laser Part. Beams 15, 241-248 (1997)

¹G. Munoz-Cordovez acknowledges financial support from CONICYT grant for doctoral studies.

Gonzalo Munoz-Cordovez
Pontificia Universidad Catolica de Chile

Date submitted: 13 Jul 2016

Electronic form version 1.4