

Abstract Submitted
for the DPP15 Meeting of
The American Physical Society

Characterization of plasma formation and outflow emission from different wire-based z-pinch experiments driven at the 350kA, 1kA/ns Llampudken pulsed power driver.¹ FELIPE VELOSO, GONZALO MUOZ-CORDOVEZ, VICENTE VALENZUELA-VILLASECA, MILENKO VESCOVI, MARIO FAVRE, EDMUND WYNDHAM, Pontif Univ Catolica de Chile — We present results on tungsten and aluminium wire-based z-pinch plasma experiments driven by the 350kA, 1kA/ns Llampudken generator at P Universidad Catolica de Chile. Our experiments are concentrated in the formation and subsequent emission of plasma from two different configurations: conical arrays and modified cylindrical arrays using different wire diameters within the load. The former produce collimated jet-like outflows by the zippering effect at the axis of the conical array, whereas the latter produce emission of an unstructured dense plasma object by the temporal variations on the global magnetic field topology of the cylindrical array. We present measurements of the ablation process in both configurations and the main features of the outflows obtained, such as plasma densities and propagation velocities. It is found that an appropriate mass per unit length in the load is particularly important for producing outflows from modified cylindrical arrays, and that high pressure background gas embedding the load hampers the emission of plasma outflows in conical arrays. In addition, the analysis of the dimensionless parameters that characterize each outflow will be presented.

¹This work has been funded by FONDECYT 11121621. G Munoz is funded by a doctorate scholarship awarded by CONICYT

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Date submitted: 18 Sep 2015

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