

Abstract Submitted
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Effect of the outflows from conical wire array Z-pinch on silicon targets¹ FELIPE VELOSO, GONZALO MUNOZ-CORDOVEZ, DONOVAN DIAZ-DROGUETT, VICENTE VALENZUELA-VILLASECA, MILENKO VESCOVI, HEMAN BHUYAN, MARIO FAVRE, Pontif Univ Catolica de Chile — Transient high density plasmas, and particularly Z-pinches, are known to emit outflows of energetic particles and/or plasma jets. When interacting with surfaces, these emissions are able to modify their structures by ablation, implantation, and/or deposition. In this work, the axial outflows from W conical wire array Z-pinches interact with targets located at different distances with respect to the array. The experiments are driven in the Llampudken generator ($\sim 350\text{kA}$ in $\sim 350\text{ns}$) using Si(100) targets located at distances ranging from 10 cm to 21 cm measured from the top of the wire array. The targets are later analyzed using surface science techniques such as SEM, XPS, AFM amongst others. The results indicate differences in the surface modifications according to the relative positioning of the target with the array. For instance, SEM images show surface morphologies in the form of micropores and stripe-like (wrinkle-like) structures. The micropores abundance decreases as the axial distance increases, in contrast to the stripe-like structures where both prevalence and uniformity increase. Further details on the characterization of the W plasma outflows and their effects on the silicon targets will be shown and discussed.

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