Abstract Submitted
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Studies of the Dynamics of Ablation Stream development in Wire Arrays on COBRA[1] JOHN GREENLY, MATTHEW MARTIN, CHARLES SEYLER, Cornell University — Wire-array simulations with the 3D GORGON code (see adjoining poster by Martin et al.) show a characteristic evolution in the development of streams of ablated material ejected from the wires toward the array axis. In simulations of aluminum arrays, the fundamental behavior occurs in two steps. The first is the development of coronal plasma that is trapped around the wire core in closed "local" magnetic flux. This coronal plasma, together with the closed flux, is then accelerated inward after a certain "dwell" time, leaving behind a radially distributed current density with entirely open "global" magnetic field lines, producing smooth, distributed acceleration of ablated plasma inward from the wire core until the onset of the final implosion. Interpretation of these dynamics in terms of simple physical modeling will be discussed, and experimental evidence of these phenomena from imaging and magnetic field diagnostics on arrays on the COBRA facility at Cornell will be presented.

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