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Three-dimensional simulations of wire-array Z pinch stagnation¹ EDMUND YU, Sandia National Labs, YITZHAK MARON, Weizmann Institute, BRENT JONES, MIKE CUNEO, CHRIS JENNINGS, DAWN FLICKER, Sandia National Labs — Detailed understanding of the stagnation process of an imploding wire-array Z pinch has been hampered by its complicated 3D nature, which would seem to preclude use of the usual 1D models of stagnation. However, the 3D connected nature of the Z pinch's trailing mass network also endows the wire array with certain properties which might allow a 1D description. In this work we explore the applicability of simple 1D pictures of stagnation, such as the Noh shock stagnation and isentropic compression, to 3D wire array simulations. We also discuss the role of the magnetic field, ram pressure, and angular momentum during the stagnation process. Finally, we comment on implications for measuring the ion temperature.

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