Three-dimensional simulations of wire-array Z pinch stagnation[1]

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— 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 con-
nected 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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