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MHD modeling of gas-puff Staged Z-pinch implosions on university-scale and multi-MA drivers HAFIZ RAHMAN, JEFF NARKIS, PAUL NEY, EMIL RUSKOV, Magneto-Inertial Fusion Technologies, Inc. — The staged Z-pinch (SZP) is a magneto-inertial fusion concept in which a high-Z gas-puff or solid annular liner implodes onto a deuterium or deuterium-tritium target plasma. The target is heated to fusion conditions by shock heating and subsequent adiabatic compression. Successful SZP experiments using Ar/D and Kr/D on the 1-MA Zebra driver at the Nevada Terawatt Facility [1] have motivated an expansion of the study to DT fuel and multi-MA drivers. Presented here is a computational study using the MHD code MACH2, which addresses the effects of grid motion (Lagrangian, Eulerian, or Arbitrary Lagrangian-Eulerian) and liner material (Ar, Kr, or Xe) on neutron yield from drivers with peak currents ranging from 1 MA to 20 MA. [1]H. U. Rahman, E. Ruskov, P. Ney, F. Conti, J. C. Valenzuela, N. Aybar, J. Narkis, F. N. Beg, E. Dutra, and A. Covington, Phys. Plasmas **26**, 052706 (2019).

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