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Al Double Planar Z-pinch Loads on Various 1 MA Generators CHRISTOPHER BUTCHER, VICTOR KANTSYREV, ALLA SAFRONOVA, VERONICA SHLYAPTSEVA, ISHOR SHRESTHA, AUSTIN STAFFORD, University of Nevada, Reno, ADAM STEINER, Sandia National Laboratories, PAUL CAMPBELL, STEPHANIE MILLER, NICHOLAS JORDAN, RYAN MCBRIDE, RONALD GILGENBACH, University of Michigan — In previous studies at the UNR high-impedance Marx bank Zebra generator (1.9 Ω, 1.7 MA, 100 ns), Double Planar Wire Arrays (DPWAs) proved to be excellent radiators, and Double Planar Foil Liners (DPFLs) can be also useful for future ICF applications. This presentation will showcase the radiative properties and implosion dynamics of Aluminum (Al) DPWAs and Al DPFLs obtained in joint UNR/UM experiments at the UM low-impedance Linear Transformer Driver (LTD) MAIZE generator (0.1 Ω, 0.6 MA, and 100–250 ns). The DPWAs consisted of two wire planes of micron-scale sized Al wires, while the DPFLs consisted of two planes of micron-scale thickness. Diagnostics in both studies include various filtered x-ray diodes (>1.4 keV), spectrometers, and optical shadowgraphy systems; experiments on MAIZE also feature new time resolved load inductance calculations. Applications of this research are discussed. This work was supported by the NNSA under DOE grants DE-NA0003047 and DE-NA0003877. Sandia National Laboratories is a multimission laboratory managed and operated by National Technology and Engineering Solutions of Sandia, LLC, a wholly owned subsidiary of Honeywell International Inc., for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-NA0003525.

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