Abstract Submitted
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Fundamental studies on the electrothermal instability on the 1 MA Mykonos driver*[1] M.W. HATCH, University of New Mexico, T.J. AWE, E.P. YU, Sandia National Laboratories, T.M. HUTCHINSON, University of Nevada, Reno, K. YATES, Los Alamos National Laboratories, W. TATUM, K. TOMLINSON, General Atomics, D. YAGER-ELORRIAGA, B.T. HUTSEL, Sandia National Laboratories, B.S. BAUER, University of Nevada, Reno, M. GILMORE, University of New Mexico — The electrothermal instability (ETI) is a Joule heating-driven instability that can initiate in the solid state in magnetically driven fusion targets. The ETI generates azimuthally correlated (striated) temperature and density perturbations. These striations may seed the magneto Rayleigh-Taylor instability, which can limit stagnation pressure and implosion uniformity. To better understand how local perturbations might seed ETI, experiments to observe ETI growth from diamond-turned, 99.999% pure Al rods in a z-pinch configuration have been executed by monitoring 12-48um diameter "engineered" defects machined into the rod surface with ICCD images and a photodiode. Experiments are conducted on the ˜1 MA Mykonos driver at Sandia National Laboratories. Shadowgraphy and PMT diagnostics are being developed and will be presented with ongoing experimental results.

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