

Abstract Submitted  
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**Recent Developments and Future Research at the Nevada Terawatt Facility**<sup>1</sup> JOSEPH KINDEL, Nevada Terawatt Facility, University of Nevada, Reno, NV 89557 USA — High Energy Density Physics is the focus of research at the Nevada Terawatt Facility (NTF). The NTF consists of a 1 MA, 2 TW Z-pinch, achieving 400 shots a year, and a 50 TW, 400ps, one micron glass laser. Experiments are undertaken in three ways: Z-pinch only, Z-pinch coupled with laser and laser only. Our facility generates Terawatt x-ray bursts, Megagauss magnetic fields, and investigates magnetized laser plasmas, including astrophysical like plasmas. Plasma diagnostics include a multiframe laser probing, optical and x-ray imaging, particle diagnostics, and x-ray spectroscopy. Wire array pinch experiments show significant structure due to the magnetic Rayleigh-Taylor instability. The magnetic Rayleigh-Taylor instabilities are modeled with nonlinear hydrodynamic modeling. This fluid modeling is capable of describing a wide range of instabilities in high beta plasmas on scales of an ion Larmor radius.

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