

Abstract Submitted
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Neutron and X-ray diagnostics for SZP experiments at Zebra¹ T. DARLING, E. MCGEE, A. COVINGTON, University of Nevada, Reno, NTF, E. DUTRA, National Security Technologies, LLC , F. J. WESSEL, E. RUSKOV, H. U. RAHMAN, Magneto-Inertial Fusion Technologies, Inc., J. C. VALENZUELA, F. CONTI, University of California, San Diego — The Zebra pulsed-power generator at the Nevada Terawatt Facility (NTF) of the University of Nevada produces current pulses of up to a megaamp with a rise time of 70 ns. By passing this current through a structured gas jet target, such as the Staged-Z-pinch (SZP), the project hopes to approach near energy gain conditions from fusion reactions in a pinched plasma. This article describes the setup and instrumentation at Zebra for detecting the neutron and x-ray output of the pinch and the procedures for reducing these signals to a quantitative measurement of the yields. Scintillation detectors with fast PMT detectors and activation decay measurements are the primary neutron diagnostics. These measurements are of prime importance in determining the parameters required to optimize the gas jet conditions for fusion.

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