

Abstract Submitted
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Assessment of Proton Deflectometry for Exploding Wire Experiments¹ S. BOTT, M. WEI, D. MARISCAL, K. GUNASEKERA, G. COLLINS, F. BEG, University of California San Diego, J. KINDEL, A. COVINGTON, R. PRESURA, N. LEGALLOUDEC, P. WIEWIOR, C. PLECHATY, T. BURRIS-MOG, Y. PAUDEL, S. STEIN, O. CHALYY, A. ASTANOVITSKIY, Nevada Terawatt Facility, UCSD COLLABORATION, NTF COLLABORATION — Determination of B-field structures in pulsed power driven exploding wire experiments is vital to the benchmarking of 3D simulations, but is complicated by the presence of large volumes of hot, dense plasma. Optical and electrical probe diagnostics typically fail early in the experiment. We present progress on a new project which examines the use of proton deflectometry to measure magnetic fields in pulsed power plasmas. Experimental work is carried out at the Nevada Test Facility (NTF) using both 10J 0.3ps Leopard laser and the 1.6MA ZEBRA pulsed power driver. Leopard provided focussed intensities of $\sim 5 \times 10^{19} \text{ W cm}^{-2}$, and generated up to 8 MeV protons from thin metallic targets with good reproducibility and low divergence. The first tests of proton beam deflection in pulsed power experiments, along with comparison to initial simulation work will be presented.

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