

Abstract Submitted
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The LLNL High-gradient Z-pinch Ion Probe Experiment¹ V. TANG, S. FALABELLA, G. GUETHLEIN, A. SCHMIDT, D. BLACKFIELD, E. COOK, S. HAWKINS, B. RUSNAK, M. ADAMS, G. AKANA, E. ANAYA, C. HOLMES, H. MCLEAN, T. HOUCK, J. WATSON, Y-J. CHEN, G. CAPORASO, Lawrence Livermore National Laboratory, D. WELCH, D. ROSE, Voss Scientific LLC — Dense Plasma Focus (DPF) Z-pinchs are copious sources of neutrons and MeV level particle beams. Deuterons up to 10 MeV have been observed from centimeter-scale long pinches indicating gradients up to 1 GV/m. These beams contribute significantly to the DPF's radiation output. The mechanisms behind these gradients are not understood and a true predictive capability required for optimization or application is not currently available. At LLNL we are assembling a DPF experiment with a 4 MeV ion probe beam to measure these gradients directly. These unique data can be used to validate kinetic simulations. Here we discuss how the probe beam can measure the acceleration gradients in the plasma and present first experimental DPF results.

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