

Abstract Submitted
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Ion Focusing Experiments Using Cusped Hemi Targets and 75 MeV Protons From The High-Contrast LANL Trident Laser KIRK FLIPPO, D.T. OFFERMANN, LANL, M. SCHOLLMEIER, SNL, S.A. GAILLARD, HLSI, T. BARTAL, UCSD, D. WELCH, D. ROSE, Voss Sci., R.P. JOHNSON, T. SHIMADA, LANL, T. BURRIS-MOG, HZDR, J.A. COBBLE, LANL, T.E. COWAN, HZDR, M. GEISSEL, SNL, T. KLUGE, HZDR, G. PETROV, TZ. PETROVA, NRL, J. REN, LANL, A.B. SEFKOW, SNL, M.J. SCHMITT, LANL — Results from our newly designed “Cusped Hemi” targets to improve ion focusing will be presented and compared with data and simulations from traditional hemi-shell targets which have been shown to produce non-ballistic focusing of the ion beam. We also report on recent experiments using the high-contrast ($< 10^{-9}$) high-intensity ($2 \times 10^{20} \text{W/cm}^2$) LANL Trident short-pulse laser system where we have produced a beam of protons with a significant number ($> 10^7$) of protons at > 75 MeV. Pre-plasma measurements of a surprisingly fast-evolving large-scale-length plasma from the high contrast pulses and data spanning 3 decades in target thickness, between $100 \mu\text{m}$ and 100nm are also presented. This work was partially supported by Los Alamos National Security, LLC for the National Nuclear Security Administration of the U.S. Department of Energy under contract DE-AC52-06NA25396.

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