

Abstract Submitted
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Reconstruction of proton paths in CR-39 for radiography experiments H.G. RINDERKNECHT, D.T. CASEY, N. SINENIAN, F.H. SEGUIN, C.K. LI, J.A. FRENJE, R.D. PETRASSO, MIT — Recent mono-energetic proton back-lighter experiments on the dynamics of laser-plasma interaction and inertial fusion implosions have revealed high-intensity magnetic and electric fields in high-energy-density regime plasmas. Current radiographic methods measure particle fluence and energy at the detector surface. By reconstructing incident proton trajectory on the detector, radiography techniques may strongly constrain the strength and location of fields in ICF capsule implosions, hohlraum implosions, and other complex high-energy-density plasmas of interest. A new diagnostic method developed on the MIT Nuclear Products Generator, utilizing CR-39 as a multiple-stage particle detector, is presented and the applications of this method to experiments at LLE and NIF are discussed. This work was supported in part by US DoE, LLNL, and LLE.

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