

Abstract Submitted
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Proton Radiography of Field Distributions in Ultra-Intense-Laser Plasma Interactions with Pulse of MeV Proton Beams¹ HIROTAKA NAKAMURA, ILE, Osaka Univ., Japan, RYOSUKE KODAMA, Grad. school of Eng., Osaka Univ., and CREST, JST, Japan, MOTONOBU TAMPO, Kansai Photon Science Institute, JAEA, Japan, MARCO BORGHESI, LORENZO ROMAGNANI, School of Math. and Phy., The Queen's Univ. of Belfast, UK, JULIEN FUCHS, LULI, Ecole Polytechnique, France, MUNIB AMIN, ARIANE PIPAHL, OSWALD WILLI, Heinrich Heine Univ., Germany, TAKUYA MICHIBATA, Grad. school of Eng., Osaka Univ., Japan, KUNIOKI MIMA, HIROSHI AZECHI, ILE, Osaka Univ., Japan — Proton radiography has been used to observe transient electric and magnetic fields in laser plasma interactions. We report an experimental investigation of a transient electric field generated around a laser-irradiated-plasma-fiber attached on a tip of a cone-geometry target. The electric field guided and collimated energetic electrons generated by the laser-plasma interactions in the fiber. The front of these fields propagated along the fiber with the energetic electrons at almost the light velocity. Simulation with the Geant4 Monte Carlo code shows the electric field above a few TV/m were excited around the fiber.

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