

Abstract Submitted
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Proton probing of a relativistic laser interaction with near-critical plasma LOUISE WILLINGALE, C. ZULICK, A.G.R. THOMAS, A. MAKSIMCHUK, K. KRUSHELNICK, University of Michigan, P.M. NILSON, C. STOECKL, T.C. SANGSTER, LLE, W. NAZAROV, University of St Andrews — The Omega EP laser (1000 J in 10 ps pulses) was used to investigate a relativistic intensity laser interaction with near-critical density plasma using a transverse proton beam to diagnose the large electromagnetic fields generated. A very low density foam target mounted in a washer provided the near-critical density conditions. The fields from a scaled, two-dimensional particle-in-cell simulation were inputted into a particle-tracking code to create simulated proton probe images. This allows us to understand the origins of the complex features in the experimental images, including a rapidly expanding sheath field, evidence for ponderomotive channeling and fields at the foam-washer interface. This material is based upon work supported by the Department of Energy National Nuclear Security Administration under Award Number DE-NA0002028.

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