

Abstract Submitted  
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**Diagnostics for laser plasma acceleration of ions** R.L. DASKALOVA, C.D. MURPHY, E. CHOWDHURY, J. MORRISON, A. KRYGIER, R.R. FREEMAN, L. VAN WOERKOM, Physics Department, The Ohio State University, Columbus Oh 43210, C. MCGUFFEY, T. MATSUOKA, K. KRUSHELNICK, A. MAKSIMCHUK, Center for Ultrafast Optical Science, University Of Michigan, Ann Arbor Mi 48109 — Laser plasma acceleration of ions is a rapidly evolving field, mainly due to the potential applications in oncology by proton therapy, astrophysics and neutron production for radiography. Here we present the details of an experimental investigation of ion acceleration from the rear of a metal foil in which both the prepulse-induced plasma on the front surface as well as the quantity of various ion species accelerated from the rear surface were monitored. A Thompson Parabola Spectrometer (TPS) coupled with CR-39 was employed to record the type and number of the accelerated ions. The relative number of various ions species was found to depend strongly upon the cleaning techniques used in preparation of the target foil.

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