

Abstract Submitted  
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**Improved characterization of the CR-39 efficiency for detecting DD neutrons based on data from OMEGA, NIF and the MIT HEDP Accelerator Facility**<sup>1</sup> L. M. MILANESE, B. LAHMANN, J. A. FRENJE, M. GATU JOHNSON, F. H. SEGUIN, R. D. PETRASSO, MIT, V. YU. GLEBOV, T. C. SANGSTER, LLE, M. J. ECKART, G. P. GRIM, E. P. HARTOUNI, R. HATARIK, D. B. SAYRE, R. BIONTA, C. YEAMANS, LLNL, K. HAHN, B. JONES, SNL — CR-39 nuclear track detectors are extensively used to measure fluences and spectra of charged particles produced in Inertial Confinement Fusion (ICF) implosions. An accurate determination of the CR-39 response to neutrons is important both to perform direct neutron fluence measurements and to estimate the level of neutron-induced background impacting charged-particle measurements. The CR-39 efficiency for detecting neutrons depends on several factors, including the manufacturing process of the CR-39, etching conditions and characteristics of the scanning system employed to detect the neutron-induced tracks. The CR-39 response to DD neutrons has been characterized using implosions at OMEGA and the NIF as well as a neutron generator at the MIT HEDP Accelerator Facility. A new approach provides significantly better precision than previously demonstrated in the literature. This method will be used to characterize DD fusion isotropy at the Z Facility.

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