

Abstract Submitted  
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**Measuring Neutron Angular Distributions with the National Ignition Facility's Real-Time Neutron Activation Diagnostic**<sup>1</sup> RICHARD BIONTA, D. BARKER, E. CASCO, R. EHRLICH, J. GIEMSO, A. GOLOD, G. GRIM, K. HAHN, E. HARTONI, E. HENRY, R. HIBBARD, S. KERR, H. KHATER, A. MOORE, D. SCHLOSSBERG, Lawrence Livermore Natl Lab — The uniformity of the DT shell is important for successful ICF implosions and is reflected in the angular distribution of un-scattered 14 MeV neutrons. The neutron angular distribution is measured at NIF by the “RT-NAD”, an array of 48 Gamma Ray Spectrometers that monitor the slow decay of <sup>89</sup>Zr isotopes produced by 14 MeV neutrons during the shot. The large number of detectors and the high statistical precision of the array allow the Spherical Harmonic modes of the neutron angular distribution to be measured up to  $L = 4$ . We describe the RTNAD hardware and analysis procedures and present measured angular distributions for select ICF shots.

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