

Abstract Submitted
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Bang Time and Burn Width Analysis at the NIF¹ E. GRAFIL, Colorado School Of Mines, H.W. HERRMANN, LANL, W. STOEFFL, LLNL, Y. KIM, N.M. HOFFMAN, C.S YOUNG, J.M. MACK, LANL, P.W. WATTS, A.C. CARPENTER, J. CHURCH, L. BERNSTEIN, J. LIEBMAN, LLNL, M. RUBERY, C.J. HORSEFIELD, AWE, E.K. MILLER, NSTec — The time of peak fusion reactivity with respect to the impingement of laser light on an Inertial Confinement Fusion capsule is known as Nuclear Bang Time (BT). The width of this peak is the Nuclear Burn Width (BW). Accurately measuring BT & BW is essential for constraining hydrodynamic simulations as it is a measure of energy coupling to the target. BT & BW measurements have been performed using a variety of instruments at the National Ignition Facility (NIF). The Gamma Reaction History (GRH) diagnostic is designed to measure fusion gamma-rays in determining BT & BW to within 30 ps precision and accuracy. The GRH consists of four Gas Cherenkov Detectors having variable energy-thresholding capability. For BT measurements, the threshold is typically set >8 MeV so as to isolate DT fusion gamma-rays at 16.75 MeV while thresholding out the lower energy (n,n') gammas. The GRH experimental setup, data and comparison to BT & BW from other diagnostics methods are presented.

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Elliot Grafil
Colorado School Of Mines, Golden, CO 80401, USA

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