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Inferences of Shell Asymmetry in ICF Implosions using Fluence Compensated Neutron Images at the NIF[1] D. CASEY, D. FITTINGHOFF, R. BIONTA, V. SMALYUK, G. GRIM, D. MUNRO, B. SPEARS, K. RAMAN, D. CLARK, A. KRITCHER, D. HINKEL, O. HURRICANE, D. CALLAHAN, T. DPPNER, O. LANDEN, T. MA, S. LE PAPE, S. ROSS, N. MEEZAN, A. PAK, H.-S. PARK, Lawrence Livermore National Laboratory, P. VOLEGOV, F. MERILL, Los Alamos National Laboratory — In ICF experiments, a dense shell is imploded and used to compress and heat a hotspot of DT fuel. Controlling the symmetry of this process is both important and challenging. It is therefore important to observe the symmetry of the stagnated shell assembly. The Neutron Imaging System at the NIF is used to observe the primary 14 MeV neutrons from the hotspot and the down-scattered neutrons (6-12 MeV), from the assembled shell but with a strong imprint from the primary-neutron fluence. Using a characteristic scattering angle approximation, we have compensated the image for this fluence effect, revealing information about shell asymmetry that is otherwise difficult to extract without models. Preliminary observations with NIF data show asymmetries in imploded shell, which will be compared with other nuclear diagnostics and postshot simulations.

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