

Abstract Submitted
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Comparison of downscattered neutron measurements using gated images and time-of-flight detectors at the NIF¹ GARY GRIM, Los Alamos National Laboratory, OWEN DRURY, Lawrence Livermore National Laboratory, NEVZAT GULER, FRANK MERRILL, GEORGE MORGAN, DOUG WILSON, Los Alamos National Laboratory, DAVID FITTINGHOFF, Livermore National Laboratory, CARL WILDE, PETR VOLEGOV, Los Alamos National Laboratory — Data collected by the NIF neutron imaging system includes two energy gated neutron images and spatially averaged time-of-flight (nToF) data from the same neutron fluence used by the imaging system. Images are produced 28 m from the target, at time windows corresponding to neutron kinetic energies of 10 to 12 MeV and 13 to 17 MeV. Time-of-flight data are produced in a thin scintillating paddle detector located 27.26 m from the target. The preliminary corrected downscattered ratios produced by spatially averaging subregions of the image data from three cryogenic, equimolar DT implosions during June 2011 are: $2.5 \pm 0.9\%$, $2.5 \pm 0.9 \%$, and $2.9 \pm 1.1 \%$. The corresponding downscattered ratios produced by the nToF detector are $3.7 \pm 0.9 \%$, $3.8 \pm 0.9 \%$, and $5.6 \pm 1.3 \%$. We will present an overview of the measurement methodologies and analysis studies of the apparent systematic difference.

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