

OVERVIEW OF THE NEUTRON TIME-OF-FLIGHT DATA ANALYSIS

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The neutron spectrum produced by an indirectly driven implosion at the National Ignition Facility (NIF) provides valuable insight into the performance of the capsule. Neutron time-of-flight (nToF) [1] spectrometers allow to measure the neutron spectrum and obtain key performance metrics like the fusion neutron yield, ion temperature and down-scattered ratio. To obtain these values with a high accuracy the instrument response, its sensitivity as well as the beam line attenuation need to be accounted for. The analysis techniques using forward fitting which accounts for these effects and extracts the above mentioned quantities from the nToF data will be presented.

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[1] T.J. Clancy et al., SPIE Proceedings Vol. 9211, 92110A (2014).