

Abstract Submitted
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Development of a neutron source for NIF diagnostics¹ R. HATARIK, J. CERNY, UC Berkeley, L. PHAIR, Lawrence Berkeley National Laboratory, L.A. BERNSTEIN, D.L. BLEUEL, S. LIDDICK, D. SCHNEIDER, Lawrence Livermore National Laboratory — Neutron time-of-flight is a key diagnostic to determine the neutron spectrum from inertial confinement fusion at the National Ignition Facility (NIF). The down scattered fraction of the neutron spectrum with neutron energies between 10 and 13 MeV is proportional to the time-weighted areal density of the fuel, which is an important quantity for obtaining ignition. To detect down scattered neutrons after the initial 14 MeV neutrons from DT fusion, a fast neutron scintillator is required. To test different scintillator material for decay time and efficiency, a deuteron breakup neutron source is being developed at the 88-Inch cyclotron of Lawrence Berkeley National Laboratory (LBNL). The commissioning of this facility will be discussed including neutron energy and flux measurements, dosimetry and results from testing the neutron scintillators.

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