

Abstract Submitted
for the DPP14 Meeting of
The American Physical Society

Angular Distribution of Ion-Temperature Measurements for Non-Stagnating Inertial Confinement Fusion Implosions J.P. KNAUER, Laboratory for Laser Energetics, U. of Rochester, J.A. CAGGIANO, R. HATARIK, D. MUNRO, D.B. SAYRE, B.K. SPEARS, LLNL, M. GATU JOHNSON, J.A. FRENJE, PSFC, MIT — Moments of the neutron-velocity distribution give unique insights to the quality of an inertial confinement fusion (ICF) implosion. The second moment (width) has been used to measure the ion temperature of an ICF core. An analysis is presented that shows how the velocity distribution of an ICF core that does not stagnate changes the measured width with angle. Neutron data from implosions at the National Ignition Facility provide five DT peak width and three DD peak width measurements. These data are used to determine thermal temperatures for DD and DT fusion and the direction and magnitude of a “shear”-like motion in the core. This material is based upon work supported by the Department of Energy National Nuclear Security Administration under Award Number DE-NA0001944.

J.P. Knauer
Laboratory for Laser Energetics, U. of Rochester

Date submitted: 08 Jul 2014

Electronic form version 1.4