

Abstract Submitted
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Effects of Fluid Temperature and Velocity Distributions on Neutron Spectra D.H. MUNRO, S.P. HATCHETT, B.K. SPEARS, LLNL — We commonly summarize the spectrum of 14 MeV neutrons produced by a laser fusion capsule by just a yield and a temperature, as if it were a uniform stationary fluid element. However, burn in a real fusion capsule occurs over a wide range of temperatures, and the velocity of the burning fuel is not negligible compared to thermal velocities. Even at low ρr , absent any scattering, these effects cause the shape of the 14 MeV peak to depart significantly from a Gaussian, and cause its width, that is, the observed burn temperature, to vary depending on viewing direction. We describe our ongoing efforts to cope with these complexities in the analysis of data from the National Ignition Facility. This work performed under the auspices of the U.S. Department of Energy by Lawrence Livermore National Laboratory under Contract DE-AC52-07NA27344.

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