

Abstract Submitted  
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**Techniques to determine electron and ion temperatures in D<sub>2</sub>/<sup>3</sup>He filled capsules** M.A. GUNDERSON, D.C. WILSON, J.F. BENAGE, G.A. KYRALA, L.A. WELSER-SHERRILL, H. MAKARUK, Los Alamos National Laboratory, C.K. LI, J. FRENJE, R. PETRASSO, Massachusetts Institute of Technology, B. YAAKOBI, Laboratory for Laser Energetics, W. GARBETT, AWE — In order to match yields in ICF implosion experiments, the ability to determine temperatures in the imploded capsules is crucial. “Mix” is commonly used to adjust the simulation to match the experimental yield, but to be more confident that the mix model is being applied correctly, it is very important to know the temperature of the imploded fuel region. To acquire information on ion temperatures in the imploded fuel, we have neutron time-of-flight data, proton spectroscopy, and the ratio of D+<sup>3</sup>He proton to D+D neutron yield. To determine electron temperatures, we have spectral emission data from spectroscopic tracers (Krypton, Argon) and the slope and shape of the continuum spectrum. In fact, the spectral emission data can also be used to determine the density in the imploded fuel. A summary of the temperature measurements using these techniques will be presented. Work supported by US DOE/NNSA, performed at LANL, operated by LANS LLC under Contract DE-AC52-06NA25396.

Mark Gunderson  
Los Alamos National Laboratory

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