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Understanding temperature distribution in ICF hot-spots with X-ray diagnostics of disparate spectral ranges[1] GRIGORY KAGAN, Imperial College London, H. SIO, LLNL, T. R. JOSHI, LLE, M. J. MACDONALD, LLNL, N.V. KABADI, P. ADRIAN, M. GATU JOHNSON, MIT, R. C. SHAH, D. CAO, LLE, P. HAKEL, LANL, C. J. MCDEVITT, University of Florida, Gainesville, H. W. HERRMANN, M. J. SCHMITT, LANL, A. J. CRILLY, B. D. APPELBE, J. P. CHITTENDEN, Imperial College London, O. L. LANDEN, LLNL, S. P. REGAN, E. M. CAMPBELL, LLE, D. SVYATSKIY, LANL, R. A. SIMPSON, J. A. FRENJE, R. D. PETRASSO, MIT, R. C. MANCINI, University of Nevada, Reno, M. J. ROSENBERG[2], LLE — H. G. Rinderknecht, R. Epstein, D. Thorn, T. E. Weber

X-ray diagnostics for the electron temperature T_e in ICF implosions are currently being developed. We demonstrate for the first time that the X-ray diagnostics also allow constraining the Te spatial profile in a realistic hot-spot. A series of Omega implosions have been performed with both soft (3-6 keV) and hard (20-30 keV) X-ray diagnostics employed simultaneously. The apparent temperatures inferred from the respective data have been found to differ by a factor of about 2. This reflects the fact that the higher energy photons are produced closer to the center of the hot-spot, thus enabling us to quantify the difference between peak and peripheral temperatures in the fusion fuel.

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[2]4 more authors are included as a part of the abstract body to make 29 total (only 25 seem to be allowed on this page)

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