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Benchmarking non-LTE physics with experiments on gold plasmas at the OMEGA laser[1] MARILYN SCHNEIDER, EDWARD MARLEY, JAMES EMIG, MARK FOORD, YECHIEL FRANK, ROBERT HEETER, DUANE LIEDAHL, CHRISTOPHER MAUCHE, L. CHARLIE JARROTT, GREGORY KEMP, HOWARD SCOTT, KLAUS WIDMANN, Lawrence Livermore Natl Lab, GABRIEL PEREZ-CALLEJO, University of Oxford, CANDACE HARRIS, National Nuclear Security Agency — Non-Local Thermodynamic (NLTE) physics of high-Z plasmas plays a crucial role in the coupling of laser energy to hohlraum x-radiation drive. Recent experiments to benchmark NLTE models of gold at electron temperatures of 1.5 to 2 keV and electron densities of few 10^{20} to few 10^{21} cm^{-3} have shown that the gold is more ionized than predicted by the best models. These experiments are designed to produce a uniform plasma by using a buried layer platform at the OMEGA laser. The temperature is measured with a K shell tracer and the density by imaging the sample in two perpendicular directions. Detailed spectra of gold 4, 5, 6 $\rightarrow$ 3 transitions are used to measure the gold ionization states. Current results will be shown including work on resolving the discrepancy. The extension of this platform to higher temperatures and to radiation field and to direct measurements of NIF hohlraums will be discussed.

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