

Abstract Submitted
for the DPP08 Meeting of
The American Physical Society

Analysis of EUV Oxygen Spectra from LLNL SSPX and UNR Laser Plasma Source of “Sparky” P.G. WILCOX, A.S. SAFRONOVA, UNR, V.L. KANTSYREV, U.I. SAFRONOVA, K.M. WILLIAMSON, M.E. WELLER, UNR, J. CLEMENTSON, P. BEIERSDORFER, LLNL, K.W. STRUVE, SNL, UNR TEAM, LLNL COLLABORATION, SNL COLLABORATION — In our recent work [Wilcox et al, RSI (2008, in press)] we applied a non- LTE kinetic model of oxygen to analyze an oxygen spectrum between 140 and 240 Å, produced on LLNL SSPX. Here we study the whole collection of recent experimental SSPX EUV oxygen spectra produced under different plasma conditions, specifically in the broad range of temperatures from as low as 15 eV up to 280 eV, and at an electron density of around 10^{14}cm^{-3} . In addition, we analyze new experimental data from EUV oxygen and carbon spectra, recorded at much higher density at the compact laser plasma source of “Sparky” at UNR . The comprehensive comparison of EUV oxygen spectra from both experiments with theoretical calculations was accomplished, and temperature and density sensitive lines were identified. This work is relevant to diagnostics of plasma with low – Z ions and Tokamak plasma in particular. Work is supported by DOE under grant DE-FG02-08ER54951 and in part under NNSA Coop. Agr. DE-FC52-06NA27588 and DE-FC52-06NA27586. Work at LLNL was performed under auspices of the DOE under contract DE-AC52-07NA2344.

P.G. Wilcox
UNR

Date submitted: 21 Jul 2008

Electronic form version 1.4