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Study of Low-Z EUV Spectra from Laboratory Plasma and EBIT Experiments P.G. WILCOX, A.S. SAFRONOVA, V.L. KANTSYREV, A.A. ESAULOV, U.I. SAFRONOVA, K.M. WILLIAMSON, G.C. OSBORNE, M.E. WELLER, University of Nevada, Reno, NV, J. CLEMENTSON, P. BEIERSDORFER, LLNL,CA, J. LEPSON, SSL,Berkeley, CA — This paper provides an analysis of recent experimental EUV and soft x-ray Oxygen and Carbon spectra from the NSTX, SSPX, compact laser facility “Sparky”, and EBIT-I plasma devices. Additionally, Nitrogen lines in EUV spectra from EBIT-I are identified and used to benchmark a Nitrogen kinetic model. In this study, non-LTE kinetic models of C, N, and O are utilized. Our approach compares the features of experimental spectra from Tokamak, Spheromak, and EBIT with those from “Sparky” spectra generated under various plasma conditions. The emitted EUV radiation we examine generally falls in the 90 Å to 260 Å wavelength range. Furthermore, the most intense lines from He-like ions of C and O in the soft X-ray region (20 Å - 40 Å) are observed. This research is being supported by DOE under grant DE-FG02-08ER54951 and in part under NNSA Cooperative Agreements DE-FC52-06NA27588 and DE-FC52-06NA27586. Work at LLNL was performed under auspices of the DOE under contract DE-AC52-07NA2344.

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