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Analysis of Low-Z EUV Spectra from "Sparky" Laboratory Plasma Experiments PENKA WILCOX, ALLA SAFRONOVA, VICTOR KANTSYREV, University of Nevada Reno — This study provides an analysis of recent experimental EUV and soft X-ray laser plasma spectra from the compact laser facility "Sparky", generated under various plasma conditions. The developed non-LTE kinetic models of low-atomic number elements, such as C, O, F, etc., based on the Flexible Atomic Code data, are utilized . By matching the features of experimental spectra to the predictions of our atomic and plasma models, whose parameters are studied and precisely specified, the conditions of source plasmas can be inferred. The emitted EUV radiation we examine generally falls in the 90 Å to 260 Å wavelength range. In addition, the most intense lines from He-like ions of C and O in the soft X-ray region (20 Å - 40 Å) are observed. The most diagnostically significant temperature and density sensitive spectral lines are identified and proposed to use in plasma diagnostics for various applications including fusion research.
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