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Polarization of Hard X-ray Dielectronic Satellite Line Emission from Na-like W ions. ALLA SAFRONOVA, AUSTIN STAFFORD, AMANDEEP GILL, RYAN CHILDERS, University of Nevada, Reno — Recently, we have emphasized the renewed interest to study hard x-ray non-thermal inner-shell emission from Z-pinch plasmas of high-atomic-number materials on Sandia's Z and NRL Gamble II generators and have presented the time history of relative intensities of cold L lines (alpha, beta, and gamma) from W wire arrays (in a spectral range between 1 and 1.7 Å) produced on the UNR Zebra generator. Another important signature of non-thermal high-atomic-number multiply ionized plasmas is polarization of hard x-ray line emission. Here we present the theoretical study of polarization of hard x-ray spectra of Na-like W produced by dielectronic recombination in the same spectral range. In particular, the polarization of the intense dielectronic satellite (DS) lines in the vicinity of the most intense Ne-like W resonance lines at 1.19 Å and 1.36 Å is calculated and analyzed in detail. The DS spectral features mostly affected by polarization are identified and highlighted. Future work and applications to High-Energy-Density Science are discussed. This research was supported by NNSA under the DOE grant DE-NA0003877 and in part through the Krell Institute Laboratory Residency Graduate Fellowship under DE-NA0003864.

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