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Spectroscopic Features of Highly Ionized Xenon Plasma[1] A.K. GILL, V.V. SHLYAPTSEVA, A.S. SAFRONOVA, University of Nevada, Reno, K. TAKASUGI, Nihon University, V.L. KANTSYREV, A. STAFFORD, R. CHILDERS, University of Nevada, Reno — The field of high-energy-density (HED) plasma physics has important applications, such as inertial confinement fusion and development of intense radiation sources. X-ray spectroscopy is a vital tool for understanding HED plasmas. Previous work on K-shell Argon and L-shell Krypton plasmas from reverse polarity experiments on SHOTGUN-III Z-pinch device at Nihon University (Japan), that used X-ray spectroscopy to estimate plasma parameters and to observe electron beam effects, is extended here to study M-shell Xenon spectra. M-shell line radiation from HED plasmas is more complex to analyze than K- or L-shell radiation due to the substantial increase in number of ionization stages and their overlap, as such needs non-local thermodynamic equilibrium (non-LTE) modeling and experimental benchmarking. M-shell X-ray spectra in the spectral range of 9-15 Å from Xenon gas-puff plasma reverse polarity experiments are analyzed in detail using a newly created non-LTE model with ionization stages from Zn-like to Ti-like Xenon. Future work is discussed.

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