Abstract Submitted
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Excitation energies, radiative and autoionization rates, dielectronic satellite lines, and dielectronic recombination rates for excited states of Yb-like W[1] P. BEIERSDORFER, Lawrence Livermore National Laboratory, U.I. SAFRONOVA, A.S. SAFRONOVA, University of Nevada, Reno — Energy levels, radiative transition probabilities, and autoionization rates for [Cd]$4f^{14}5p^65l'nl$, [Cd]$4f^{14}5p^66l''nl$, [Cd]$4f^{14}5p^55d^2nl$, [Cd]$4f^{14}5p^55d6l''nl$, [Cd]$4f^{13}5p^65d^2nl$, and [Cd]$4f^{13}5p^65d6l''nl$ ($l' = d, f, g$, $l'' = s, p, d, f, g$, $n = 5-7$) states of Yb-like tungsten (W^{4+}) are calculated using the RMBPT, HULLAC, and COWAN codes. Branching ratios relative to the [Cd]$4f^{14}5p^65d$, [Cd]$4f^{14}5p^66s$, and [Cd]$4f^{14}5p^66p$ thresholds in Tm-like tungsten and intensity factors are calculated for satellite lines, and dielectronic recombination (DR) rate coefficients are determined for the singly excited, as well as non-autoionizing core-excited states in Yb-like tungsten. Contributions from the autoionizing doubly excited states and core-excited states (with n up to 100), which are particulary important for calculating total DR rates, are estimated. Synthetic dielectronic satellite spectra from Yb-like W are simulated in a broad spectral range from 200 to 1400 Å. These calculations provide recommended values critically evaluated for their accuracy for a number of W^{4+} properties useful for a variety of applications including for fusion applications.

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