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Relativistic atomic data for Rb-like tungsten[1] U. I. SAFRONOVA, A. S. SAFRONOVA, University of Nevada, Reno, P. BEIERSDORFER, LLNL — Accurate calculations of the atomic properties of Rb-like W^{37+} are needed for studying high energy density plasma as well as for magnetic fusion applications. In this work, we have calculated energy levels, radiative transition probabilities, and autoionization rates for [Ni]$4s^24p^6nl$, [Ni]$4s^24p^54l'nl$ ($l' = d, f, n$ = 4-7), [Ni]$4s4p^64l'nl$,($l' = d, f, n$ =4-7), [Ni]$4s^24p^55l'nl$ (n = 5-7), and [Ni]$4s4p^646l'nl$ (n =6-7) states in Rb-like tungsten (W^{37+}) using the relativistic many-body perturbation theory and the Hartree-Fock-relativistic method. Branching ratios and intensity factors were calculated for satellite lines, and dielectronic recombination rate coefficients were determined for the [Ni]$4s^24p^6nl$ (n=4-7) singly excited states, as well as for the [Ni]$4s^24p^54dnl$, [Ni]$4s^24p^54fnl$, [Ni]$4s4p^64dnl$, [Ni]$4s24p^64fnl$, (n = 4-6), and [Ni]$4s^24p^55l'5l$ doubly excited nonautoionizing states. Contributions from the [Ni]$4s24p^64fnl$ (n = 6 - 7), [Ni]$4s^24p^55l'nl$ (n = 5 - 6), and [Ni]$4s^24p^56l'nl$ n = 6 - 7) doubly excited autoionizing states are evaluated numerically. Contributions from high-n states (n $\leq$ 200) were determined by using a scaling procedure and found to be very important for high temperatures.

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U. I. Safronova
University of Nevada, Reno

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