Abstract Submitted
for the DAMOP09 Meeting of
The American Physical Society

Wavelengths and transition rates for $nl - n'l'$ transitions in Na-, Mg-, Al-, K-, Ca-, Zn-, Cd-, and Yb-like tungsten ions[1] A.S. SAFRONOVA, U.I. SAFRONOVA, University of Nevada, Reno — Energies of levels with 1, 2, and 3 electrons above the closed shell in W ions are calculated. In particular, energies of Na- like ([Ne]$nl, n = 3, 4$), Mg-like ([Ne]$3l3l'$), Al-like ([Ne]$3l3l'3l''$), K-like ([Ar]$nl, n = 3, 4$), Ca-like ([Ar]$3d4l$), Zn-like ([Ni]$4l4l'$), Cd-like [Kr]$4d^{10}4f5l$), Yb-like ([Xe]$4f^{14}5l5l'$) tungsten are computed by relativistic many-body perturbation theory method (RMBPT code), the Multiconfiguration Relativistic Hebrew University Lawrence Atomic Code (HULLAC code), and the Hartree-Fock-Relativistic method (Cowan code). Wavelengths, transition rates, and line strengths are calculated for the dipole $nl - n'l'$ transitions in Na-, Mg-, Al-, K-, Ca-, Zn-, Cd-, and Yb-like tungsten ions. A detailed discussion of the various contributions to the dipole matrix elements and energy levels given by different codes is provided. These atomic data are important in modeling of M-, N-, and O- shell radiation spectra of heavy ions generated in various collision as well as plasma experiments. The tungsten data are particulary important for fusion application.

[1]This research was sponsored by the grant DE-FG02-08ER54951 and in part by the NNSA under Cooperative agreement DE-FC52-06NA27588.

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Date submitted: 21 Jan 2009 Electronic form version 1.4