

Abstract Submitted
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Overview of recent results on lifetimes, rates, and line strengths of multipole transitions from $3l^{-1}4l'$ states in Ni-like ions¹
U.I. SAFRONOVA, A.S. SAFRONOVA, University of Nevada, Reno, P. BEIERS-DORFER, LLNL — Transition rates and line strengths are calculated for electric-multipole and magnetic-multipole transitions between $3s^23p^63d^{10}$, $3s^23p^63d^94l$, $3s^23p^53d^{10}4l$, and $3s3p^63d^{10}4l$ states in Ni-like ions with the nuclear charges ranging from $Z = 34$ to 100. Relativistic many-body perturbation theory, including the Breit interaction, is used to evaluate retarded multipole matrix elements. Lifetimes of the $3s^23p^63d^94s$ levels are given for $Z = 34$ –100. The full set of data is given only for Ni-like W ion which is expanded to include previous work. In addition, we also give complete results for the $3d4s\ ^3D_2 - 3d4s\ ^3D_1$ magnetic-dipole transition, as the transition may be observed in future experiments, which measure both transition energies and radiative rates. These atomic data are important in the modeling of radiation spectra from Ni-like multiply-charged ions generated in electron beam ion trap experiments as well as for laboratory plasma diagnostics including fusion research.

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