INTENSITIES IN COMPLEX SPECTRA OF HIGHLY IONIZED ATOMS

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We describe a package of programs for the implementation of the collisional-radiative model to complex configurations. The number of levels taken into account may be several hundreds. The heart of the package is a very efficient program for excitation cross sections in the Distorted Wave framework, using the Relativistic Parametric Potential wave functions. The basic jj coupling scheme actually simplified the computations, enabling a useful factorization into radial and angular parts. Intermediate coupling and configuration interactions are accounted for. We computed ratios of intensities of $3d^9 - 3d^8 4s$ (E2) to $3d^9 - 3d^8 4p$ (E1) transitions as functions of n_e and T_e in Xe XXVIII and other Co-like spectra. The atomic model involves all the levels of configurations $(3p^6)3d^9$; $-3d^8 4s$, $-3d^8 4p$, $-3d^8 4d$, $-3d^8 4f$, and $(3p^5) -3d^{10}$, $-3d^9 4p$. (275 levels) and all the transitions between them. Results compare very well with experimental spectra from TFR.

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