Errata

Erratum: Dielectronic-recombination rate coefficients for ions of the fluorine isoelectronic sequence [Phys. Rev. A 35, 2138 (1987)]

L. J. Roszman

A recently discovered pathological error in a computer program has forced a revision of the dielectronic recombination rate coefficients of fluorinelike krypton, Kr^{27+}, contained in this paper for the contributions by both the $\Delta n=0$ and the $\Delta n\neq 0$ radiative stabilizing transition components, and for the $\Delta n=0$ component of Mo^{33+}. No other published results of this paper are affected.

Replacements for Tables X, XI, and XII are given. The data to replace Tables VII, VIII, and IX can be produced using Eqs. (10)–(13). The dielectronic recombination rate coefficients can then be computed using Eq. (9). The dielectronic recombination rate coefficients associated with the $\Delta n=0$ radiative stabilizing transitions for all the ions have been extended to include angular momentum values up to 15 for the highly excited Rydberg electron. The contribution to the dielectronic recombination by the autoionizing states with angular momentum values between 8 and 15 is only a few percent for the fluorine isoelectronic sequence. The maximum values of the dielectronic recombination rate coefficient reported here are approximately 20% smaller than those of Chen.[1] The error introduced by neglecting the intermediate coupling[2] and the configuration interaction[3,4] for highly ionized, moderately heavy ions and by the usual numerical error is certainly this large.

TABLE X. The coefficients of the least-squares fits to the parameters of the three exponential fits to the directly computed dielectronic-recombination rate coefficients when the initial ion is in the state $1s^22s^22p^5\,{}^2P$ and the radiative transitions are $\Delta n=0$ and where $\log_{10}(c_i)=\sum_{j=1}^{4}a_{ij}z^{j-1}$ and $\xi_i=z^4\sum_{j=1}^{4}b_{ij}z^{1-j}$, and z is the effective charge of the initial ion.

	$j=1$	$j=2$	$j=3$	$j=4$
a_{1j}	$-12.992\,57$	$0.240\,4627$	$-7.287\,846\times10^{-3}$	$8.550\,386\times10^{-5}$
b_{1j}	$4.868\,492\times10^{-5}$	$-2.933\,358\times10^{-3}$	$4.547\,528\times10^{-2}$	
a_{2j}	$-12.151\,95$	$0.265\,7630$	$-1.100\,416\times10^{-2}$	$1.593\,836\times10^{-4}$
b_{2j}	$1.005\,219\times10^{-4}$	$-5.794\,576\times10^{-3}$	$8.801\,851\times10^{-2}$	
a_{3j}	$-10.069\,64$	$0.107\,5989$	$-3.778\,285\times10^{-3}$	$5.228\,416\times10^{-5}$
b_{3j}	$1.540\,860\times10^{-4}$	$-8.531\,527\times10^{-3}$	$0.130\,1561$	

TABLE XI. The coefficients of the least-squares fits to the parameters of the three exponential fits to the directly computed dielectronic-recombination rate coefficients when the initial ion is in the state $1s^22s^22p^5\,{}^2P$ and the radiative transitions are $\Delta n\neq 0$ where $\log_{10}(c_i)=\sum_{j=1}^{4}a_{ij}[\log_{10}(z)]^{j-1}$ and $\xi_i=z^2\sum_{j=1}^{4}b_{ij}z^{1-j}$, and z is the effective charge of the initial ion.

	$j=1$	$j=2$	$j=3$	$j=4$
a_{ij}	$-15.454\,15$	$9.136\,113$	$-3.718\,244$	$0.654\,1606$
b_{1j}	$2.854\,174\times10^{-2}$	$0.939\,4845$	$0.484\,4335$	
a_{2j}	$-15.937\,40$	$13.884\,32$	$-8.895\,3653$	$2.235\,086$
b_{2j}	$8.320\,089\times10^{-2}$	$0.734\,0398$	$3.184\,332$	
a_{3j}	$-23.818\,98$	$32.023\,81$	$-21.974\,53$	$5.282\,664$
b_{3j}	$0.121\,0456$	$1.209\,050$	$1.432\,492$	

TABLE XII. The coefficients of the least-squares fit to the parameters of the three exponential fits to the directly computed dielectronic-recombination rate coefficients when the initial ion is in the state $1s^2 2s 2p^6\,{}^2S$ and where $\log_{10}(c_i)=\sum_{j=1}^{4} a_{ij}[\log_{10}(z)]^{j-1}$ and $\xi_i = z^2\sum_{j=1}^{4} b_{ij} z^{1-j}$, and z is the effective charge of the initial ion.

	$j=1$	$j=2$	$j=3$	$j=4$
a_{ij}	4.004 929	−40.095 024	38.557 12	11.042 01
b_{1j}	$2.767\,368\times 10^{-2}$	0.783 991 5	0.955 9530	
a_{2j}	19.764 29	−77.448 91	67.012 23	−18.428 34
b_{2j}	$9.493\,142\times 10^{-2}$	$1.775\,680\times 10^{-2}$	6.659 476	
a_{3j}	3.503 428	−38.930 44	37.242 00	−10.758 10
b_{3j}	0.129 198 1	0.576 816 5	4.440 885	

The authors thanks Dr. Chen for pointing out the discrepency in these results and for several useful discussions.

[1]Mau Hsiung Chen, Phys. Rev. A **35**, 2122 (1987); **38**, 2332 (1988).
[2]L. J. Roszman (unpublished).
[3]L. J. Roszman and A. Weiss, J. Quant. Spectrosc. Radiat. Transfer **30**, 67 (1983).
[4]Robert D. Cowan and D. C. Griffin, Phys. Rev. A **36**, 26 (1987).

Erratum: Exact two-body solution of the Lorentz-Dirac equation [Phys. Rev. A 37, 977 (1988)]

Keith Briggs

Dr. E. G. P. Rowe (University of Durham) has kindly pointed out that the sign of the quantity $\dot{\beta}_i$ [following Eq. (5)] is incorrect. With the correct sign, we find that there is no solution to the resulting equations, so that the conclusion of the paper is reversed: there is no solution of the claimed type. The same point has been made by Dr. V. Hnizdo (University of Witwatersrand).