

1991

Erratum: Expectation values of r^p for arbitrary hydrogenic states (Physical Review A (1991) 43, 11, (6432))

Gordon W. F. Drake
University of Windsor

R. A. Swainson

Follow this and additional works at: <http://scholar.uwindsor.ca/physicspub>

 Part of the [Physics Commons](#)

Recommended Citation

Drake, Gordon W. F. and Swainson, R. A.. (1991). Erratum: Expectation values of r^p for arbitrary hydrogenic states (Physical Review A (1991) 43, 11, (6432)). *Physical Review A*, 43 (11), 6432.
<http://scholar.uwindsor.ca/physicspub/81>

This Article is brought to you for free and open access by the Department of Physics at Scholarship at UWindsor. It has been accepted for inclusion in Physics Publications by an authorized administrator of Scholarship at UWindsor. For more information, please contact scholarship@uwindsor.ca.

Errata

Erratum: Expectation values of r^P for arbitrary hydrogenic states [Phys. Rev. A 42, 1123 (1990)]

G. W. F. Drake and R. A. Swanson

This paper contains typographical errors in three of the equations for the expectation values of the inverse powers of r , given on p. 1125. The corrected equations should read

$$\begin{aligned} \langle 1/r^{11} \rangle &= 630G_{11}(n, l) \left\{ \frac{2431}{63}n^9 - \frac{572}{7}n^7[f_1(l) - \frac{35}{6}] + \frac{286}{5}n^5[f_2(l) - 10f_1(l) + \frac{145}{6}] \right. \\ &\quad \left. - \frac{44}{3}n^3[f_3(l) - \frac{21}{2}f_2(l) + 48f_1(l) - \frac{1315}{21}] + n[f_4(l) - \frac{16}{3}f_3(l) + \frac{144}{5}f_2(l) - \frac{576}{7}f_1(l) + 64] \right\}, \\ \langle 1/r^{13} \rangle &= 2772G_{13}(n, l) \left\{ \frac{4199}{3}n^{11} - \frac{20995}{63}n^9[f_1(l) - 9] + \frac{2210}{7}n^7[f_2(l) - \frac{49}{3}f_1(l) + \frac{623}{10}] \right. \\ &\quad \left. - 130n^5[f_3(l) - 20f_2(l) + \frac{887}{6}f_1(l) - \frac{1873}{6}] \right. \\ &\quad \left. + \frac{65}{3}n^3[f_4(l) - 18f_3(l) + 174f_2(l) - \frac{16372}{21}f_1(l) + \frac{35076}{35}] \right. \\ &\quad \left. - n[f_5(l) - \frac{25}{3}f_4(l) + 80f_3(l) - \frac{3600}{7}f_2(l) + 1600f_1(l) - \frac{14400}{11}] \right\}, \\ \langle 1/r^{16} \rangle &= 1716G_{16}(n, l) \left\{ \frac{1671525}{143}n^{14} - \frac{1300075}{33}n^{12}[f_1(l) - 15] + 52003n^{10}[f_2(l) - \frac{85}{3}f_1(l) + 185] \right. \\ &\quad \left. - 33915n^8[f_3(l) - 38f_2(l) + \frac{1465}{3}f_1(l) - \frac{12755}{7}] \right. \\ &\quad \left. + 11305n^6[f_4(l) - 42f_3(l) + \frac{3759}{5}f_2(l) - \frac{17473}{3}f_1(l) + 13718] \right. \\ &\quad \left. - 1785n^4[f_5(l) - \frac{115}{3}f_4(l) + 791f_3(l) - \frac{26864}{3}f_2(l) + \frac{423260}{9}f_1(l) - \frac{2409320}{33}] \right. \\ &\quad \left. + 105n^2[f_6(l) - 25f_5(l) + \frac{1502}{3}f_4(l) - 6908f_3(l) + \frac{282288}{5}f_2(l) - \frac{2372512}{11}f_1(l) + \frac{224972736}{1001}] - f_7(l) \right\}. \end{aligned}$$

The changes are a closing bracket in the second line of $\langle 1/r^{11} \rangle$, the leading multiplying factor in $\langle 1/r^{13} \rangle$, and a factor of n^4 in the fourth line of $\langle 1/r^{16} \rangle$. Also, Eq. (15) should read

$$\langle r^2 \rangle = 6(n/4Z^2) \left\{ \frac{5}{3}n^3 - n[f_1(l) - \frac{1}{3}] \right\}. \quad (15)$$

© 1991 The American Physical Society

Erratum: Relativistic effects on low-frequency Rayleigh scattering including spin flip for hydrogenic atoms [Phys. Rev. A 42, 3844 (1990)]

Viorica Florescu, M. Marinescu, and R. H. Pratt

In Eq. (5) s_2 should be replaced by s_2^* and ξ by e_3 .

In the last equality of Eq. (13) Z should be replaced by τ .

In Eqs. (14) and (16) Z should be replaced systematically by τ . On the right-hand side of the last equality of Eq. (14) δ should be replaced by τ .

In Eq. (15) $\gamma_2 1$ should be replaced by $\gamma_2 + 1$.

In Eq. (16) j_m should be replaced by 1_m , the first δ by τ , and the second δ by λ .

In Table I, in the heading of the last column Σ should be replaced by ϵ and in the column RDLWL the fifth number, -0.11122 , should be replaced by -0.01122 .

In Table III the value of B for $k=0.6$ and $Z=13$ is $-4.6244[-4]$, not $-8.9674[-3]$; the values of B for $Z=30$, $k=0.5$, and $k=0.6$ should be interchanged; and the value of B at $k=0.5$, $Z=50$ is $4.4561[-6]$, not $4.4522[-6]$.