

Corrections:

Back Cover: Next to last line of Cover Illustration Caption:

“1s2s-1s2s2p” should read “1s2s-1s2p”

Page 14: Eq. 2.44, the left-most integral (over $d\phi$) is from 0 to 2π , not 0 to T .

Page 15: Eq. 2.50, superscript on LHS is “-q-2”

$$\langle r^{-q-1} \rangle = b^{-2q-1} \langle r^{-q-1} \rangle \quad \text{should read} \quad \langle r^{-q-2} \rangle = b^{-2q-1} \langle r^{-q-1} \rangle$$

Page 15: Eq. 2.51 middle equality

$$“-\Theta \leq \theta \leq \Theta “ \quad \text{should read} \quad “\pi/2 - \Theta \leq \theta \leq \pi/2 + \Theta”$$

Page 19: Table 2.1, last line. Coefficient “15” missing in

$$“ [63 - 70 (\ell_{\text{op}}/n)^2 + 15 (\ell_{\text{op}}/n)^4] “$$

Page 35: After Eq. 2.139, replace “(which produces a breakdown..)” with “(which yields an eccentricity greater than unity, indicative of a hyperpolic orbit. This produces a breakdown..)”

Page 35: Before Eq. 2.141 the parenthetical “(becomes pure imaginary)” should read “(becomes negative)”

Page 48: Eqs. 3.18, 3.19, 3.20 and 3.22 (twice). A factor “2m” is missing in the denominator of

$$\frac{(\ell+1/2)^2 \hbar^2}{r^2} \quad \text{should read} \quad \frac{(\ell+1/2)^2 \hbar^2}{2mr^2}$$

Page 52: last 2 lines. The words “negative” and “positive” are interchanged. It should Read “A positive value for b_{ij} indicates that penetration effects are large and dominate over the ever-present effects of polarization. A negative value for...”

Page 53: first line under Eq. 3.34, a square is missing on the LHS of the inline equation

$$\ell_{\text{op}} = \ell(\ell+1) \quad \text{should read} \quad \ell_{\text{op}}^2 = \ell(\ell+1)$$

Page 109: Eqs. 5.67 and 5.68. Reverse the prime and double prime definitions (to match the notation in Chapter 7).

LHS of Eq. 5.67 becomes $\zeta_{pp}'' =$

LHS of Eq. 5.68 becomes $\zeta_{pp}' =$

Page 150: Eq. 7.37, second line, subscript on RHS is also be “1”

$$|{}^3P'_1\rangle = |{}^3P_0\rangle \quad \text{should read} \quad |{}^3P'_1\rangle = |{}^3P_1\rangle$$

Page 151: Eqs. 7.40. the 2nd two equations contain sqrt 75 (not 15) and should read

$$\langle {}^3P'_2 | \mathbf{r} | {}^3P^0_2 \rangle = \sqrt{75} \cos\theta_2 \langle p^2 | r | sp \rangle$$

$$\langle {}^3D'_2 | \mathbf{r} | {}^3P^0_2 \rangle = \sqrt{75} \sin\theta_2 \langle p^2 | r | sp \rangle$$

Page 170 : Eqs. 8.10 and 8.11. The bracketed quantity should be raised to the power 3 (not 2)

Page 192: Eq. 9.64. Overall minus sign on RHS

Page 192: Eq. 9.65. No minus sign on “(e^{ħω/k_BT})”

Page 213: Eq. 11.37, $2q(a^2 - b^2)/3$ should read $2q(a^2 - b^2)/5$

Page 220: Eq. 12.4. (LHS). Insert subscript on “H₀” to read “H₀ | n⟩ = ε_n | n⟩

Page 222: Eq. 12.20. Overall minus sign on RHS

Page 222: Eq. 12.22. A term should added to the RHS

$$+ \langle n | \Delta V | n \rangle \sum_{k \neq n} \langle n | F | k \rangle \langle k | F | n \rangle$$