ERRATA -ALL-October 29, 2018

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Page xi: Line 30 “easy so adopt” should read “easy to adopt”
Page xii: Para 2, line 1, should read “.. costs were ..”
Page 3: Line 9 “do not puposely use” should read “purposely do not use”
Page 9: line 30, “easy so adopt” should read “easy to adopt”
Page 18: Second line of Exercise 1.4.1* 0 \rightarrow |0\rangle
Page 43: Equation in part (2) should read “$M^i M^j = -M^j M^i$ for $i \neq j$”
Page 52 3rd line from bottom: $|II)(t)\rangle \rightarrow |II)(t)\rangle$
Page 52, Middle of page, after the word ”Consequently” : $|I(t) \rightarrow |I(t)\rangle$
Page 54: The sum runs from 0 to $\infty$.
Page 63: Exercise 1.10.2: $\delta(f(x)) = \sum_i \delta(x-x_i)$ where $x_i$ are the zeros of $f$.
Page 66: In un-numbered equation above (1.10.30) lower limit of integral is $L$ and not 0.
Page 68: (1.10.35) the first integral should be “$\int_{-\infty}^{\infty} \langle x|k\rangle \langle k|f\rangle dk$”
Page 81: 4 lines below (2.1.14): should read “...$\rho = (x^2 + y^2)^{1/2}$...”
Page 119: Unnumbered equation in (5) should read “$P(\lambda) \propto |\langle \lambda|\psi\rangle|^2$”
Page 120: First equation (line 4) $|\psi\rangle = \frac{1}{\sqrt{2}} |\omega_1\rangle...$

Page 131: Line 9 ”vesa” should read “versa”
Page 167: 2 lines below (5.4.1) should read “..dotted lines in Figure 5.2.”
Page 171: Line below Eq (5.4.17): ..Gaussian $G(-a, k_0, t)$ is centered...

Page 175: Exercise 5.4.2: Line 1, “of a potential” $\rightarrow$ ”off a potential ”
Page 191: 7 lines below (7.3.8) should read “... ranging from atomic physics...”
Page 220: Line 19, “assuming” should read “assuming”
Page 252: 3 lines above (10.1. 9a) should read “...$X^{(1)} \otimes (2) ...$”
Page 255: 2 lines below (10.1. 28c) should read “.. energy eigenvectors...”
Page 271: Pare 3, lines 8 and 9: “including ssome $(K, \bar{K})$ and $(\bar{K}, K)$ pairs.
Page 296: Footnote should read “which does change with time ”
Page 317: Part 10 line 2 should read : ”..$n = 1$ solutions..”
Exercise (12.3. 8) should read “.. particle of mass $\mu$ and charge $q$..”
Page 320: Eq 12.4.12: Last exponential must have an $i$ in it..
Page 320: Eq. (12.4.2) second line $= e^{-iL, \theta}$
($L$ and $\theta$ should be same size despite what I have shown above)
Page 336: 5 lines from bottom should read “.. combinations of ..”
Page 337: 1 line below (12.5.41) should read “...Legendre Polynomial.”
Page 339: Exercise (12.5.14), last line, change (2) to (3) in Hint.
Page 339: In Exercise (12.5.14) reverse any sign in front of sin \( \theta_x \) in both equations for \( \psi_R \).
Page 350: Top equation should contain \( pr \cos \theta / \hbar \)
Page 392: line above heading Paramagnetic Resonance should read i.e., since \( \omega_0 < 0 \) for an electron, \( \phi \) increases at a rate \( |\omega_0| \).

Page 394: Line 2 from bottom replace \( n \) by \( N \) in equation.
Page 397: Fourth line from bottom “weak” should read “strong”
Page 399: Exercise (14.5.2) part (1) second line should read “..1000kG is applied.”
Page 408: 3 lines above part (3): should read “ wavelength of emitted..”
Page 414: Second footnote should read “.. one for \( j = l + \frac{1}{2} \) and ..”
Page 414: Line 6 should end with ”momentum”
Page 415: Page 397: Third line second para, “weak” should read “strong”
Page 415: Exercise (15.2 6) should read “... the projection operators ..”
Page 415: Exercise (15.2 7) should read “ states with \( j = 2j_1 - 1 \) are..”
Page 418: Eq. 15.3.11 first line : \( \pm \hbar \) becomes \( \hbar \) , i.e., drop the \( \pm \).
Page 418: 2 lines below (15.3.13) should read“.. orthogonal to \( T_k^q|\alpha jm\rangle \) unless..”
Page 419: Footnote should read“..\( \mp (J_x \pm iJ_y) / \sqrt{2} = ..\)”
Page 420: In (15.3. 17) the conjugated \( Y \) functions should appear as follows: \( Y_{m_2}^{m_2} \)
Page 420: Renumber exercises 15.3.2, 15.3.3 and 15.3.4 as 15.3.1, 15.3.2,15.3.3
Page 429: Last line should read :“ This minimum..”
Page 432: 4 lines above (16.1.15) should read ”variational method. For a trial..
Page 432: Line below (16.1. 15) should read “...minimum lies not at \( Z = 2\)”
Page 434: Line 22 “wil” should read “will”
Page 439: In the un-numbered equation for \( U \), let \( X' \rightarrow x' \)
Page 446: 2 lines below (16.2. 28) should read “.. neither Eq. (16.2 27) nor Eq. (16.2. 28) is ..”
Page 456: Line 8: “ay” should read “by”
Page 467: Eq. 17.3.11: \( \frac{4E_0^2 n}{l+1/2} \rightarrow \frac{4(E_0^2)^2 n}{l+1/2} \)
Page 485: Line above (18.3.8b) should read ".. equation, we get"
Page 496: Last line should read ".. least action) are .."
Page 502: Line above (18.5.12) should read ".. may approximate.."
Page 507: First line penultimate para "..coordinates.."
Page 510: Eqn 18.5.42 follows upon using $|\nabla \times A|^2 = -A \cdot \nabla^2 A$ within $\int d\mathbf{r}$.
Page 526: Line above (19.2.5) should end with "..Eq. (19.2.2)
Page 518: $e^{ikr} \rightarrow e^{-ikr}$ in 18.5.81 and the one below it.
Page 527: Eqn. 19.2.8: $m = 0$; and $Y_{lm} = P_l$ because plane wave in Eqn. 19.2.6 is along $z$.
Page 530: Eq. 193.2: $j_p \langle i | \rightarrow | p_i \rangle$
Page 533: Line 3 should read ".. $r_0 = 1/\mu_0$.."
Page 539: Top line should contain only the following and nothing else: $\simeq r \left(1 - 2\frac{\mathbf{r} \cdot \mathbf{r}'}{r^2} \right)^{1/2}$
Page 544: Eqn. 19.4.43: $..V(\mathbf{r})e^{ik \cdot \mathbf{r}'} d^3 \mathbf{r}$.
Page 554: Exercise 19.5.4: In last 4 lines $k_1' \rightarrow k_0'$, $k_2' \rightarrow k_1'$.
Page 564: In (20.1.8b) it should read ".. $+ \left(\frac{mc}{\hbar} \right)^2$".
Page 572: Top line should read ".. terms make corrections.."
Page 573: Third line put a comma after first $P$
Page 576: last line (foot note) "...we woke up..." should read "..he woke up..."
Page 586: Line 13: $\sum_{i=1}^{N} \rightarrow \sum_{n=1}^{N}$
Page 587: 5 lines above (21.1.29), sentence should begin as follows: "Let us discuss a problem...
Page 604: Line 11: "coordinate" should read "coordinates"
Page 609: RHS of (21.1.126) should be $e^{z'z}$, RHS of (21.1.127) should end with $= e^{-z'r}$.
Page 610: Second line below Eqn.(21.1.132): ".. $\langle z'|z \rangle = e^{z'r}$
Page 614: In (21.2.3) replace $\psi(t)$ by $\psi(\tau)$ in LHS.
Page 614: Line -8: $\Pi_0^N \rightarrow \Pi_1^N$
Page 616: Line below 921.2.17) should end as follows "case $a = A = 1$"
Page 618: Eq 21.2.25 should read (the factor $a$ is currently missing)

$$\cdots \tanh \left( \sqrt{\frac{2}{m}} a \frac{A \tau}{\tau} \right)$$

Page 619: Line 28: "limitis" should read "limit is"
Page 620: Line 11 $\langle -a|U(\tau)|a \rangle \rightarrow \langle a|U(\tau)| - a \rangle$

Page 637: Line 14” so when one usually “ should read “usually so when one”

Page 652 Eq 21.3.107: The bar should be on $\psi(0)$: i.e.,

$$..\langle \psi(\tau)\bar{\psi}(0) \rangle$$

Page 662: Line 15 “pole as z” should read “pole at z”

Page 667: Answer to 14.3.5 should read ..... $+ i \left( \frac{\beta - \gamma}{2} \right) \sigma_y + ..$

Page 673: Insert index item “Legendre polynomial 337” above Lamb shift.

Page 676 Last entry, Zeeman should have just one $n$. 