Errata for
The Feynman Lectures on Physics Volume III
Definitive Edition (Caltech Approved)

The errors in this list appear in *The Feynman Lectures on Physics: Definitive Edition* and earlier editions; all corrections have been approved by Caltech; these errors will be corrected in future editions.

Errors are listed in the order of their appearance in the book. Each listing consists of the errant text followed by a brief description of the error, followed by corrected text.

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III:10, Table of Contents, Chapter 11

Wrong page number.

III:2-6, par 2

The spread of momentum is roughly h/a because of the uncertainty relation,

Wrong constant (‘h’ vs. ‘$\hbar$’).

The spread of momentum is roughly $\hbar/a$ because of the uncertainty relation,

III:2-6, par 2

—but the momenta must be of the order $p \approx h/a$.

Wrong constant (‘h’ vs. ‘$\hbar$’).

—but the momenta must be of the order $p \approx \hbar/a$.

III:2-6, par 2

Then the kinetic energy is roughly $\frac{1}{2}mv^2 = p^2/2m = h^2/2ma^2$.

Wrong constant (‘h’ vs. ‘$\hbar$’).

Then the kinetic energy is roughly $\frac{1}{2}mv^2 = p^2/2m = \hbar^2/2ma^2$.

III:2-6, Eq 2.10

$$E = h^2/2ma^2 - e^2/a \, . \qquad (2.10)$$

Wrong constant (‘h’ vs. ‘$\hbar$’).

$$E = \hbar^2/2ma^2 - e^2/a \, . \qquad (2.10)$$

III:2-6, Eq 2.11

$$E = -h^2/ma^3 + e^2/a^2 \, , \qquad (2.11)$$

Wrong constant (‘h’ vs. ‘$\hbar$’).

$$E = -\hbar^2/ma^3 + e^2/a^2 \, , \qquad (2.11)$$

III:2-6, Eq 2.12

$$a_0 = h^2 / me^2 = 0.528 \text{ angstrom} \\ = 0.528 \times 10^{-10} \text{ meter.} \tag{2.12}$$

Wrong constant (‘h’ vs. ‘$\hbar$’).

$$a_0 = \hbar^2 / me^2 = 0.528 \text{ angstrom} \\ = 0.528 \times 10^{-10} \text{ meter.} \tag{2.12}$$

III:2-6, Eq 2.13

$$E_0 = -e^2 / 2a_0 = -me^4 / 2h^2 = -13.6 \text{ ev.} \tag{2.13}$$

Wrong constant (‘h’ vs. ‘$\hbar$’).

$$E_0 = -e^2 / 2a_0 = -me^4 / 2\hbar^2 = -13.6 \text{ ev.} \tag{2.13}$$

III:3-6, Fig 3-4 caption

…in the experiment of Fig. 3 3:

Missing hyphen.

…in the experiment of Fig. 3-3:

III:4-6, par 4

…we can set $a_1 = a_2 = \cdots = a = a_n$, and similarly for *b, c,* …

Assignment is misordered.

…we can set $a_1 = a_2 = \cdots = a_n = a$, and similarly for *b, c,* …

III:4-7, par 4

When the light is emitted a photon is "created." In such a case, we don't need the incoming lines in Fig. 4-4; we can consider merely that there are *n* atoms *a, b, c, …* emitting light, as in Fig. 4-5.

Transcription error. This is confusing because, in fact, there don't have to be 'n' atoms (or any particular number of atoms) in this part of the discussion. Feynman makes this amply clear in his original (spoken) lecture, when he says that the photons under discussion are light, "emitted from some source that has nothing to do with the argument. It has nothing to do with the argument, whether they come from somewhere before or whether they simply come out of the atom and are created at the moment." Furthermore, Fig 4-5, does not show any atoms; the circles must be photons in this figure if is to be interpretted analogously to Fig 4-4.

When the light is emitted a photon is "created." In such a case, we don't need the incoming lines in Fig. 4-4; we can consider merely that there are some atoms emitting *n* photons as in Fig. 4-5.

III:4-10, Fig 4-8

The wave mode numbers in the column headed $\frac{2L}{\lambda}$ are incorrect. The topmost curve, currently numbered '0', should be numbered '1', and the curve immediately below that, currently labeled '1' should be labeled '2'. (The curve labeled 'j' is okay.)

III:4-14, par 6

We have said earlier that the nuclear forces are the same between the neutron and the proton, between the proton and the proton, and between the proton and the neutron.

The interaction between neutron and proton is redundantly mentioned twice, and the interaction between neutron and neutron is omitted.

We have said earlier that the nuclear forces are the same between the neutron and the proton, between the proton and the proton, and between the neutron and the neutron.

III:5-9, par 4

If we then put another + S filter,

Unwanted space between '+' and 'S'.

If we then put another +S filter,

III:6-5, Eq 6.14

$$\frac{R_{ki}^{US}}{\sqrt{\text{Det}}\,R^{US}} = \sum_i \frac{R_{kj}^{UT}}{\sqrt{\text{Det}}\,R^{UT}} \frac{R_{ji}^{TS}}{\sqrt{\text{Det}}\,R^{TS}} \tag{6.14}$$

The wrong index is summed ('i' vs. 'j').

$$\frac{R_{ki}^{US}}{\sqrt{\text{Det}}\,R^{US}} = \sum_j \frac{R_{kj}^{UT}}{\sqrt{\text{Det}}\,R^{UT}} \frac{R_{ji}^{TS}}{\sqrt{\text{Det}}\,R^{TS}} \tag{6.14}$$

III:6-9, par 2

a particle that is the (+S) state—so that it goes on the "upper" path in the first apparatus…

Missing word 'in' before 'the (+S) state'.

a particle that is in the (+S) state—so that it goes on the "upper" path in the first apparatus…

III:7-10, par 1

This is identical to Eq. (7.26) if we replace p/m by v and $\Delta V/D$ by $\partial V/\partial y$.

Incorrect capitalization ('m' vs. 'M').

This is identical to Eq. (7.26) if we replace p/M by v and $\Delta V/D$ by $\partial V/\partial y$.

III:8-1, par 3

The states χ and ϕ correspond to the two vectors $\boldsymbol{A}$ and $\boldsymbol{B}$.

Misleading word order: χ corresponds to $\boldsymbol{B}$ and ϕ corresponds to $\boldsymbol{A}$ in Eq.s 8.1 and 8.2.

The states χ and ϕ correspond to the two vectors $\boldsymbol{B}$ and $\boldsymbol{A}$.

III:8-3, unnumbered Eq after Eq 8.15

$$\boldsymbol{A}\cdot\boldsymbol{B} = \sum_i A_i B_i .$$

Wrong order (this is supposed to be analogous to Eq 8.15 with χ corresponding to $\boldsymbol{B}$ and ϕ corresponding to $\boldsymbol{A}$.

$$\boldsymbol{B}\cdot\boldsymbol{A} = \sum_i B_i A_i .$$

III:8-8, par 1

The things go crash and out come, say, two *k*-mesons,

Incorrect capitalization & italics (‘*k-’* vs. ‘K-‘ see Section 11-5).

The things go crash and out come, say, two K-mesons,

III:8-9, par 3

If we let $C_i\left(t\right)= \left\langle i|\psi\left(t\right)\right\rangle$ stand for the amplitude to be in the base state *i* at the time *t,*

Missing space between $C_i\left(t\right)$ and $=$.

If we let $C_i\left(t\right) = \left\langle i|\psi\left(t\right)\right\rangle$ stand for the amplitude to be in the base state *i* at the time *t,*

III:8-10, Eq 8.41

$$i\hbar\frac{dC_1}{dt}=H_{11}C_1. \qquad (8.41)$$

Extra space between ‘(‘ and ‘8’ in equation number.

$$i\hbar\frac{dC_1}{dt}=H_{11}C_1. \qquad (8.41)$$

III:8-11, par 4

We shall say that the nitrogen is in state $|\mathit{1}\rangle$ when the nitrogen is “up,” as in Fig. 8-1(a), and is in the state $|2\rangle$ when the nitrogen is “down,” as in (b).

Typographical error. “2” should be in italics.

We shall say that the nitrogen is in state $|\mathit{1}\rangle$ when the nitrogen is “up,” as in Fig. 8-1(a), and is in the state $|\mathit{2}\rangle$ when the nitrogen is “down,” as in (b).

III:9-5, par 4

As a result of this moment, the energy in an electric field ε will depend on the molecular orientation.

Typographical error. Vectors should be written in bold italics (‘ε’ vs. ‘$\boldsymbol{\mathcal{E}}$’).

As a result of this moment, the energy in an electric field $\boldsymbol{\mathcal{E}}$ will depend on the molecular orientation.

III:9-8, Fig 9-2

$$E_0 - \sqrt{A^2 - \mu^2\varepsilon^2}$$

Wrong sign. The (lower) curve (for energy base state II) is mislabeled.

$$E_0 - \sqrt{A^2 + \mu^2\varepsilon^2}$$

III:9-13, Fig 9-6

The ‘$\mathcal{E}$’ beside the vertical axis on the left side of the figure should be ‘E’; it indicates the direction of increasing energy, not the electric field.

III:11-3, par 5

It is the sum of products of terms taken in pairs from the *i*th row of *A* and the *k*th column of *B*.

Wrong column (‘k’ vs. ‘j’, see Eq 11.12).

It is the sum of products of terms taken in pairs from the *i*th row of *A* and the *j*th column of *B*.

III:11-3, Fig 11-1, caption, 1st line

$$C_{ik} = \sum_j A_{ij}B_{jk}$$

Inconsistent with Eq 11.12 and the body text. (See correction for par III:11-3, par 5)

$$C_{ij} = \sum_k A_{ik}B_{kj}$$

III:11-5, par 3

we can—as we did in Eq. (8.31)—write the amplitude that …

Incorrect reference.

we can—as we did in Eq. (8.34)—write the amplitude that …

III:11-5, par 3

We see that $-i/\hbar\langle i\,|\,H\,|\,j\rangle$ is the amplitude that—under the physical conditions described by *H*—a state $|\,j\rangle$ will, during the time *dt,* "generate" the state $|\,i\rangle$.

Incorrect statement (the amplitude is proportional to *dt*).

We see that $-i/\hbar\langle i\,|\,H\,|\,j\rangle dt$ is the amplitude that—under the physical conditions described by *H*—a state $|\,j\rangle$ will, during the time *dt,* "generate" the state $|\,i\rangle$.

III:11-6, par 1

For instance we would describe Eq. (11.18) in this way: "The time derivative of the *state vector* $|\psi\rangle$ is equal to what you get by operating with the Hamiltonian *operator* $\hat{H}$ on each base state, …

Incorrect statement (compare to next sentence, re. Eq (11.19)).

For instance we would describe Eq. (11.18) in this way: "The time derivative of the *state vector* $|\psi\rangle$ times $i\hbar$ is equal to what you get by operating with the Hamiltonian *operator* $\hat{H}$ on each base state, …

III:11-6, par 2

Remember that this equation—as well as Eq. (11.19)—is not the statement that the $\hat{H}$ operator is just the identical *operation* as d/dt.

Incorrect statement (as above).

Remember that this equation—as well as Eq. (11.19)—is not the statement that the $\hat{H}$ operator is just the identical *operation* as $i\hbar\dfrac{d}{dt}$.

III:11-8, par 4

… the equations look like this:

Missing reference.

… the equations (9.38) and (9.39) look like this:

III:11-14, par 3, 3rd unnumbered equations

$$n + n \rightarrow n + p + \overline{K}^0 + K^+$$

Error in physics (violates conservation of charge). Proton should be an anti-proton.

$$n + n \rightarrow n + \overline{p} + \overline{K}^0 + K^+$$

III:11-14, par 3, 4th unnumbered equations

$$S = 0 + 0 = 0 + 0 + +1 + -1$$

Strangeness of $\overline{K}^0$ and K^+ (corresponding to above equation) are reversed.

$$S = 0 + 0 = 0 + 0 + -1 + +1$$

III:11-15, par 1, unnumbered reaction

$$\overline{K}^0 + p \rightarrow A^0 + \pi^+$$

The 'Λ' looks like an 'A'.

$$\overline{K}^0 + p \rightarrow \Lambda^0 + \pi^+$$

III:11-15, par 3, unnumbered reaction

$$K^0 + p \rightarrow \Lambda^0 + \pi^0$$

Violates conservation of charge. The π^0 should be π^+. [Refering to this reaction the text says, "a $\overline{K}^0$ can do just that." As illustrated in 11-5(b), and noted in the preceding unnumbered equation, it is the π^+ that is produced: $\overline{K}^0 + p \rightarrow \Lambda^0 + \pi^+$.]

$$K^0 + p \rightarrow \Lambda^0 + \pi^+$$

III:11-18, par 5

Remembering that A is a complex number, it is convenient to take $A = \alpha - i\beta$.

Typographical error (missing '2').

Remembering that A is a complex number, it is convenient to take $2A = \alpha - i\beta$.

III:11-19, par 2 (just before Eq 11.54)

and—from Eq. (11.51) —that

Incorrect reference.

and—from Eqs. (11.52) and (11.53)—that

III:11-19, par 2

Now remember that K_1 and K_2 are each linear combinations of K^0 and $\overline{K}^0$. In Eqs. (11.54) the amplitudes have been chosen so that at $t = 0$ the $\overline{K}^0$ parts cancel each other out by interference, leaving only a K^0 state.

Confusing wording ('K_1 and K_2 are each linear combinations of K^0 and $\overline{K}^0$' vs. 'K^0 and $\overline{K}^0$ are each linear combinations of K_1 and K_2'). In the text above, "the $\overline{K}^0$ parts cancel each other out by interference" refers to the amplitude for a $\overline{K}^0$ state given as a linear combination of the amplitudes for states K_1 and K_2 (as per C_2 in Eqs 11.50). "the $\overline{K}^0$ parts," refer to the equal and opposite amplitudes for state K_1 and K_2 in the state $\overline{K}^0$, which cancel in the linear combination giving an amplitude of 0 for the state $\overline{K}^0$. Thus, what seems pertinent here is that K^0 and $\overline{K}^0$ are linear combinations of K_1 and K_2.

Now remember that K^0 and $\overline{K}^0$ are each linear combinations of K_1 and K_2. In Eqs. (11.54) the amplitudes have been chosen so that at $t = 0$ the $\overline{K}^0$ parts cancel each other out by interference, leaving only a K^0 state.

III:11-20, Fig 11-6

The scale of the (horizontal time) axis in both graphs is too small by half. In (a) the time should range from 0 to ~2 x 10^{-10} seconds and in (b) the time should should range from 0 to ~8 x 10^{-10} seconds. Therefore the numerical labels on the time axis in both graphs should be doubled.

III:12-2, par 1 and Fig 12-1

For handy reference, we've also summarized the notation in Fig. 12-1

There is no notation in Fig 12-1. Either the notation given in Eq 12.1 should label the corresponding state in the figure, or the above sentence should be struck from par 1.

III:12-3, Table 12-1, line 5

$$\sigma_y \left|+\right\rangle = + \ i\left|-\right\rangle$$

There should be no space between '+' and 'i'

$$\sigma_y \left|+\right\rangle = +i \left|-\right\rangle$$

III:12-13, Fig 12-5

The label 'B' (magnitude of the magnetic field) is missing from the horizontal axis. 'B' should be added to the graph near the arrowhead at the end of the horizontal axis (similar to the 'E' that labels the vertical axis).

III:13-2, par 5

Using these base states, any state $\left|\phi\right\rangle$ of our one-dimensional crystal can be described by …

Missing words ("of the electron in").

Using these base states, any state $\left|\phi\right\rangle$ of the electron in our one-dimensional crystal can be described by …

III:13-5, par 6

As another example, suppose that k were $\pi/4b$. The real part of $a(x_n)$ would vary as shown by curve 1 in Fig. 13-4. If k were seven times larger $(k = 7\pi/4)$, the real part of $a(x_n)$ would vary as shown by curve 2 in in the figure.

The statement (at the top of page 13-6) that "the amplitudes a(xn) for k = pi/4b and k = 7pi/4b are the same" is incorrect. a(xn) = exp(i n pi/4) in the first case but a(xn) = exp(-i n pi/4) in the second case (the real parts are equal, so it doesn't show up in Fig 13-4). The main point of the discussion is that one only needs to consider values of k within a certain range, because values of k outside that range yield physical states identical to physical states for values of k within that range. In the first example the endpoints of the given range are k = 0 and k = 2pi/b, which yield exactly the same state; therefore, the endpoints for the range given in the second example should also yield exactly the same state. This can be achieved by changing the lower endpoint from k=pi/4b to k = –pi/4b.

Also, a wrong value for k is given (‘$7\pi/4$’ vs. ‘$7\pi/4b$’).

As another example, suppose that k were $-\pi/4b$. The real part of $a(x_n)$ would vary as shown by curve 1 in Fig. 13-4. If k were $7\pi/4b$, the real part of $a(x_n)$ would vary as shown by curve 2 in in the figure.

III:13-5, Fig 13-4, caption

curve 1 is for *k* = $\pi/4$, curve 2 is for k = $7\pi/4$.

See comments for III:13-5, par 6. Also, incorrect values for *k* are given (both off by factor of 1/*b*).

curve 1 is for *k* = $-\pi/4b$, curve 2 is for k = $7\pi/4b$.

III:13-5, Fig 13-4, label on vertical axis

↑ Re A(x_n)

Incorrect capitalization (‘A’ vs. ‘a’)

↑ Re a(x_n)

III:14-1, Eq 14.1

$$\mathrm{E} = \mathrm{E}_0 - 2\mathrm{A}_x \cos k_x a - 2\mathrm{A}_y \cos k_y b - 2\mathrm{A} \cos k_z c \qquad (14.1)$$

All the E's and A's should be italic as per Eq 14.2. And subscript 'z' is missing on 'A' in final term on right-hand side.

$$E = E_0 - 2A_x \cos k_x a - 2A_y \cos k_y b - 2A_z \cos k_z c \qquad (14.1)$$

III:14-1, Eq 14.3

$$\mathrm{E} = \mathrm{E}_{\min} + \alpha k^2 \qquad (14.3)$$

The E's should be italic as per Eq 14.2. side.

$$E = E_{\min} + \alpha k^2 \qquad (14.3)$$

III:14-2, Fig 14-3

The lower bound of the energy curve is incorrectly labelled 'E'. It should be labelled '$\mathrm{E}^{+}_{\mathrm{min}}$' as per Fig 14-4 (see also Fig 14-2). [Note: the *incorrect* label is in the middle right of the diagram; the other E near the top of the diagram (labelling the vertical axis) is correct.]

III:14-4, par 4

This extra electron is very loosely attached—the binding energy is less than 1/10 of a volt.

The binding energy for As in Ge is (according to Kittel) 12.7 meV which is about 1/100 eV.

This extra electron is very loosely attached—the binding energy is only about 1/100 of a volt.

III:14-7, Eq 14.9

$$\mathcal{E}_{\mathrm{tr}} = -v_{\mathrm{drift}} \times B. \qquad (14.9)$$

(All three) vectors should be written in bold italics.

$$\boldsymbol{\mathcal{E}}_{\mathrm{tr}} = -\boldsymbol{v}_{\mathrm{drift}} \times \boldsymbol{B}. \qquad (14.9)$$

III:14-8, par 1

The electric field strength $\mathcal{E}_{\text{tr}}$ in the crystal is proportional to…

Vector component should be written in italics.

The electric field strength $\mathcal{E}_{\text{tr}}$ in the crystal is proportional to…

III:14-8, par 1

The constant of proportionality $1/qN$ is called the Hall coefficient and is usually represented by the symbol R_H

The "H" in "R_H" should not be italic, because it is not an index.

The constant of proportionality $1/qN$ is called the Hall coefficient and is usually represented by the symbol R_{H}.

III:14-8, par 3

On the *n*-type side of *p*-*n* junction…

Missing article.

On the *n*-type side of the *p*-*n* junction…

III:16-2, par 2

(see Section 13-3).

Incorrect reference.

(see Section 13-2).

III:16-6, par 5

Remembering that $\langle\phi|x\rangle$ is the complex conjugate of $\langle x|\phi\rangle$, we can write Eq. (16.18) as

Incorrect reference.

Remembering that $\langle\phi|x\rangle$ is the complex conjugate of $\langle x|\phi\rangle$, we can write Eq. (16.19) as

III:16-7, par 2

We can find this amplitude by using our basic equation for the resolution of amplitudes, Eq. (16.20).

Incorrect reference.

(We can find this amplitude by using our basic equation for the resolution of amplitudes, Eq. (16.19).

III:16-15, Eq 16.58

$$\frac{d^2a(x)}{dx^2} = \frac{2m}{\hbar}\left[V(x) - E\right]a(x). \tag{16.58}$$

Missing exponent on $\hbar$.

$$\frac{d^2a(x)}{dx^2} = \frac{2m}{\hbar^2}\left[V(x) - E\right]a(x). \tag{16.58}$$

III:16-15, par 1

This equation says that at each x the second derivative of $a(x)$ with respect to x is proportional to $a(x)$, the coefficient of proportionality being given by the quantity $(V - E)$.

Incorrect statement.

This equation says that at each x the second derivative of $a(x)$ with respect to x is proportional to $a(x)$, the coefficient of proportionality being given by the quantity $(2m/\hbar^2)(V - E)$.

III:16-15, par 1

That means that the curve of $a(x)$ will be concave away from the axis.

Incomplete statement.

That means that the curve of $a(x)$ will be concave away from the x-axis.

III:16-15, par 2

… and the curve of $a(x)$ will be concave toward the axis like one of the pieces shown in part (b) of Fig. 16-4.

Incomplete statement.

… and the curve of $a(x)$ will be concave toward the *x*-axis like one of the pieces shown in part (b) of Fig. 16-4.

III:17-4, par 1

… have an H_2^+ ion in the state which we once called $|I\rangle$.

An earlier discussion of the molecular hydrogen ion (in Section III:10-1) is referred to, yet the two states of the ion are reversed in this section (17-2) in relation to the earlier discussion. Compare, for example, Eq 10-7 and Eq 17.12. A footnote should be added pointing out this difference.

… have an H_2^+ ion in the state which we once called $|I\rangle$ †.

†See section 10-1. The states $|I\rangle$ and $|II\rangle$ are reversed in this section relative to the earlier discussion.

III:18-8, Eq 18.22

$$\langle x_1 x_2 | F\rangle = +\ i. \tag{18.22}$$

There should be no space between '$+$' and 'i'.

$$\langle x_1 x_2 | F\rangle = +i. \tag{18.22}$$

III:18-8, par 3

—it became known as the "Einstein-Podalsky-Rosen paradox."

Misspelled Podolsky.

—it became known as the "Einstein-Podolsky-Rosen paradox."

III:18-11, Eq 18.32

$$\left|\frac{3}{2},+\frac{3}{2},S\right\rangle = a^3\left|\frac{3}{2},+\frac{3}{2},T\right\rangle + \sqrt{3}a^2b\left|\frac{3}{2},+\frac{1}{2},T\right\rangle + \sqrt{3}a^2b\left|\frac{3}{2},-\frac{1}{2},T\right\rangle + b^3\left|\frac{3}{2},-\frac{3}{2},T\right\rangle. \quad (18.32)$$

Wrong coefficient on first term of second line (‘a^2b’ vs. ‘ab^2’).

$$\left|\frac{3}{2},+\frac{3}{2},S\right\rangle = a^3\left|\frac{3}{2},+\frac{3}{2},T\right\rangle + \sqrt{3}a^2b\left|\frac{3}{2},+\frac{1}{2},T\right\rangle + \sqrt{3}ab^2\left|\frac{3}{2},-\frac{1}{2},T\right\rangle + b^3\left|\frac{3}{2},-\frac{3}{2},T\right\rangle. \quad (18.32)$$

III:18-12, Eq 18.35

$$\left\langle j,m'\middle|R_y(\theta)\middle|j,m\right\rangle = \left[(j+m)!(j-m)!(j+m')!(j-m')!\right]^{1/2} \times\sum_k \frac{(-1)^k(\cos\theta/2)^{2j+m'-m-2k}(\sin\theta/2)^{m-m'+2k}}{(m-m'+k)!(j+m'-k)!(j-m-k)!k!}, \quad (18.35)$$

Wrong power on (-1) (k vs. $k+m-m'$) – compare Tables 17-1 and 17-2.

$$\left\langle j,m'\middle|R_y(\theta)\middle|j,m\right\rangle = \left[(j+m)!(j-m)!(j+m')!(j-m')!\right]^{1/2} \times\sum_k \frac{(-1)^{k+m-m'}(\cos\theta/2)^{2j+m'-m-2k}(\sin\theta/2)^{m-m'+2k}}{(m-m'+k)!(j+m'-k)!(j-m-k)!k!}, \quad (18.35)$$

III:18-14, Fig 18-10, caption

[From J. A. Kuehner, *Physical Review,* Vol. 125, p.1653, 1962.]

Wrong page number; the article begins on page 1650.

[From J. A. Kuehner, *Physical Review,* Vol. 125, p.1650, 1962.]

III:18-15, par 4

They are called the *Clebsch-Gordon coefficients*.

Proper name misspelled (‘*Gordon*’ vs. ‘*Gordan*’, possibly confusion with Gordon of the Klein-Gordon equation).

They are called the *Clebsch-Gordan coefficients*.

III:18-18, Table 18-6, line 1

$$\left|J=\frac{3}{2}, M=\frac{3}{2}\right\rangle = \left|a,+\frac{1}{2};b,+1\right\rangle$$

Inconsistent notation - missing '+' sign.

$$\left|J=\frac{3}{2}, M=+\frac{3}{2}\right\rangle = \left|a,+\frac{1}{2};b,+1\right\rangle$$

III:18-18, Table 18-6, line 2

$$\left|J=\frac{3}{2}, M=\frac{1}{2}\right\rangle = \sqrt{1/3}\left|a,+\frac{1}{2};b,0\ \ \right\rangle + \sqrt{1/3}\left|a,-\frac{1}{2};b,1\right\rangle$$

Inconsistent notation - missing '+' sign. Superfluous space (between '0' and bracket).

$$\left|J=\frac{3}{2}, M=+\frac{1}{2}\right\rangle = \sqrt{1/3}\left|a,+\frac{1}{2};b,0\right\rangle + \sqrt{1/3}\left|a,-\frac{1}{2};b,1\right\rangle$$

III:18-18, par 2

The combined states are $\left|a,m_a;b,m_a\right\rangle$,

Wrong subscript on 2nd 'm' ('a' vs. 'b').

The combined states are $\left|a,m_a;b,m_b\right\rangle$,

III:18-18, par 5

—the Clebsch-Gordon coefficients for each particular term.

Proper name misspelled ('Gordon' vs. 'Gordan'). See error III:18-15, par 4.

—the Clebsch-Gordan coefficients for each particular term.

III:18-19, par 1

So each of the Clebsch-Gordon coefficients has, if you wish, *six* indices identifying its position in the formulas like those of Table 18-3 and 18-6.

Proper name misspelled ('Gordon' vs. 'Gordan'). See error III:18-15, par 4.

So each of the Clebsch-Gordan coefficients has, if you wish, *six* indices identifying its position in the formulas like those of Table 18-3 and 18-6.

III:18-22, par 2

…which contains amplitudes for the emission photons into all sorts of angles.

Missing word ('of').

…which contains amplitudes for the emission of photons into all sorts of angles.

III:19-4, par 2

… for all $k > 1$.

Incomplete statement.

… for all $k \geq 1$.

III:19-8, Fig 19-4

$|j, m\rangle$.

Incorrect label on left side of figure (in this section the total angular momentum is 'l', not 'j'.

$|l, m\rangle$

III:19-15, Table 19-2, line *Z=18*

| 18 | **A** *argon* | 15.8 | …

Outdated symbol for Argon ('A' vs. 'Ar').

| 18 | **Ar** *argon* | 15.8 | …

III:20-13, Eq 20.67

$$\hat{\mathcal{P}}_{\text{total}} = \hat{\mathcal{P}}_{x1} + \hat{\mathcal{P}}_{x2} + \hat{\mathcal{P}}_{x3} + \cdots \qquad (20.67)$$

Typographical error: the numerals '1,2,3...' should be subscripts on 'x'

$$\hat{\mathcal{P}}_{\text{total}} = \hat{\mathcal{P}}_{x_1} + \hat{\mathcal{P}}_{x_2} + \hat{\mathcal{P}}_{x_3} + \cdots \qquad (20.67)$$

III:20-16, par 2

If we take the complex conjugate of this equation, it is equivalent to…

Incorrect reference ("this equation" implies the immediately preceding equation, which is 20.79, but what follows is the complex conjugate of equation 20.78).

If we take the complex conjugate of Eq. (20.78), it is equivalent to…

III:21-2, Fig 21-1

The amplitude to go from *a* to *b* along the path Γ is proportional to $\exp\left(iq/\hbar\right)\int_a^b \mathbf{A}\cdot d\mathbf{s}$.

Missing brackets for function exp.

The amplitude to go from *a* to *b* along the path Γ is proportional to $\exp\left[\left(iq/\hbar\right)\int_a^b \mathbf{A}\cdot d\mathbf{s}\right]$.

III:21-2, par 5

So the next step is to expand both sides of (21.4) in powers of *b*,

Inaccurate statement: only the right-hand side of (21.4) is expanded in powers of *b*.

So the next step is to expand the right-hand side of (21.4) in powers of *b*,

III:21-5, par 4

… this charge immediately picks up an "mv" momentum equal to $-q\boldsymbol{A}$.

The term "*mv*-momentum" has already been introduced.

… this charge immediately picks up an *mv*-momentum equal to $-q\boldsymbol{A}$.

III:21-5, par 4

But there is something that isn't changed immediately and that's the difference between mv and $-q\boldsymbol{A}$. And so the sum $\boldsymbol{p} = mv + q\boldsymbol{A}$ is something which …

The 'v' in both (2) instances of 'mv' should be bold ('$m\boldsymbol{v}$').

But there is something that isn't changed immediately and that's the difference between $m\boldsymbol{v}$ and $-q\boldsymbol{A}$. And so the sum $\boldsymbol{p} = m\boldsymbol{v} + q\boldsymbol{A}$ is something which …

III:21-7, footnote 6

First discovered by Onnes in 1911; H. K. Onnes, Comm. Phys. Lab., Univ. Leyden …

Improper abbreviation of (composite) family name ('K. Onnes' vs. 'Kamerlingh-Onnes').

First discovered by Onnes in 1911; H. Kamerlingh-Onnes, Comm. Phys. Lab., Univ. Leyden …

III:21-9, par 2

Since ρ and q have the same (negative) sign, and since ρ is constant, I can set $\rho q/m = -(\text{some constant})$;

Incomplete and inaccurate statement.

Since ρ and q have the same (negative) sign, and since ρ is constant, I can set $-\rho q/m = -(\text{some positive constant})$;

III:21-9, Eq 21.21

$$\boldsymbol{J} = -(\text{some constant})\boldsymbol{A}. \qquad (21.21)$$

Incomplete statement (see correction for III:21-9, par 2).

$$\boldsymbol{J} = -(\text{some positive constant})\boldsymbol{A}. \qquad (21.21)$$

III:21-9, footnote 9

[9] H. London and F. London, *Proc. Roy. Soc.* (London) **A149**, 71 (1935); Physica 2, 341 (1935)

Authors are listed in wrong order.

[9] F. London and H. London, *Proc. Roy. Soc.* (London) **A149**, 71 (1935); Physica 2, 341 (1935)

III:21-10, par 2

Also, remember that q in Eq. (21.24) is twice the charge on an electron,

Typographical error ('on' vs. 'of).

Also, remember that q in Eq. (21.24) is twice the charge of an electron,

III:21-10, par 2

… $1/\lambda$ would be about 2×10^{-5} cm. That gives you the order of magnitude.

Wrong order of magnitude (10^{-5} vs. 10^{-6}).

… $1/\lambda$ would be about 2×10^{-6} cm. That gives you the order of magnitude.

III:21-10, Fig 21-3, caption

(a) A superconducting cylinder is a magnetic field;

Typographical error ('is' vs. 'in').

(a) A superconducting cylinder in a magnetic field;

III:21-14, par 3

Josephson analyzed this situation and discovered that a number of strange phenomenon should occur.

Incorrect pluralization ("phenomenon" vs. "phenomena").

Josephson analyzed this situation and discovered that a number of strange phenomena should occur.

III:21-18, par 3

One should be able to go even farther.

Grammatical error ('farther' vs. 'further').

One should be able to go even further.

III:21-18, footnote 18

[18] Jaklevic, Lambe, Silva, and Mercereau, *Phys. Rev. Letters* **12**, 274 (1964).

"Silver" is misspelled.

[18] Jaklevic, Lambe, Silver, and Mercereau, *Phys. Rev. Letters* **12**, 274 (1964).

III:A-11, par 1

$$\langle J \cdot J \rangle_{av} = 3\langle J_z^2 \rangle .$$

Missing '*av*' on right-hand side. (See correction for II:34-11,par 1 in Commemorative Issue Errata.)

$$\langle J \cdot J \rangle_{av} = 3\langle J_z^2 \rangle_{av} .$$

III:A-14, Fig 35-1

(a) Every one of the (9) small 'j_z's should be a capital 'J_z', and (b) all (9) values given for J_z need to be multiplied by $\hbar$, as per Figs 34-5 and 34-6. [Note: the (3) 'j's and their given values are okay.]

III:A-17, Fig 35-5

The vertical field **B** in Magnet 2 should be labeled $\mathbf{B_0}$ (see text).

III:A-20, Eq 35.14

$$e^{-\Delta U} / ^{kT} . \tag{35.14}$$

Typographical error. The "/" is too big – it belongs in the exponent.

$$e^{-\Delta U/kT} . \tag{35.14}$$

III:A-20, Eq 35.15

$$N_{\text{up}} = ae^{-\mu_0 B/kt} , \tag{35.15}$$

Capitilization error ('t' vs. 'T').

$$N_{\text{up}} = ae^{-\mu_0 B/kT} , \tag{35.15}$$

III:A-20, Eq 35.16

$$N_{\text{down}} = ae^{+\mu_0 B/kt} , \tag{35.16}$$

Capitilization error ('t' vs. 'T').

$$N_{\text{down}} = ae^{+\mu_0 B/kT} , \tag{35.16}$$

III:A-21, par 1

A plot of M as a function of B is given in Fig. 35.7.

Typographical error ('35.7' vs. '35−7').

A plot of M as a function of B is given in Fig. 35−7.

III:A-21, par 2

In most normal cases—say, for typical moments, room temperatures, and the fields one can normally get (like 10,000 gauss)—the ratio $\mu_0 B/kT$ is about 0.02.

Arithmetic error ('0.02' vs. '0.002'). [With g=2, T=295, the ratio is 0.00227698.]

In most normal cases—say, for typical moments, room temperatures, and the fields one can normally get (like 10,000 gauss)—the ratio $\mu_0 B/kT$ is about 0.002.