Grammatical errors:

page vii, line 8, “possibly some cosmology”
page ix, line 11, “there are many”
page 13, line 2, “inconsistent, therefore”
page 33, paragraph 4, line 1, “further clue was the observation”
page 45, problem 35, “you have done enough work”
page 55, line 5, “these electrons are”
page 60, paragraph 2, line 5, “matter that has been compressed”
page 73, paragraph 3, last sentence, “more complex than this”
page 105, box, line 8, “electron is approximately”
page 128, 3rd last line, “he joined forces with”
page 133, line 6, “measured by a clock”
page 139, paragraph 4, line 1, “where an event P”
page 148, line before Eq (5.48), “emission of the flashes from A and B”
page 153, 2nd line after (5.68b), “each of the pions”

Mathematical errors:

page 168, Eq (6.7), second numerator should be “2π” not 4π.

page 180, solution 116, 2nd and 3rd equations should both have “L^2” not L in the denominator.

page 180, solution 117, first line, exponent should be “10^{-25}” not 10^{-28}.

page 209, problem 137, the limits on the integral over dk should be $\int_{-\infty}^{\infty}$.

page 211, solution 121, the denominator should read $8L^2(mc^2)$.

page 214, solution 132, the LHS of the equation should read $(\Delta x)^2_{rms}$.

page 215, solution 136, last equation, the π should also be under the square root, $\sqrt{\pi}$.

Conceptual clarifications:

page 29, top lines, more explanation, “Spin *is* angular momentum, but it is not physical spin about an axis.”

page 238, footnote 2, last sentence, “the radiant flux, or luminosity.”

The second paragraph on page 69 starting with "Radioactive decay can be ..." and ending with "... both the numerator and denominator." should be replaced with the following two paragraphs.

Radioactive decay can be treated in exactly the same manner as a loaded die. The probability that a particular nucleus will decay is constant, but the probability that one of the nuclei in your sample will decay depends on how many nuclei are in your sample. That is, for a single radioactive nucleus that is born at $t = 0$, the probability that it will decay between time t and time $t + dt$ is a constant

$$P(t, t + dt) = C$$

Of course, if there are more nuclei in your sample, there will be more decays between t and time $t + dt$. Therefore, the probability that *one* of the nuclei in your sample will decay in dt will be proportional to the number of nuclei in your sample, which is $N_0\, e^{-\lambda t}$ as given in Eq. (3.20). The probability that *one* of the nuclei in your sample will decay between t and time $t + dt$ is

$$\begin{aligned} \text{probability} &= \mathcal{P}(t)dt \\ &\propto e^{-\lambda t}dt, \end{aligned} \tag{3.26}$$

where $\mathcal{P}(t)$ is called the "probability density." Note that the probability for a nucleus to decay *exactly at* time t is zero (i.e., take the limit as $dt \to 0$), because if you are able to measure accurately, you will never obtain a particular time exactly. That is, it makes sense that the number of decays you observe will be proportional to the length of time that you observer, at least for short times. The experimental fact that the "probability that a particular nucleus will decay is constant," has a deep significance. It means that it doesn't matter when a radioactive particle was created — you can start the clock and set $t = 0$ at any time and the equations will be the same.

Now, since time is continuous (whereas dice rolls are discrete), the sums in Eq. (3.24) become integrals, and the average lifetime $\langle t \rangle$ of one radioactive nucleus is

$$\langle t \rangle = \frac{\int_0^\infty t e^{-\lambda t} dt}{\int_0^\infty e^{-\lambda t} dt}. \tag{3.27}$$

The integrand in the numerator consists of two factors, the quantity that we are averaging, t, and the weighting factor, $e^{-\lambda t}$. The integrand in the denominator only includes the weighting factor because it is there to normalize the answer. Also, notice that we only need the functional form of the probability density $\mathcal{P}(t)$ up to an unknown multiplicative constant. This is because we will always divide by the normalization, and any constant factor appears in both the numerator and denominator.