Errors in the text

Chapter 2

page 49, Fig. 2.21 caption – "(b) If we add an additional spatial coordinate y, a space cone can be drawn." should read "(b) If we add an additional spatial coordinate y, a light cone can be drawn."

page 51, Fig. 2.22 caption – "Frank's annual signals to Mary are solid blue." should read "Frank's annual signals to Mary are solid black."

page 57, Fig. 2.25 – part b) of the figure is missing.

page 59, in the paragraph below Eq. 2.46 – "The value of $dt/d\tau$ (= γ) is obtained from Equation (2.30), where the speed u is used in the relation for γ to represent the relative speed of the moving (Mary's) frame and the fixed (Frank's) frame." should read "The value of $dt/d\tau$ (= γ) is obtained from Equation (2.30), where the speed v is used in the relation for γ to represent the relative speed of the moving (Mary's) frame and the fixed (Frank's) frame." This can be seen in Fig. 2.25.

page 74, Summary to chapter 2 – All factors of $\dfrac{1}{\sqrt{1-\mathrm{v}^2/c^2}}$ in Eqs. 2.47, 2.57 and 2.64 should be $\dfrac{1}{\sqrt{1-u^2/c^2}}$. These factors are correct where they first appear in the main body of the chapter.

Chapter 3

page 88, "The Discovery of Helium", 2nd column, 2nd to last line – "Certainly the line spectra of many elements were known by 1898, ..." should read "Certainly the line spectra of many elements were known by 1868, ..."

page 110-111, Example 3.15 – the first part of the solution repeats.

Chapter 4

page 126, Eq. 4.4 – $\mathbf{F} = \dfrac{1}{4\pi\varepsilon_o}\dfrac{Z_1 Z_2 e^2}{r^2 \mathbf{e}_r} = F\mathbf{e}_r$ should read $\mathbf{F} = \dfrac{1}{4\pi\varepsilon_o}\dfrac{Z_1 Z_2 e^2}{r^2}\mathbf{e}_r = F\mathbf{e}_r$.

page 128, Example 4.2 – The bracketed term in the expression for the fraction f scattered at an angle greater than 90° is missing its denominator:

$\left[\dfrac{(79)(2)(1.6\times10^{-19}\,\mathrm{C})^2(9\times10^{-9}\,\mathrm{N\cdot m^2/C^2})}{\qquad}\right]^2(\cot 45^\circ)^2$ should read

$$\left[\frac{(79)(2)(1.6\times10^{-19}\,\mathrm{C})^2(9\times10^{-9}\,\mathrm{N\cdot m^2/C^2})}{(2)(7.7\times10^{6}\,\mathrm{eV})(1.6\times10^{-19}\,\mathrm{J/eV})}\right]^2(\cot 45^\circ)^2.$$

page 130, Example 4.3 – The thickness of the gold foil should be 2.1×10^{-7} since that is the value used in the calculation below.

Chapter 5

page 183, problem 23 – The answer key in the back of the book is not correct. For part c, the correct answer is 2π meters. Also, in part b, the group velocity should be -50 m/s, rather than +50m/s.

Chapter 6

page 197, example 6.7 – The last equation on the page should have a factor of π in the numerator. Since the integral turns out to be zero, this factor is not of great importance.

page 205, example 6.10 – The first equation in the right hand column has a factor $\sqrt{mk}$ in the denominator. This should be $\sqrt{m\kappa}$.

problem 6.23 – the answer in the back of the book is wrong.

Chapter 7

page 234 – the paragraph just above Example 7.3 refers to Figure 7.4. It should refer to Figure 7.5.

page 237, Figure 7.8 – The magnetic quantum numbers -1 and +1 should be reversed, so that it reads from top to bottom -1, 0, +1. The second to last paragraph before Example 7.5 should say that the m_ℓ = -1 state will be deflected up, the m_ℓ = +1 state will be deflected down, and the m_ℓ = 0 state will be undeflected.

page 248, problem 32 – The reference should be to Example 7.8 instead of Example 7.6.

Chapter 8

page 268, Figure 8.13 – The arrow from the m_J = -3/2 sublevel of the $^2P_{3/2}$ state should go down to the m_J = -1/2 sublevel of the $^2S_{1/2}$ state.