Corrections to the 7th printing, September 14, 2009

Introduction to Quantum Mechanics, 2nd ed.

by David Griffiths

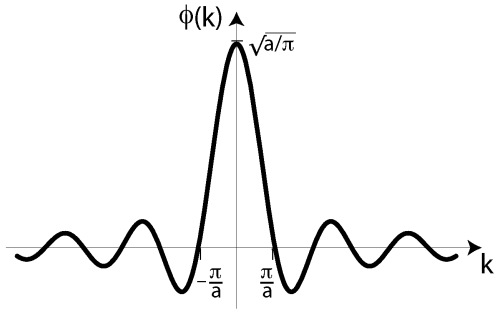
- page vii, last line of second paragraph: change "following" to "after finishing".
- page 8, line 4: change x to j (twice).
- page 23, Problem 1.18(b): at the end, add the parenthetical sentence "(Assume it's monatomic hydrogen, not H_2.)"
- page 29, Example 2.1, in the second equation of the Solution, the middle term is missing a t in the exponent; it should read

  $$c_2\psi_2 e^{iE_2t/\hbar}$$

  Similarly, the last term in the first line should read

  $$c_2\psi_2 e^{-iE_2t/\hbar}$$

- page 29, footnote 7: change the URL to
  www.phys.uri.edu/∼yoon/deepwellmain.html
- page 50-51, Problem 2.13(b) and (c): add to (b) the sentence "Don't get too excited if $|\Psi(x,t)|^2$ oscillates at exactly the classical frequency; what would it have been had I specified $\psi_2(x)$, instead of $\psi_1(x)$?" Remove from (c) the sentence "Don't get too $\ldots\psi_1(x)$?"
- page 54, footnote 27: insert after "value." "Some call it the "shooting" method (Nicholas Giordano, *Computational Physics*, Prentice Hall, Upper Saddle River, NJ (1997), Section 10.2)."
- page 59, Problem 2.17(d), last line: change "rederive H_0, H_1, and H_2." to "derive H_1, H_2, and H_3."
- page 61, footnote 33: after "equal." add "Some people call *this* Plancherel's theorem, leaving Eq. 2.102 without a name."
- page 63, Figure 2.8, at the top: $|\Psi(x,t)|^2$ should read $a|\Psi(x,t)|^2$.



- page 64, Fig. 2.10(b): redraw the graph as shown above.
- page 95, footnote 6, line 4: change to read "Hilbert space two functions are considered equivalent if the integral of the absolute square of their difference vanishes. Technically".
- page 99, Eq. 3.21: remove hat on first $\hat{Q}$ (but *only* on that one).
- page 99, line 5 in paragraph following Eq. 3.23: change "any operator $\hat{Q}$" to "any linear operator $\hat{Q}$".
- page 104, third line of paragraph before Ex. 3.3: change "reside" to "resides".
- page 106, Eq. 3.45: write $c_n(t)f_n(x)$ on the right.
- page 115, line 2: change "observable" to "operator".
- page 118, Problem 3.17, last line: change "(comments following Equation 2.39)" to "(see remarks following Equation 2.40)".
- page 126, Problem 3.33, line 2: change "(Equation 2.67)" to "($|n\rangle \equiv \psi_n(x)$, Equation 2.67)".
- page 128, Problem 3.37(b): change $\begin{pmatrix} 0 \\ 0 \\ 1 \end{pmatrix}$ to $\begin{pmatrix} 1 \\ 0 \\ 0 \end{pmatrix}$.
- page 129, Problem 3.38(c), last line: change it to read "questions for observables A and B."
- page 141, footnote: the reference should be to *Principles of Quantum Mechanics, 2nd ed.* (Plenum, New York, 1994), p. 342.
- page 155, Fig. 4.4: the label on the vertical axis should be changed from "$R_{nl}(r)$" to "$a^{3/2}R_{nl}(r)$" (in the appropriate font).

- page 155, Fig. 4.4: the solid curve labeled "31" should be scaled down by a factor of 3; it goes to a maximum of about 0.08 (at $r \approx 2a$) and a minimum of around -0.03 (at $r \approx 10a$).
- page 199, line after 4.208: remove $\langle$ and $\rangle$ around $\mathbf{v}$.
- page 233, Problem 5.22, right after the problem number, insert: "For the infinite square well (Equation 2.28):".
- page 239, Section 5.4.4, first paragraph, penultimate line: change "three dimensional" to "three-dimensional".
- page 248, footnote 31: change "Halliday and Resnick" to "Halliday, Resnick, and Walker".
- page 251, two lines after Eq. 6.9: change "important" to "frequently used".
- page 256, footnote 5: in the denominator of the third equation, Δnl should read Δ_{nl} (make it a subscript).
- page 259, paragraph after Eq. 6.27, line 3: after "minus sign" insert "(assuming $W_{aa} > W_{bb}$; the plus sign ...".
- page 261, Problem 6.7 (c): after the first sentencer insert: "[*Hint:* use Eq. 6.22.]".
- page 264, midpage equation: w_2 should be 1.7205, not 1.705.
- page 266, Problem 6.9 (c), last line: change "(a)" to "(b)".
- page 280, Eq. 6.80: insert small space between n and l (twice).
- page 280, Eq. 6.81: change second "L_y" to "L_z"
- page 282, Eq. 6.84, the signs of the first two terms on the right hand side should be reversed: $3\gamma - (\beta/2)$.
- page 282, Fig. 6.12: remove "0" on the vertical axis.
- page 283: change title of Section 6.5 to read "HYPERFINE SPLITTING IN HYDROGEN".
- page 285, Problem 6.28, first sentence of the *Hint*: "... "atoms," but use the *actual* masses in the gyromagnetic ratios."
- page 296, footnote 2: insert "*Math.*" between "*J.*" and "*Educ.*".
- page 302, last line of first paragraph: close parentheses after "*function.*".
- page 322, Figure 8.4: the wavelength should be the same to the right of a as it is to the left of 0.

- page 325, Fig. 8.6, caption, line 1: change "lifetime" to "half-life ($\tau_{1/2} = \tau \ln 2$)".
- page 327, line 1: change "Schrödinger for" to "Schrödinger equation for".
- page 331, Eq. 8.48, second line: 0 should be ∞.
- page 334, Problem 8.10, first line of Eq. 8.52: remove the minus sign in the second term, and put it onto the first term (in front of $i/\hbar$).
- page 341, Eq. 9.2 should read: "$\langle \psi_i | \psi_j \rangle = \delta_{ij}, \quad (i, j = a, b)$.".
- page 362, middle line of Problem 9.12: change "and the" to "and (in the final step) the".
- page 401, Table 11.1: in $h_2^{(2)}$, change the sign of "$\frac{i}{x}$".
- page 426, footnote 8, line 3: change "in which a *single measurement* suffices to distinguish between the quantum prediction and that of any local hidden variable theory" to "in which the contrast between the quantum prediction and that of any local hidden variable theory is even more dramatic".
- page 427, footnote 9, line 3: change "Mermin" to "Bell".
- page 448, Eq. A.68: the subscript e in the third term should be a superscript (as in the second and fourth terms).
- page 452, two lines up from Eq. A.81: remove "normalized".
- page 460, "Bohr energies": change "150" to "149".
- page 461, "Ehrenfest's theorem": add p. 167.
- page 463, "hydrogen atom, Stark effect": change "289-290, 297-298" to "289-292, 338-339".
- page 464, "lifetime": change "88" to "22".
- page 467, "Stark effect": change "291" to "292".