Corrections to the Third Printing
(fixed in the fourth printing, summer 2000)
(August 4, 2000)
Introduction to Electrodynamics, 3rd ed.
by David Griffiths

- Page 10, penultimate line of *text* (above the equations): θ should be ϕ.
- Page 44, Fig. 1.42: Remove dashed line below the figure.
- Page 60, second line of first equation: square the 3 $\boldsymbol{r}$'s in the denominator.
- Page 68, 4th line after Eq. 2.12: Change "old" to "closed".
- Page 84, Fig. 2.32: Put prime on $d\tau$.
- Page 86, 2nd line of text: Change "vary" to "very".
- Page 97, 2nd line of **(iv)**: Change $V(\mathbf{a}) - V(\mathbf{b})$ to $V(\mathbf{b}) - V(\mathbf{a})$.
- Page 98, footnote 8: Add the sentence "See Prob. 2.52."
- Page 109, add a new Problem 2.52 (before the double line):

Problem 2.52

We know that the charge on a conductor goes to the surface, but just how it distributes itself there is not easy to determine. One famous example in which the surface charge density can be calculated explicitly is the ellipsoid:

$$\frac{x^2}{a^2} + \frac{y^2}{b^2} + \frac{z^2}{c^2} = 1.$$

In this case[11]

$$\sigma = \frac{Q}{4\pi abc}\left(\frac{x^2}{a^4} + \frac{y^2}{b^4} + \frac{z^2}{c^4}\right)^{-1/2}, \qquad (2.57)$$

where Q is the total charge. By choosing appropriate values for a, b, and c, obtain (from Eq. 2.57): (a) the net (both sides) surface charge density $\sigma(r)$ on a circular disk of radius R; (b) the net surface charge density $\sigma(x)$ on an infinite conducting "ribbon" in the $x\,y$ plane, which straddles the y axis from $x = -a$ to $x = a$ (let Λ be the total charge per unit length of ribbon); (c) the net charge per unit length $\lambda(x)$ on a conducting "needle", running from $x = -a$ to $x = a$. In each case, sketch the graph of your result.

[11] For the derivation (which is a real *tour de force*) see W. R. Smythe, *Static and Dynamic Electricity,* 3rd ed. (New York: Hemisphere, 1989), Sect. 5.02.

- Page 140, footnote 10, last line: Change "add" to "odd".
- Page 150, next-to-last line: *"quadruple"* should read *"quadrupole"*.
- Page 151, six lines from the bottom: make "monopole moment" bold face.
- Page 157, Prob. 3.41(a): In the displayed equation, $\hat{\eta}$ should be $\hat{\boldsymbol{r}}$, and in the following line $\boldsymbol{r}$ should be bold.
- Page 289, Eq. 7.6: Put parentheses around the factor multiplying $\mathbf{E}$; remove parentheses around $\mathbf{E}$.
- Page 363, Prob. 8.15, last equation: $\mathcal{P}$ should be bold face and match $\boldsymbol{\wp}$ in Eq. 8.30 on page 355.
- Page 378, second line of Example 9.2: the letter $\tilde{\mathbf{E}}_0$ should not be bold face (twice).
- Page 379, Fig. 9.10: Right edge of second dark lobe should be hidden by third light lobe.
- Page 391, first line of text: $\beta \cong n_1/n_2$ should read $\beta \cong n_2/n_1$ (i.e. reverse subscripts).
- Page 403, Fig. 9.22: at the left end of the horizontal axis, $\frac{\omega}{\omega_j} = 0.5$ should read $\omega_j - 2\gamma_j$; at the right end of the horizontal axis, $\frac{\omega}{\omega_j} = 2$ should read $\omega_j + 2\gamma_j$.
- Page 440, line above Eq. 10.70: Change r^2 to v^2.
- Page 494, Fig. 12.16, and Page 495, Fig. 12.17: draw in z and z' axes, from the origins to the arrowheads.
- Page 508, Prob. 12.25, second line: $(2\sqrt{5})c$ should read $(2/\sqrt{5})c$ (i.e. insert fraction bar).
- Page 515, Eq. 12.57: close first parentheses after $\cos\theta$, not after mc^2.
- Page 527, Ex. 12.13, first equation: $\hat{\mathbf{r}}0$ should read $\hat{\mathbf{r}}_0$ (i.e. the zero should be a *subscript*).
- Page 538, line 2: remove the first "of the".