

**Further Corrections to the Instructor's Solution Manual**  
 (October 1, 2007)  
**Introduction to Electrodynamics, 3rd ed.**  
 by David Griffiths

- Page 16, Problem 1.53, line 1: the second equals sign should be a plus sign.
- Page 31, Problem 2.30(b), first line: change “ $(2\pi R)l$ ” to “ $\sigma(2\pi R)l$ ”.
- Page 34, Problem 2.41: the answer (in the box) can also be written as

$$\frac{\sigma}{\pi\epsilon_0} \tan^{-1} \left( \frac{a^2}{4z\sqrt{z^2 + (a^2/2)}} \right)$$

- Page 64, Problem 3.41(a), second line below the equations: change “ $\mathbf{E}_s$ ” to “ $\mathbf{E}_\rho$ ”.
- Page 64, Problem 3.41(b), in the equation: remove the hat from  $\mathbf{r}$  (both times).
- Page 88, Problem 4.40(a): the statement of the problem in the text skips a step:

$$\langle u \rangle = \frac{\int u e^{-u/kT} d\Omega}{\int e^{-u/kT} d\Omega}$$

where  $d\Omega = \sin\theta d\theta d\phi$  and the integral is over all orientations,  $\theta(0 \rightarrow \pi)$  and  $\phi(0 \rightarrow 2\pi)$ . Setting the polar axis along  $\mathbf{E}$ ,  $\mathbf{p} \cdot \mathbf{E} = pE \cos\theta = -u$ , so  $\sin\theta d\theta = du/pE$ . Doing the (trivial)  $\phi$  integral, we obtain the expression in the book.

- Page 88, Problem 4.40(a): in the 4th line of equations, change “ $\mathbf{P} \cdot \mathbf{E}$ ” to “ $\mathbf{p} \cdot \mathbf{E}$ ”; on the graph, the vertical axis should be labeled “ $P/Np$ ” (capital  $N$ ) and the horizontal axis should be labeled “ $pE/kT$ ” (capital  $E$ ).
- Page 95, Problem 5.25(a), line 1: change “ $\mathbf{A}$  points in the same direction as  $\mathbf{I}$ ” to “ $\mathbf{A}$  is parallel (or antiparallel) to  $\mathbf{I}$ ”.
- Page 119, Problem 6.21(c), end of first line: change minus to plus, so it reads  $\cos\theta_1 \cos\theta_2 + \sin\theta_1 \sin\theta_2$ .
- Page 133, Problem 7.36: the analysis is slightly different for a *superconducting* loop, but the conclusion is the same.
- Page 210, Problem 11.25: This problem raises several awkward questions:
  1. If you calculate the dipole moment (about the center point on the plane) in the *actual* configuration (not the image configuration), the charge on the conductor contributes nothing, so the dipole moment should perhaps be  $qz$  (not  $2qz$ ). Shouldn't the answer be divided by 4?
  2. Since the fields below the plane are zero, shouldn't the answer be divided by 2?

3. What do we even *mean* by “radiation”, in this case, where half the “big sphere at infinity” is excluded, and power may be absorbed by the plane itself?
4. Are we sure the image method works, in the time-dependent case? In particular, even if it gets the electric field right, how do we know it gets the *magnetic* field right (does it satisfy the right boundary conditions at the surface)?