

Erratum

This document contains a list of errors in “Solid State Physics: An Introduction” by Philip Hofmann, 1st edition, Wiley-VCH, 2008. It includes some rather minor problems. However, very minor typesetting problems such as missing spaces between words are not listed here

- p. 14, line 7, “Fig. 2.15” should read “Fig. 2.14”.
- p. 20, second line from bottom, “ ρ_{-n}^* ” should read “ ρ_{-n} ”.
- p. 23, Fig 2.12, the arrow for \mathbf{G} should be pointing in the other direction.
- p. 49, line 9, change “ $-N/2 < m < N/2$ ” to “ $-N/2 \leq m < N/2$ ”.
- p. 56, delete “ $3N_A$ ” from (4.32).
- p 59, equation (4.36) should rather be a sum

$$\langle E \rangle = 3 \sum_i \frac{\hbar\omega_i}{e^{\hbar\omega_i/k_B T} - 1} \quad (1)$$

- p. 62, line 1, “ $2\pi/a$ ” should read “ π/a ”.
- p. 87, second line above (6.7), “ n_x and n_y ” should read “ n_y and n_z ”.
- p. 87, second line from bottom, “Fig. 4.12” should read “Fig. 4.10”.
- p. 92, below (6.19), “ 2.45×10^8 ” should read “ 2.45×10^{-8} ”.
- p. 120, line 6, swap “conduction” and “valence”.
- p. 122, equation (7.18) should read

$$a_0 = \frac{4\pi\epsilon_0\hbar^2}{m_e e^2}$$

- p. 128, line 11, “ $\Delta U \approx E_g$ ” should read “ $\Delta U \approx E_g/e$ ”
- p. 132, line 14: “(Figure 17.5a)” should read “(Figure 17.5b)”
- p. 132, fourth line from bottom, “ $k_{h\nu} = \nu/2\pi c$ ” should read “ $k_{h\nu} = 2\pi\nu/c$ ”.

- p. 134, exercise 8, swap “former” and “latter” in the second sentence.
- p. 137, second line from bottom, change unit of μ_0 to $\text{VsA}^{-1}\text{m}^{-1}$.
- p. 152, equation (8.34) should read

$$n_{\uparrow} = \sum_{\mathbf{k}} f(E_{\uparrow}(\mathbf{k}), T)$$

$$n_{\downarrow} = \sum_{\mathbf{k}} f(E_{\downarrow}(\mathbf{k}), T)$$

and equation (8.35) should read

$$R = \frac{1}{N}(n_{\uparrow} - n_{\downarrow}) = \frac{1}{N} \sum_{\mathbf{k}} (f(E_{\uparrow}(\mathbf{k}), T) - f(E_{\downarrow}(\mathbf{k}), T))$$

$$= \frac{1}{N} \sum_{\mathbf{k}} \left(\frac{1}{e^{(E_{\uparrow}(\mathbf{k}) - IR - E_F)/k_B T} + 1} - \frac{1}{e^{(E_{\downarrow}(\mathbf{k}) + IR - E_F)/k_B T} + 1} \right)$$

- p. 163, line 9 “Fig. 7.16” should read “Fig 7.13”.
- p. 166, line 4, replace “(9.1)” by “(9.5)”.
- page 169, equation (9.21) should read

$$j(t) = -\frac{\partial D}{\partial t} = -\frac{\partial}{\partial t} \epsilon \epsilon_0 E(t) = \epsilon_0 E(t) \left(i\omega \epsilon_r - \omega \epsilon_i \right) \quad (2)$$

i.e. there is a sign error in the right hand side. This changes the direction of the dissipated power.

- page 185, line after equation (10.8). There should not be a line break in the following expression: $\text{curl curl} \mathbf{B} = \text{grad div} \mathbf{B} - \Delta \mathbf{B}$
- page 186, equation (10.12) should read

$$\Psi(\mathbf{r}) = \Psi_0(\mathbf{r}) e^{i\phi(\mathbf{r})}$$

- page 188, line 5, “ $10^6 \text{ ms}^{-1} \times 10^{13} \text{ s}$ ” should read “ $10^6 \text{ ms}^{-1} \times 10^{-13} \text{ s}$ ”
- page 194, second line above (10.14), “ $\lambda = p/h$ ” should read “ $\lambda = h/p$ ”