

Erratum

This document contains a list of errors in “Solid State Physics: An Introduction” by Philip Hofmann, 1st edition, Wiley-VCH, 2008. It includes also 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 8, change “of n or k ” to “of m or k ”.
- 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 7.15a)” should read “(Figure 7.15b)”

- 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

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

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

- 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. Therefore, in the second sentence after (9.22), the words “in phase” should read “out of phase” and “negative” should be “positive”.

- 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 “ $\lambda = h/p$ ”