

Optical Properties of Solids, First Edition

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Errata

A second edition of the book was published in 2010, and I will only update this page if I discover any major errors.

2007 reprint with corrections

Page 12 Line –4: most people would describe the colour of copper as “reddish” rather than “pinkish”.

Page 32 Two lines after equation 2.21: the FWHM of a Lorentz oscillator is γ not ν .

Page 100 Fig. 5.6: “Photoluminescence” is mis-spelled on the y axis.

Page 107 Line –8: change band gap frequency E_g/e to E_g/h .

Page 117 Section 6.2, line 2: change “contains” to “contain”.

Page 213 Solution to example 10.1(i). This should read:
“We are given ν_{TO} ...” not “We are given ν_{LO} ...”.

Page 235 Above eqn 11.38: change “eqn 1.4” to “eqn 1.3”.

Page 260 Equation A.37 should read:

$$Z = \frac{\mu_0 \mu_r \omega}{k} = \sqrt{\frac{\mu_0 \mu_r}{\epsilon_0 \epsilon_r}} = \frac{1}{c \epsilon_0 n}.$$

Page 262 Equation A.49 should read:

$$\frac{\mathcal{E}_x^r}{\mathcal{E}_x^i} = -\frac{\tilde{n} - 1}{\tilde{n} + 1}.$$

2003 reprint with corrections

All the errors in the 2007 reprint are present in the 2003 print run. The most serious error in the 2003 reprint is in Chapter 9 and concerns the mistaken polarity of cations (positive ions) and anions (negative ions). (See pages 189–193, 195, 201.) The other known errors are listed below.

Page 23 Exercise 1.2: Delete “.2” in “Table 1.4.2”.

Pages 33–4 Example 2.1: There is an unstated assumption here that the oscillator strength of the transition is equal to unity

Page 69 First side note: “...times *that* can be achieved.”

Page 164 Exercise 7.12: “intervalence” is misspelled.

Exercise 7.13(ii): Insert “series” before “follows”.

Page 203 Exercise 9.9: The Exercise presupposes an understanding of laser physics, and students will have difficulty in answering the Exercise without this prior knowledge. The solution is not to be found within the text.

Page 206 Caption to Table 10.1: Replace “TA” by “TO”

Page 225 Exercise 10.3: “reststrahlen” is misspelled.

Page 254 Exercise 11.7(i): A factor of 2 is missing from the equation, which should read:

$$\Delta\Phi = \frac{2\pi}{\lambda} r_{41} n_0^3 V$$

Page 285 Solution to Exercise 5.13. (i) $\Omega = 0.049$. (ii) $(1 - R)\Omega/4\pi n^2 = 4.2 \times 10^{-4}$.

Page 288 Solution to Exercise 10.2: Solve eqn 10.16 with $\epsilon_r = 1$.

2001 print run

All the errors in the 2003 reprint are present in the original 2001 print run, apart from the error concerning the Lorentzian line width on page 32 and the confusion of ν_{TO} and ν_{LO} on page 213. The most significant errors that were corrected in 2003 were:

- The units of angular frequency are rad/s, not Hz. This error occurs on pages 32, 33, 35, 36, 145, 147, 150, 161, 216, 222 and 226.
- The damping rate should be quoted in s^{-1} rather than Hz on pages 32 and 33.
- “reststrahlen” is misspelled throughout the book, especially in Chapter 10.
- The factor of π^2 in eqn 6.42 on p.128 should be in the numerator rather than the denominator. The equation should read:

$$\hbar\omega = E_g + \frac{\hbar^2 n^2 \pi^2}{2m_e^* d^2} + \frac{\hbar^2 n^2 \pi^2}{2m_h^* d^2} = E_g + \frac{\hbar^2 n^2 \pi^2}{2\mu d^2} .$$

- In chapter 8, references are made to a paper by Schön *et al.* alleging to demonstrate an organic injection laser. (See the side note on p. 179, and the further reading section on p. 184.) This work is now discredited.

The other errors that were corrected in the 2003 reprint are listed below.

Page 116 Second line after eqn 6.4: $\lambda_{\text{deB}} \equiv h/p_x$.

Page 133 Figure 6.13: The photoluminescence spectrum labelled “4 K” was taken at 10 K.

Page 166 Delete the repeated word “individual” in the third line after the bullet points.

Pages 175–6 Replace “probability amplitudes” by “probability densities” in the 2nd line of the last paragraph on p. 175 and in the caption to Fig 8.8.

Page 180 2nd paragraph, 2nd line: replace “staring” with “starting”.

Page 183 2nd bullet point: delete “s” from “electronics”.

Page 217 Insert “out” after “worked” in the first line after eqn 10.25.

Page 223 Figure 10.13: There is a minus sign missing for the first x axis label. The x axis runs from $-\pi/a$ to π/a . The y axis title should read “Angular frequency (Ω)”.