

Errata for *Optical Fiber Communications*, 3rd edition

Third and earlier printings:

Chap. 2; p. 34: In Example 2-1 and the following paragraphs, the critical angle should be 42° (not 52°).

Chap. 2; p. 39: In the line just above Eq. (2-20), the word "lightly" should be "slightly."

Chap. 2; p. 40: In Figure 2-12 the refracted dashed line that goes into the cladding should bend away from the normal and not towards it; that is, the angle between the normal and the refracted ray in the cladding should be greater than the angle between the normal and the incident ray traveling in the core.

Chap. 2; p. 44: In the first paragraph of Sec. 2.4.1, the second sentence should read: "The core of the waveguide is composed of a dielectric slab of refractive index n_1 sandwiched between dielectric material of refractive index $n_2 < n_1$, which we shall call the cladding."

Chap. 2; p. 85: Clarification: The fabrication process for Prob. 2-30 is the MCVD method.

Chap. 3; p. 110: The approximation for V following Eq. (3-24) should read:

$$V = k a \left(n_1^2 - n_2^2 \right)^{1/2} \quad k a n_1 \sqrt{2}$$

Chap. 6; p. 268: The first equation in Prob. 6-2 should read: $G(x) = \int_0^x e^{-s} ds$

First and second printings:

Chap. 2; p. 84: (a) In Problem 2-24 the line following the equation should read:

"where a is the fiber radius, evaluate and plot $E(r)/E_0$ with r/a ranging ..."

(b) In Problem 2-25 the last sentence should read: "What range of birefringent refractive-index differences does this correspond to for $\lambda = 1300$ nm?"

Chap. 3; p. 104: In the tenth line, " " should be " ".

Chap. 3; p. 112: The second line in Equation (3-26) should read:

$$= \frac{V}{c} \left| \frac{d_{wg}}{dV} \right| = \frac{n_2 L}{c} V \frac{d^2(Vb)}{dV^2}$$

Chap. 4; p. 159: In the second equation, "2.92 mW" should read "29.2 mW."

Chap. 4; p. 196: The first sentence should start as follows: "Here w and d are the width and thickness, respectively,..."

Chap. 5; p. 216: In the eighth line, " r_2 " should be " n_2 ".

Chap.10; p. 388: The propagation matrix S in Equation (10-8) should be:

$$S = \begin{vmatrix} s_{11} & s_{21} \\ s_{12} & s_{22} \end{vmatrix}$$

Chap.10; p. 391: Equation (10-20) should read: $q^2 = \frac{z}{z} - k_1^2$

Chap.10; p. 397: The sentence ending Eq. (10-39) has a complex-conjugate sign missing. It should read "where $P_{in,j} = |E_{in,j}|^2 = E_{in,j} E_{in,j}^*$ "

Chap.10; p. 417: In the second line, Reference 40 should be Reference 42.

Chap.10; p. 417: In the first equation the "cosh (SL)" term in the denominator should be squared.

Chap.11; p. 439: The first part of the sentence ahead of Equation (11-26) should read:

"Substituting P_0 into Eq. (6-6) and using the resulting expression for the photocurrent I_p in Eq. (6-13) then yields the total mean-square shot-noise current ..."

Chap.11; p. 442: In the fifth line of Sec. 11.5.2, the gain expression should be " $G = \exp(+ L)$ ".

Chap.11; p. 443: In Eq. (11-35), the term under the integral sign should be " $\exp(+ z)$ ". Two lines above this equation, the gain expression should be " $G = \exp(+ L)$ ".

Chap.11; p. 450: In the equation shown in Prob. 11-4, the denominator should read " $G_0 - 2$ ".

Chap.11; p. 451: In the top equation, the term " $\log_2(g_0/2)$ " should read " $\log_2(G_0/2)$ ".

Chap.11; p. 452: In Prob. 11-14, part (a), the input power for each signal should be 1 microwatt.

Chap.12; p. 495: To clarify the concept, the first paragraph on this page should read: "Figure 12-29 illustrates the effect of SBS on unmodulated signal power once the threshold is reached.⁵⁹ The plots give the Brillouin-scattered power and the signal power transmitted through a 13-km dispersion-shifted fiber as a function of the input power."

Below the SBS threshold, the transmitted power increases linearly with the input level. Above the SBS threshold, the transmitted power remains constant for higher inputs, since power is extracted from the signal to feed the scattered wave. Note that for practical modulated sources the SBS threshold is over 16 dBm."

Chap.12; p. 495: A revised caption for Figure 12-29 reads: "SBS effect on signal power for an unmodulated narrow-linewidth source. The signal power reaches a plateau beyond the SBS threshold. Note that for practical modulated sources the SBS threshold is over 16 dBm. (Adapted with permission from Mao et al.,⁵⁹ © IEEE 1992.)"

Chap.12; p. 497: In the first paragraph the words blue and red should be interchanged.

Chap.13; p. 566: In Prob. 13-14, the end of the second-last sentence should read "...measure the insertion loss of this splice event with a ± 0.05 -dB accuracy".