

## Chapter 1

p.4

6<sup>th</sup> line from top should read: ... (typical time oscillator) **of** frequency content for human voice **of** < 3 KHz (hertz = 1 cycle/second)..

## Chapter 2

p.14

Last sentence in first paragraph change: ... in Figure 2.2 . TO ..... in Figure **2.1**.

p.19.

2<sup>nd</sup> Para, 9<sup>th</sup> line: Change “ that Path 1 is indeed” to “ that **Path 2** is indeed”

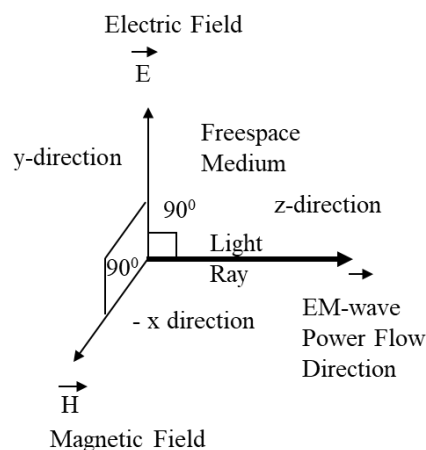
p.24

Change first line after the equation on the page to read as:  
.... in hertz of the **Electromagnetic Radiation** (EMR) and h called.....

## Chapter 3

p.44

To be consistent with the Right Hand Rule notation within the x-y-z coordinate vector notation system, Change x-direction in Fig.3.1(b) to **-x** direction.



p.49

After the equation  $\vec{J} = \rho \vec{v}$  add the text: where  $\rho$  is the electric charge density (coulombs/ $m^3$ ) in the media.

p.49

Right below the Equation (M4), remove the line: “ ..where  $\rho$  is the electric charge density (coulombs/ m<sup>3</sup>) in the media.” as this has been added below the equation  $\vec{J} = \rho \vec{v}$  .

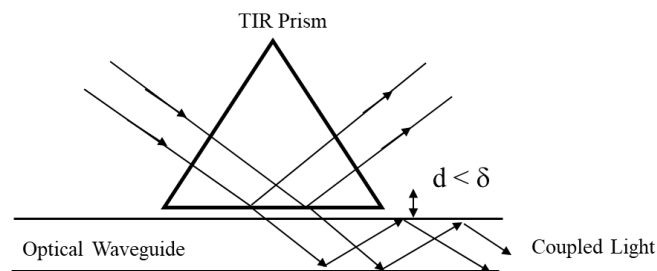
p.51

Line 12 from top of text.

Change ..solutions exits for this... TO ..solution **exists** for this..

p.60.

The lower figure in Fig.3.5 should have a  $d < \delta$  as provided next:



p.68

Vector on right should use “1” not “2”, so change equation to:

$$\vec{J}_{OUT} = T_M \vec{J}_{IN}$$

$$\begin{bmatrix} E_{2x} \\ E_{2y} \end{bmatrix} = \begin{bmatrix} T_{11} & T_{12} \\ T_{21} & T_{22} \end{bmatrix} \begin{bmatrix} E_{1x} \\ E_{1y} \end{bmatrix}$$

p.69

Middle of page, remove the line just before the matrix equation that says “Linear Polarizer TA at angle  $\theta$  with Horizontal” and put it adjacent to the matrix as shown next:

$$T_M = \begin{bmatrix} \cos^2 \theta & \sin \theta \cos \theta \\ \sin \theta \cos \theta & \sin^2 \theta \end{bmatrix} \quad \text{Linear Polarizer TA at angle } \theta \text{ with Horizontal}$$

p.72

Problem 1: At the end of problem 1 text, it should say: **Implement this check.**

p.72

Problem 3, line 2: Change..... shown.. TO..... show.....

p.72

Prob. 5, line 2: Change... has a magnetic field given... TO .. ..... has an electric field given...

p.72

Prob.6: Change “ 5.1 to 0.3j” to “ 5.1 + 0.3j “

p.75

Problem 16:

Change .....for the given optical components. (a)  $T_M = \begin{bmatrix} e^{j\beta_x} & 0 \\ 0 & e^{j\beta_y} \end{bmatrix}$

TO .....for the given optical **component**  $T_M = \begin{bmatrix} e^{j\beta_x} & 0 \\ 0 & e^{j\beta_y} \end{bmatrix}$

So the (a) next to the matrix has been removed.

### Chapter 4:

p.80

Change Fig.4.4 TO:

Fig.4.4 The RF signal detector also known as RF antenna operating as an RF interference implementing device with antenna resistance R and one receiver circuit terminal (the one on the right side) grounded.

p.86

Line 3, 2<sup>nd</sup> Para Change....incident of the receive..... TO .. incident **on** the receive...

Page 86.

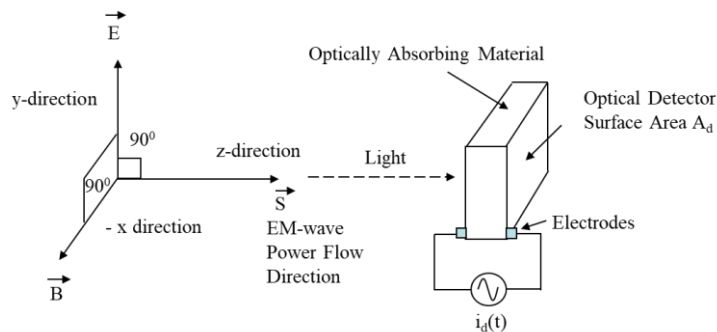
The equation at the bottom of the page should be a **sum of cosines** and NOT a sum of sines. The correct equation that should be at the bottom of page 86 is:

$$r(t) = \sum_{n=0}^N V \cos[2\pi f_{RF} t + n\alpha] = \left[ \frac{\sin\left(\frac{N+1}{2}\alpha\right)}{\sin\left(\frac{\alpha}{2}\right)} \right] \cos\left[2\pi f_{RF} t + \frac{N\alpha}{2}\right]$$

p.90

To be consistent with the Right Hand Rule notation within the x-y-z coordinate vector notation system, Change x-direction in Fig.4.13 to **-x** direction.

Plane EM Wave traveling in the z-direction with Electrical Field in y-direction



p.91

Line 8 from the top, Change ...y- and x-directions,.... To ..y and -x directions.....

p.92

line 3 in equation after the text that ends with ...."integration is given by"

Change ...+  $E_0^{*2} < \exp (-j4\pi vt)> + 2...$  change to ..+ $E_0^{*2} < \exp (+j4\pi vt)> + 2..$

p.93

line 2 .... Change  $E_{rms} = E_0/2$  to  $E_{rms} = E_0/\sqrt{2}$

p.96

Line 3 in Interference of Two Optical Beams Section:

Change ... in Figure 4.15 can be written... TO ... in **Figure 4.5** can be written...

p.97

Change  $I_1$  and  $I_2$  expressions to

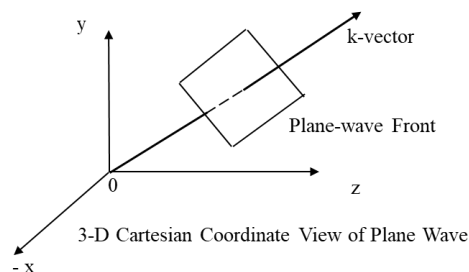
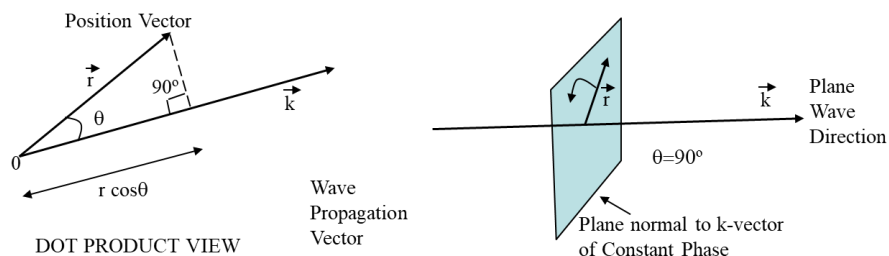
$$I_1 = \frac{E_{01}^2}{2c\mu_0} \quad \text{and} \quad I_2 = \frac{E_{02}^2}{2c\mu_0}$$

p.102

Last sentence in the top paragraph should say: Additional formalization for coherence can be learned by reading reference 1 in Chapter 2.

p.103

To be consistent with the Right Hand Rule notation within the x-y-z coordinate vector notation system, Change x in Fig.4.18 axis drawing at the bottom to -x.



p.111

Change  $I_1$  and  $I_2$  expressions to

$$I_1 = \frac{E_{01}^2}{2c\mu_0} \quad \text{and} \quad I_2 = \frac{E_{02}^2}{2c\mu_0}$$

Page 115

Line 6 Change ... if we draws light rays.... TO.. ... if we **draw** light rays...

Page 115

Line 8 Change ...and notes the.. TO.....and **note** the...

Page 115

Line 9 Change ...distances as we moves along.. TO.....distances as we **move** along..

p.116.

x missing in derivation in the paragraph text starting with "...and BD is given by.." with the corrected equations as:

$$\exp[-j(2\pi/\lambda)BC] = \exp[-j(2\pi/\lambda) \times \sin\theta \ x] \sim \exp[-j(2\pi/\lambda) \times \theta \ x] = \exp[-j(2\pi/\lambda) \times (x'x/R)].$$

Page 118

Line 1 Change ...geometric optics where to... TO.....geometric optics **were** to...

p.119

Change minus sign in Fresnel Integral Equation exponential, i.e.,  $\exp[-j\pi/\lambda R\{(x'-x)^2+(y'-y)^2\}]$  to **positive sign** in the exponential, i.e,  $\exp[+j\pi/\lambda R\{(x'-x)^2+(y'-y)^2\}]$  . So Fresnel Eqn is:

$$E_d(x', y') \propto \frac{1}{R} \iint_{aperture} E_a(x, y) \exp \left[ +j \frac{\pi}{\lambda R} \{(x' - x)^2 + (y' - y)^2\} \right] dx dy$$

Line 2 Change ...the distance between R source.... TO.. ...the **distance R** between source

Chapter 5:

p.141

Line 2 change: ... "following" to "**flowing**"

p.145

1<sup>st</sup> Para, Line 4: Change.....twistedu.....TO..... **twisted** ...

1<sup>st</sup> Para, Line 12: Change.....the cmectic-C phase, except the titled director..TO.....the **smectic-C** phase, except the **tilted** director.....

p.146

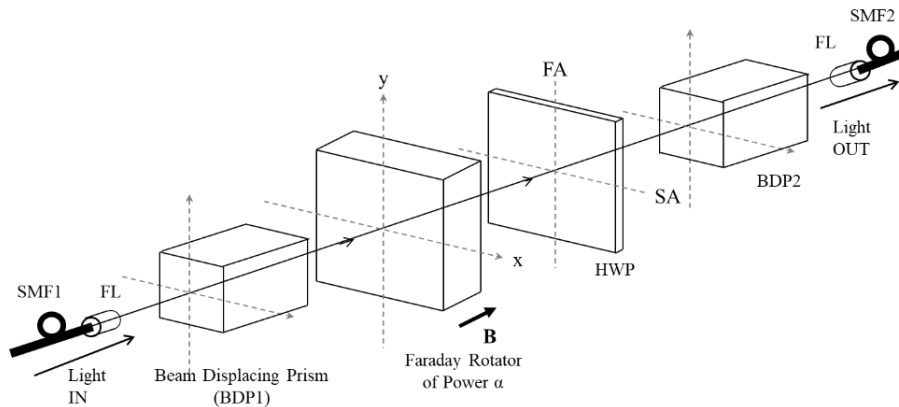
3<sup>rd</sup> last Line from bottom of page: Change ..of the shown device TO ..of the shown **device**. Here, the full stop (period) after the word "device" was missing.

p.160

3<sup>rd</sup> line of Equation from the top change D to D<sub>M</sub> to write  $\Delta T = L \mathbf{D}_M \Delta \lambda$

p.164

Figure.5.33: The label SMF2 is missing from the figure where it says Light OUT on the right side of the figure. Shown next is the updated Figure.



p.165

2<sup>nd</sup> para, line 2: Change ...component shown in with the... TO ...component shown **with the...**

p.169

Change Transmission Fresnel Power Coefficient Equations to:

$$T_N = \frac{n_2}{n_1} \left| \frac{E_{N_t}}{E_{N_i}} \right|^2 = \frac{n_2}{n_1} \left( \frac{2n_1}{n_1 + n_2} \right)^2 \quad T_P = \frac{n_2}{n_1} \left| \frac{E_{P_t}}{E_{P_i}} \right|^2 = \frac{n_2}{n_1} \left( \frac{2n_1}{n_1 + n_2} \right)^2$$

p.170

Last line in paragraph at bottom of page should read: .... the waveguide can be **formed** by..

p.171

Line 4, Change ...Figure 5.42 shows only the IN1.. TO ...**Figure 5.41** shows only the IN1..

p.173

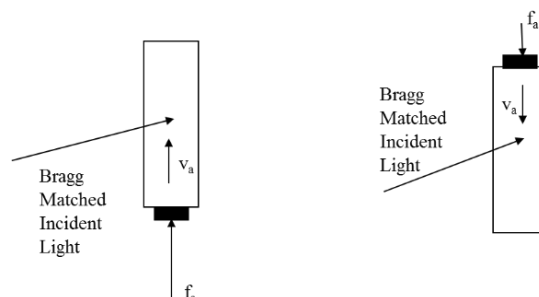
Line 2 from bottom of page, Change .....another other bias voltage...TO.....**another bias** voltage...

p.175

Problem 1, line 3: Change  $\sin \theta_B = (1/(n\Lambda_a))$ . TO  $\sin \theta_B = (\lambda/(2n\Lambda_a))$ .

p.176

Problem 7, Figure 5.47: The incident light arrows shown in the Book are horizontal lines not as tilted lines, and the correct Figure 5.47 is shown next.



p.177

Problem 11, last line: Change ..... and deam deflector.. TO.. ... and **beam** deflector..

p.180

Problem 15 , Part (b), 7th line.

Change ....field amplitude of  $E_0$ ..... TO ....field amplitude of  $E_0$ .....

p.180

Problem 20 , 1st line.

Change ....with a group velocity  $v_g = 1.5 - 10^8$  m/s travels.... TO....with a group velocity  $v_g = 1.5 \times 10^8$  m/s travels....

## Chapter 6

p.186 and p. 189

– In figures on these pages, the arrow should go from Processor to DMD and not DMD to Processor. See figs below:

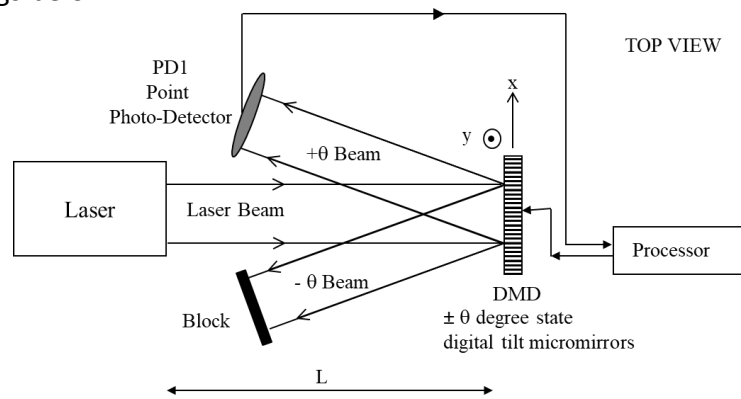


Fig.6.2

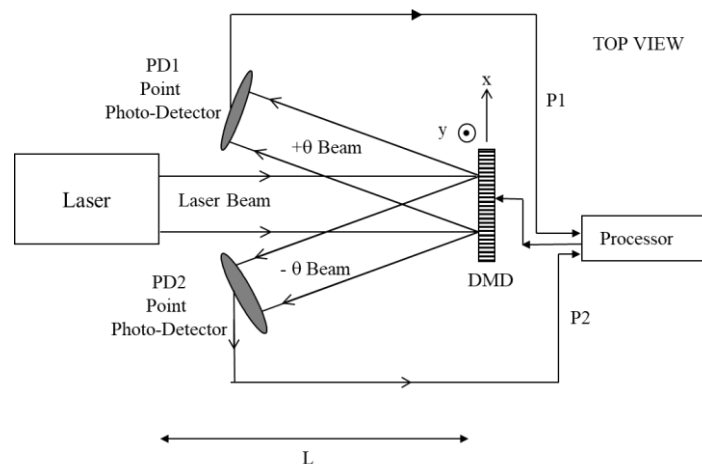


Fig.6.5

p. 190

The arrow should go from Processor to DMD and not DMD to Processor. See fig6.6 below:

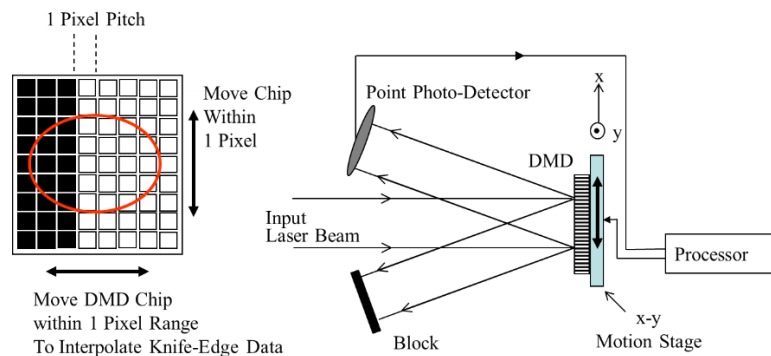


Fig.6.6

p.209

Figure 6.25 Caption Correction. Change the Caption from:

... set for a short time delay ..... settings for maximum time delay.

TO:

.. set for a **long** time delay .... settings for a **shorter** time delay.

p.212

Problem 11, line 3:

Change....filter  $f(t)$  be written as.....filter  $f(t)$  **can** be written as....

p. 212

Problem 11, line 8:

Change....design such as transversal... TO ... design such **a** transversal...

## Chapter 7

p.218

line 8: Change...where  $I$  is the laser... TO... where  $\lambda$  is the laser...

p.219

Last para, line 3: Change...with the separate controlled.. TO.....with the **separation** controlled..

p.227

line 4: Change...the +1 order beam,  $s$ , from the... TO.....the +1 order **beams from** the...

p.228,

Solution Section, Line 2:

Change...efficiency between to SMFs.....TO.....efficiency between **two** SMFs.....

p.231

Solution Section from top, Line 10 in text:

Change...is given by asking a base-10.....TO.... is given by taking a base-10.....

p.234

2<sup>nd</sup> last Line from bottom of page: Change....the PC one is... TO...the PC is...

### Chapter 8

p.243

2<sup>nd</sup> Para, Line 3: Change: .....axis controls, which Bragg ....TO: ..... axis **controls which** Bragg..

p.245

1st Para, 3<sup>rd</sup> Last Line: Change

.....blocking while  $\lambda_1$  and  $\lambda_3$  ..... based to the ...TO: ...blocking while  $\lambda_2$  and  $\lambda_3$  ..... based on the ...

p.252

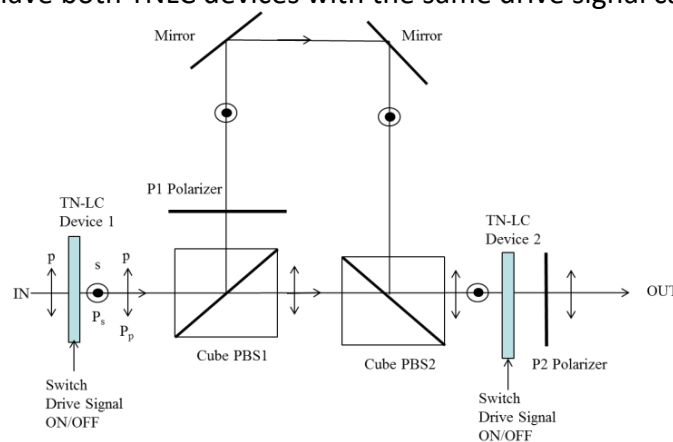
7<sup>th</sup> Line from bottom: Change:

.. then TN-LC device 2 also rotated the s-light polarization.. TO:

...then TN-LC device 2 also **rotates** the s-light polarization...

p.252

Figure 8.10 should have both TNLC devices with the same drive signal caption shown next:



p 254

4<sup>th</sup> line of text bottom of page:

Change....(backlight) can written as ..TO .. .....(back light) can be written as ..

p 255

3rd line of text from bottom of page:

Change...Next we computes the.. TO... Next we **compute** the...

p 260

3rd para, line 1: Change... It has been know... TO .. ... It has been known...

p 260

3rd para, line 2 from bottom:

Change... periodic structures can produce frequency steered radiation in 3-D space. A classic frequency scanned...

TO

... periodic structures can produce frequency steered radiation in 3-D space as classic frequency scanned...

p 266

1st para, 2<sup>nd</sup> last line: Change...Design a smart LCD that... TO ...Design a smart LSD that...

Page 271

Change:

6. Riza, N. A., "Fault-tolerant fiber-optical beam control modules," USA Patent No. 6,222,954, April 24, 2001.

TO:

6. Riza, N. A., "Optoelectronic real-time eye examination system," GE CRD New Start Research Award Proposal, 1989 & Riza, N. A., US Patent Application No. 10/345,796 A1, 2003.

Page 275

Change:

115. Rez, S. A., and N. A. Riza... TO: 115. Reza, S. A., and N. A. Riza...

## Chapter 9

p.284

Line 4: Change ...via the CCD is you....TO.....via the CCD so you....

p.291

Line 28 (part of section marked as 2., Change to ....used for the desired heterodyne .....

### Problem Solutions:

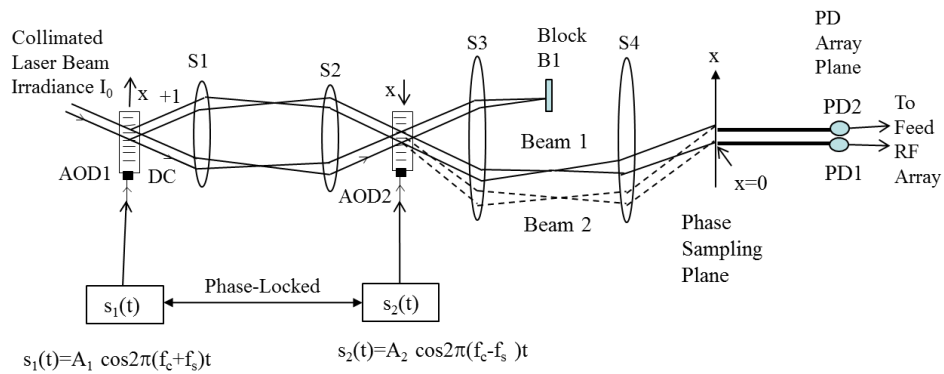
p.298

Chapter 3, solution2, last line of solution:

Change ...write  $\frac{1}{v^2} \frac{\partial^2 \psi}{\partial t^2} = \frac{\partial^2 g}{\partial u^2}$ , TO .....write  $\frac{1}{v^2} \frac{\partial^2 \psi}{\partial t^2} = \frac{\partial^2 g}{\partial z^2}$ , the 1-D non-dispersive wave equation.

Page 332

Chapter 7 solutions, Figure PS.31: The x-direction arrow should not be touching the top of AOD2. Please see attached and provided Figure.



Page 333

Chapter 7 solutions, Solution 4, last equation on page the  $2\phi$  in the cosine expression should be  $\phi$  as shown next:

$$i(n, t) = K(A_1^2 + A_2^2 + 2A_1A_2 \cos\{2\pi(2f_c)t - n\phi\}).$$