Microsystem Design

Stephen D. Senturia

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Errata

The following additional errors occur in all books through the Sixth Printing

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Page 37 In Figure 3.4 and in the paragraph immediately following that figure, the stated oxide thickness of 0.54 t_{ox} should be replaced by 0.56 t_{ox}, with the remaining thickness of 0.44 t_{ox} arising from conversion of silicon to oxide.

Page 41 The units for D_0 in Table 3.4 should be (10^{-13}cm^2/sec).

Page 45 In the second line of the first full paragraph, 'PEVCD' should be replaced by 'PECVD'.

Page 140 Just below Eq. 6.65, the text should read 'where x/x_o is a scale factor ...

Page 180 In Problem 7.4, m_1 and m_2 should be replaced by L_1 and L_2, respectively, and b should be replaced by R.

Page 185 In fifth line of text, replace 69,000 with 6,900.

Page 188 In the line above Eq. 8.10, the symbol σ_{xy} should be replaced by τ_{xy}.

Page 218 In the fourth line after Example 9.4, the answer is 48 MPa instead of 72.7 MPa.

Page 224 The axes labeled with y in Fig. 9.14 should be labeled with z.

Page 225 There is a factor of W missing from the right-hand side of Eq. 9.91 and from the unnumbered expression in the equation space that follows.

Page 226 There is a factor of W missing from the right-hand side of Eq. 9.92.

Page 226 The period at the end of the first sentence in Section 9.6.2 is missing.

Page 233 The homogeneous solution in Eq. 9.128 should also include terms of the form

$$a\cosh\left(\sqrt{\frac{N}{EI}}x\right)+b\sinh\left(\sqrt{\frac{N}{EI}}x\right)$$

The coefficients a and b in the actual solution are zero. In order to have this modification fit on the original page, the text following Eq. 9.128 in the seventh and subsequent printings will read: 'where the first four terms are the homogeneous solution. B and b must be zero by symmetry, and the cosh term is not required to match boundary conditions. For each term ...

Page 243 The definition in Eq. 10.22 of the variation in shear strain due to a virtual displacement is not consistent with the convention selected for the definition of shear strain on p. 186. Therefore, the right-hand-most portion of Eq. 10.22 should be written without the prefactor of 1/2, using Eq. 8.2 to define shear strain and Eq. 8.10 to define the relation between shear strain and shear stress.

Page 246 The order of variables of integration in Eq. 10.38 should be reversed in order to be consistent with the order of the limits of integration.

Page 246 Due to a mistake in the original Maple script used to calculate Eq. 10.39, there is a serious error in the prefactor. It should be 1/30 instead of 4/5. This same error appears in Eq. 10.41.

Page 247 Due to the error in Eq. 10.39, the prefactor in Eqs. 10.43 and 10.44 should be 15 instead of 5/8.

Page 248 Due to the error in Eq. 10.39, the left-hand graph is Figure 10.1 is seriously incorrect. The replacement figure is shown below, and the comment at the end of the second paragraph that says 'a very poor job' should be changed to 'a poor job when the load is off-center'.

Page 261 In the second line and in the numerator in Eq. 10.102, the symbol $\mathcal{W}_e$ should be replaced by the symbol for total elastic energy $\mathcal{W}$.

Page 292 In Eqs. 11.63 and 11.64, the denominator Dn should be replaced by D_n.

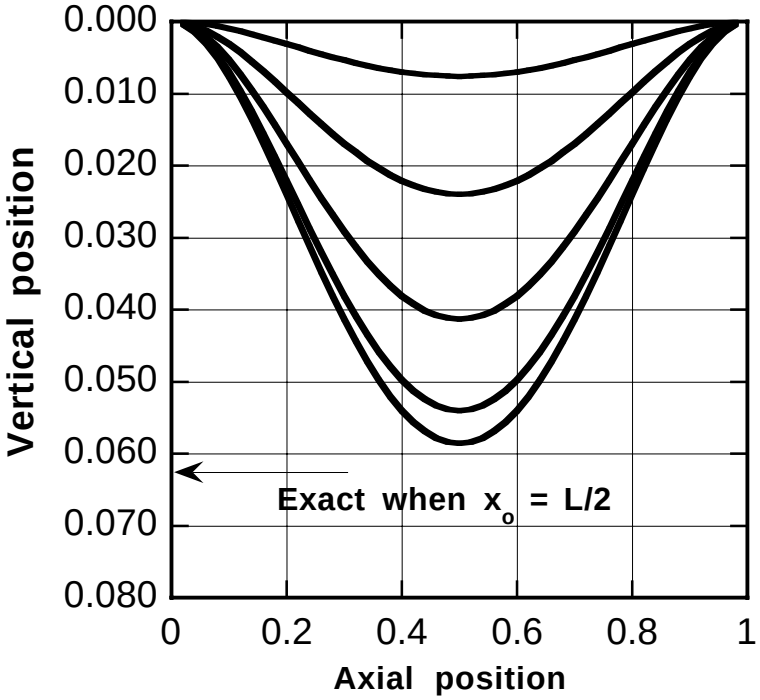

Figure 1: Replacement for the left-hand graph of Figure 10.39.

Page 297 Assume vacuum conditions in Problem 11.1.

Page 300 In Eq. 12.5, the right-hand side $S(\mathbf{r})$ should be $\tilde{S}(\mathbf{r})$.

Page 303 In the eighth line from the bottom, the word 'zeroth' should be replaced with 'first'.

Page 304 There is a node-counting error implicit in the notation of Fig. 12.2. The node labeled T_0 in the column vector of temperatures should be removed. This leaves N regions and $N+1$ nodes in the problem.

Page 307 Eq. 12.25 should have the cubes instead of the squares of the integers in the denominator of the various terms.

Page 308 The x, y, and z in Eq. 12.32 should be removed.

Page 312 The quantity R_e in Eqs. 12.47 and 12.48 should be replaced by the quantity $\rho_e/(WH)^2$. The net result is that after multiplication by the volume in Eq. 12.48, the product $\mathcal{V}R_e$ becomes equal to $\rho_e L/WH$, which is the resistance of sample.

Page 313 The quantity R_e in Eqs. 12.49 and 12.50 should be replaced by the quantity $\rho_e/(WH)^2$. The net result is that after multiplication by the volume, the product $\mathcal{V}R_e$ becomes equal to $\rho_e L/WH$, which is the resistance of sample.

Page 319 The definition of the gas constant is imprecise. If the molecular weight M_W is expressed in Kg (to match the mass units of ρ_e), then R has the universal value 8.3 J/mol-K.

Page 330 In Eq. 13.53, the factor of 32 in the denominator should be replaced with an 8.

Page 339 The factor q_e in the prefactor to the sum of Eq. 13.89 should be removed.

Page 340 The factor q_e in the prefactor to the sum in Eq. 13.90 and in the prefactor in the first sum of Eq. 13.91 should be removed.

Page 357 In Figure 14.1, the vertical dimensions should be labeled with an x to be consistent with the conventional notation of Eq. 14.18.

Page 402 The first + sign in the denominator of Eq. 15.15 should not have a hat.

Page 406 The first sentence should begin 'This is now ...'

Page 409 The final term in the equation for force in Eq. 15.27 should be $-HKM/(1+HKM)$, modifying a previous incorrect 'correction.' The force F is the 'control' line in Fig. 15.2, and equals $K\epsilon$, not $K\epsilon + D$.

Page 413 The sign of the second term on the right-hand side of Eq. 15.32 should be a - instead of a +.

Page 443 The sign in front of Eq. 16.36 should be + instead of -.

Page 444 In the line above Eq. 16.38, the ideal case should be described as $F_n = 0$.

Page 446 The numerator of Eq. 16.44 should be 9.6×10^{-4}, which is about 1 mK for a 1-Volt excitation, as stated in the text that follows.

Page 448 The two allowed modes that emerge from Eq. 16.50 have $k = \pm\sqrt{j\omega}$, which equals $\pm(1+j)\sqrt{\omega/2}$. Thus, if the + sign is chosen in the first exponential factor on the right-hand side of Eq. 16.51, then the + sign should also be chosen in the second factor. The combination of a + in the first factor and a - in the second factor is not a solution to Eq. 16.50. This can be expressed by writing Eq. 16.51 in the following form:

$$e^{\pm\sqrt{j\omega}t} = e^{\sqrt{\omega/2}t}e^{j\sqrt{\omega/2}t} \quad \texttt{or} \quad e^{-\sqrt{\omega/2}t}e^{-j\sqrt{\omega/2}t}$$

Page 586 There is a factor of W missing from both right-hand sides of Eq. 21.57.

Page 586 The variable in the numerator of the derivative in Eq. 21.59 should be w instead of v.

Page 587 In Fig. 21.20, the voltage label V is missing at the upper left-hand terminal pair.

Page 594 In the 5th line from the bottom, the second reference to Eq. 21.73 should be to Eq. 21.74.

Page 624 In line 24, the word 'at' is incorrectly repeated.

Page 625 In line 3, the phrase 'do to' should be reversed to 'to do'.

Page 653 The units for d_{iJ} should be Coulomb/Newton.

Page 667 In reference 23, the correct volume number is 86.

Page 670 The last word in the title of reference 68 should be 'machinery'.

Page 675 The patent number in Reference [130] should be 5,396,144.