Typos for Hamill, "Intermediate Mechanics" (2nd Printing)

Page 69, equation 2.21. There is a missing dot on the θ. The second term on the right should read

$$(r\ddot{\theta} + 2\dot{r}\dot{\theta} - r\dot{\phi}^2 \sin\theta\cos\theta)\hat{\boldsymbol{\theta}}$$

Page 110, problem 3.7. The answer has a sign error. It should read

$$g(m_2 - m_1)/(m_1 + m_2 + I/R^2)$$

Page 125 equation 4.5. In the second term on the first line the quantity $\dot{\theta}_1^2\dot{\theta}_2^2$ should not have superscripts 2. That is, the second term should read

$$\frac{1}{2}m_2\left(l_2^2\dot{\theta}_2^2 + 2l_1l_2\dot{\theta}_1\dot{\theta}_2\cos\{\theta_1 - \theta_2\}\right)$$

Page 136 Worked Example 4.6. Replace "m and b are constants" with "m is a constant".

Page 178 Worked Example 5.4. Last line reads "13.1 N". Replace with "13.1 J".

Page 210 Equation above 6.11 has a sign error. The last term under the radical should be negative.

$$\sqrt{\left(\frac{M_1V_1}{M_1+M_2}\right)^2\cos^2\theta - \frac{M_1 - M_2}{M_1+M_2}V_1^2}$$

Page 239 Figure 7.2. $\mathbf{r}'_{io}$ should read $\mathbf{r}_{io'}$.

Page 244 Seven lines from the bottom a superscript 2 is missing from d_f. That is, instead of

$$l_f = l_i \Longrightarrow md_f\omega_f = md^2\omega_0$$

the equation should read

$$l_f = l_i \Longrightarrow md_f^2\omega_f = md^2\omega_0$$

Page 252 Eight lines from the top, the last term should be 1/3 rather than 1/2. That is, the equation should read

$$= \frac{1}{12}Ml^2 + M\left(\frac{l}{2}\right)^2 = \frac{1}{3}Ml^2$$

Page 254 Exercise 7.14. The answer should read 41.6 rad/s^2

Page 262 Problem 7.5. The answer should contain v_{0y} not v_{0x}. That is, it should read $-(1/2)v_{0y}F_et^2\hat{\imath}$.

Page 272 Line 23 The quantity π^+ should be π^-. That is, the equation should read

$$\pi^- + d \rightarrow n + n$$

Page 287 last line. Change $= -\frac{1}{12}\lambda G$ to $= -\frac{1}{12}\frac{\lambda G}{L}$.

Page 296 The equation on the last line should read

$$g = -\frac{4\pi G\lambda L}{2\pi r} = -\frac{2G\lambda}{r}$$

Page 297 line 2. The equation should read

$$\mathbf{g} = -\frac{2G\lambda}{r}\hat{\boldsymbol{\rho}}$$

Page 311 line11. Replace "is" with "in".

Page 316. The last 4 lines at bottom and top 2 lines of page 317 should read:

Since $V = kr^{n+1}$ we have

$$\frac{dV}{dr} = (n+1)kr^n r = (n+1)kr^{n+1} = (n+1)V,$$

and

$$\left\langle \frac{dV}{dr} r \right\rangle = (n+1)\left\langle V \right\rangle$$

so

$$\langle T \rangle = \frac{n+1}{2}\left\langle V \right\rangle.$$

Page 330 line 14 the last term should have m^2 rather than m. That is, the last term in the equation should read

$$= -\frac{l^2}{m^2 r^2}\frac{d^2u}{d\theta^2}$$

Page 336 line 6 replace "Exercise (10.8)" with "Exercise (10.10)".

Page 338 from 8 lines above bottom to 3 lines above bottom, each equation should be divided by 2, so they should read:

$$d = \frac{2GM}{2v_0^2}\left(-1 + \left[1 + \frac{b^2 v_0^4}{G^2 M^2}\right]^{1/2}\right)$$

Apply the binomial expansion

$$\begin{aligned} d &= \frac{GM}{v_0^2}\left(-1 + \left(1 + \frac{1}{2}\frac{b^2 v_0^4}{G^2 M^2} + \cdots\right)\right) \\ d &\simeq \frac{GM}{v_0^2}\frac{1}{2}\frac{b^2 v_0^4}{G^2 M^2} = \frac{b^2 v_0^4}{2GM} \end{aligned}$$

Page 343 line 6. The minus sign in the last term should be a plus sign. The term in brackets should read

$$\left[1 + \frac{2El^2}{m(GMm)^2}\right]$$

Page 368 line 12 Delete x in second term on right. The equation should read

$$x = C_1 e^{p_1 t} + C_2 e^{p_2 t} + C_3 e^{p_3 t}$$

Page 386 The last 5 lines should read

$$e^{2t}\frac{dx}{dt} = C_1 e^{4t} - 4te^{-2t} + e^{2t}$$

and consequently

$$x(t) = \frac{1}{4}C_1 e^{2t} + C_2 e^{-2t} - 2t + \frac{3}{2}.$$

Inserting initial conditions leads to $C_1 = 4$ and $C_2 = -1/2$, and finally

$$x(t) = e^{2t} - \frac{5}{2}e^{-2t} - 2t + \frac{3}{2}$$

Page 387. Equation 11.25. An x is missing on the right. The equation should read

$$(D - i\omega_0)(D + i\omega_0)x = \frac{F_0}{m}e^{i\omega_d t}$$

Page 387 Last line. A superscript 2 is missing. The equation should read

$$-\omega_d^2 C + \omega_0^2 C = \frac{F_0}{m}$$

Page 461 Six lines above bottom there is a minus sign missing and four lines above bottom the quantity v_{0x} should be v_{0z}. That is, the equation 6 lines above bottom should read

$$v_{0x} = -v_0 \cos\theta \cos\phi$$

and the equation 4 lines above bottom should read

$$v_{0z} = v_0 \sin\theta - gt.$$

Page 462 There are sign errors on lines 3 and 9
Line 3 should read

$$a_y = 2v_0\Omega \cos\lambda \cos\theta \cos\phi - 2\Omega \sin\lambda (v_0 \sin\theta - gt)$$

Line 9 the second term should read

$$+(2v_0\Omega \cos\lambda \cos\theta \cos\phi)t$$

Page 470 The answer to Exercise 13.11 should read 9.1°/hour