Errata for
Introduction to Structural Dynamics and Aeroelasticity

Dewey H. Hodges and G. Alvin Pierce

Errors in Third Printing

Corrected in Fourth Printing (Fall 2010)

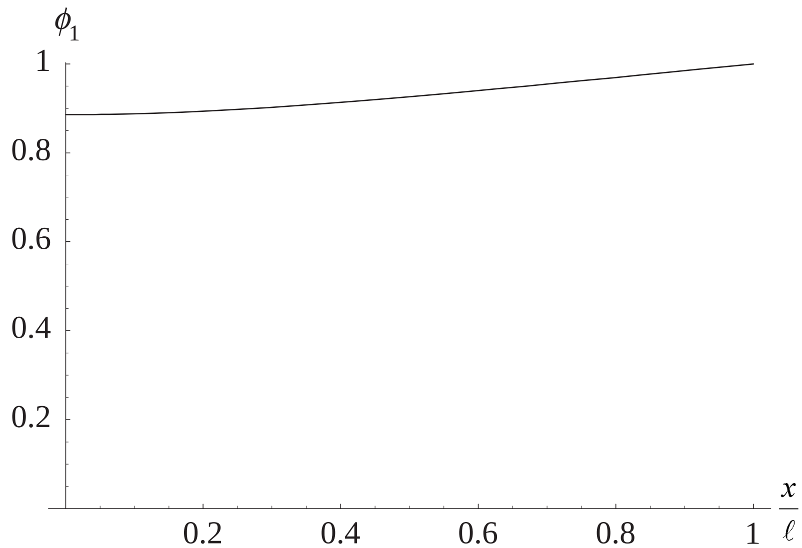

Figure 2.43: First mode shape for a beam that is free on its right end and has a sliding boundary condition spring-restrained in translation on its left end with $\kappa = 1$

Page	Description
41	The sentence right after Eq. (2.202) should end as "... are shown in Fig. 2.23." The reference to Fig. 2.24 is incorrect.
44	Eq. (2.205) should read $$-M + \left(M + \frac{\partial M}{\partial x}dx\right) + \left(V + \frac{\partial V}{\partial x}dx\right)dx + \left(q - m\frac{\partial^2 v}{\partial t^2}\right)\frac{(dx)^2}{2} = 0$$
48	Eq. (2.230) should read $$EI\frac{\partial^2 v}{\partial x^2}(0,t) = I_c\frac{\partial^3 v}{\partial x \partial t^2}(0,t) = -I_c a^4 \alpha^4 \frac{\partial v}{\partial x}(0,t)$$
69	Instead of x^{i+1}, the right-hand side of Eq. (2.316) should be $(x/\ell)^{i+1}$.
71	The second sentence of Problem 6 should read, "Up until the time t=0 the string is undeflected and at rest."
75	Instead of x, the abscissa in Fig. 2.43 should be x/ℓ as shown herein.
76	Instead of x, the abscissa in Fig. 2.44 should be x/ℓ as shown herein.

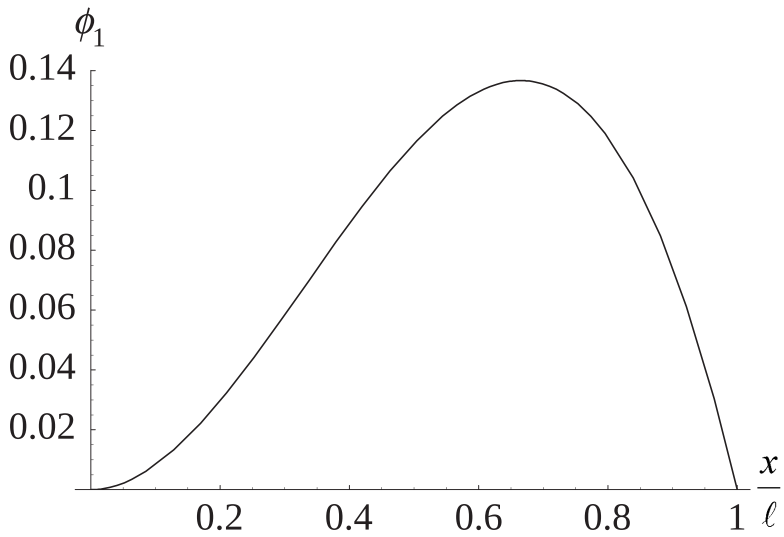

Figure 2.44: First mode shape for a beam that is clamped on its left end and pinned with a rigid body attached on its right end with $\mu = 1$

76 Problem 18 should read "Repeat Problem 17 using a set of polynomial admissible functions. Use one rigid-body mode (x) and a varying number of polynomials that satisfy all the boundary conditions of a clamped-free beam."

77 The statement for Problem 19 should refer to Eq. (2.311), not Eq. (2.310).

106 Text from previous editions was inadvertently omitted when the paragraph below Eqs. (3.98) was added. The missing text should be inserted at the bottom of page 106 and should read as follows:

$\theta = \overline{\theta}\cos(\Lambda) - w'\sin(\Lambda)$ as

$$\begin{aligned} &\theta''' + \frac{EI\,GJ}{EI\,GJ - K^2}\frac{qeca\ell^2}{GJ}\cos^2(\Lambda)\left[1 - \frac{K}{EI}\tan(\Lambda)\right]\theta' \\ &+ \frac{EI\,GJ}{EI\,GJ - K^2}\frac{qca\ell^3}{EI}\sin(\Lambda)\cos(\Lambda)\left[1 - \frac{K}{GJ}\frac{1}{\tan(\Lambda)}\right]\theta = 0 \end{aligned} \tag{3.101}$$

where $(\ )'$ now denotes $d(\ )/d\eta$ as in the parallel development for the elastically uncoupled wing above.

The boundary conditions can be derived from Eqs. (3.98) as

$$\theta(0) = \theta'(1) = \theta''(1) + \frac{EI\,GJ}{EI\,GJ - K^2}\frac{qeca\ell^2}{GJ}\cos^2(\Lambda)\left[1 - \frac{K}{EI}\tan(\Lambda)\right]\theta(1) = 0 \tag{3.102}$$

110 The answer to problem 9 should be 28.089%.

110 The answer to problem 10 should be 18.581%.