Steady states of the hinged extensible beam with external load

M. Coti Zelati, C. Giorgi, V. Pata

Abstract

We analyze both from the physical and the analytical viewpoint the equation

$$\omega u'''' - \left(\gamma + \int_0^1 [u'(x)]^2 \, \mathrm{x}\right) u'' = g$$

whose solutions represent the equilibria of a thin extensible beam subject to external load.