





$$\ddot{\eta}_q(t) + 2\gamma_q \omega_q \dot{\eta}_q(t) + \omega_q^2 \eta_q(t) + \epsilon V(t) [W'_q(x_1 + x_2) - W'_q(x_1)] = \ddot{w}_b(t) \int_0^L m(x) W_q(x) dx$$

$$C_p \frac{\partial V(t)}{\partial t} + \frac{V(t)}{R_{load}} = \sum_{q=1}^{\infty} -E_p d_{yx} t_{pc} b_p \left[ \frac{\partial W_q(x)}{\partial x} \right]_{x_1}^{x_1+x_2} \dot{\eta}_q(t)$$

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$$\omega_i = \left(\frac{i\pi}{l}\right)^2 \sqrt{\frac{EI}{\mu}} \sqrt{1 + \frac{T_0}{i^2(\pi^2 EI/l^2)}} \quad (i = 1, 2, \dots)$$

$$w = \frac{\varepsilon 24EI}{3l^2 z} \times \alpha \left| \frac{\omega_n^2 - \omega^2 + 2\gamma\omega\omega_n}{\omega_n^2} \right|$$



