

# PENDULE ELASTIQUE

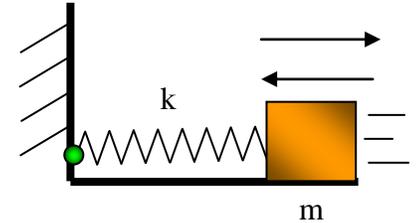
- Pendule élastique = application de la deuxième loi de Newton

- Oscillations libres :

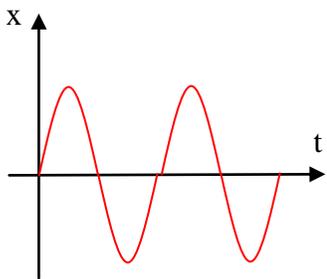
$$\ddot{x} + \frac{k}{m}x = 0$$

$$x = x_m \cos\left(\frac{2\pi}{T_0}t + \Phi_0\right)$$

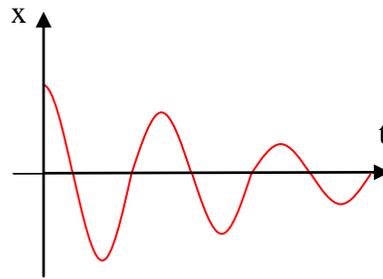
$$T_0 = 2\pi\sqrt{\frac{m}{k}}$$



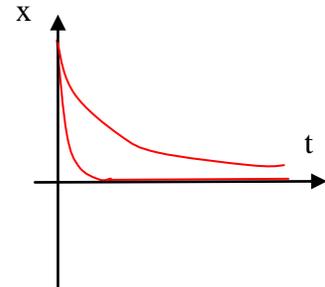
- Oscillations amorties :



Amortissement faible



Amortissement plus important



Amortissement important : mouvement apériodique

- Oscillations forcées : résonance d'amplitude

