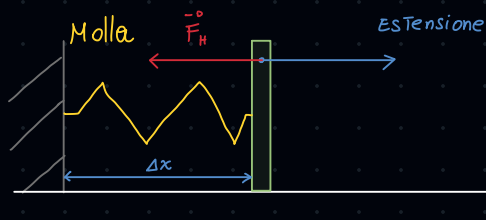


Forze elastiche



$$\vec{F}_H = -k \cdot x$$

↑
Costante elastica

←
ESTensione molla

$$\rightarrow \sum_i \vec{F} = m \vec{a} \Rightarrow \vec{F}_H = m \vec{a} \rightarrow -kx = m \vec{a} \rightarrow \text{ma } \vec{a} = \frac{dx^2}{dt} = \ddot{x}$$

$$\Rightarrow -kx = m \ddot{x} \rightarrow m \ddot{x} + kx = 0 \quad \text{Eq. differenziale come il pendolo}$$

$$\rightarrow \ddot{x} + \frac{k}{m} x = 0 \rightarrow \ddot{x} + \omega^2 x = 0$$

$$\rightarrow \underline{x(t) = A \cos(\omega t + \varphi)} \quad \text{Eq Traiettoria Molla}$$

Siccome $x(t+T) = A \cos(\omega t + \varphi + 2\pi) \rightarrow \cancel{A \cos(\omega t + \omega T + \varphi)} = \cancel{A \cos(\omega t + \varphi + 2\pi)}$

$$\rightarrow \omega T = 2\pi \Rightarrow \omega = \frac{2\pi}{T}$$

$$\rightarrow \omega = \sqrt{\frac{k}{m}} = \frac{2\pi}{T} \Rightarrow \underline{T = 2\pi \sqrt{\frac{m}{k}}} \quad \text{periodo molla}$$