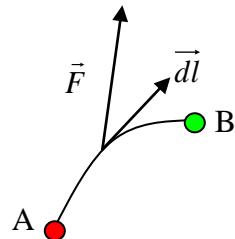


ETUDE ENERGETIQUE DES SYSTEMES MECANIQUES

- Travail d'une force :

$$dW = \vec{F} \cdot \vec{dl}$$

$$W = \int_A^B \vec{F} \cdot \vec{dl}$$

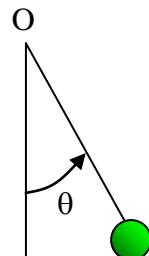
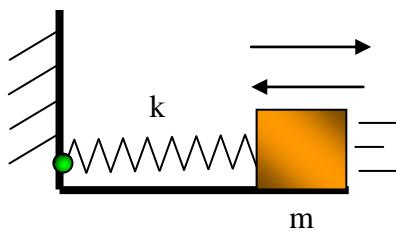


- Théorème de l'énergie cinétique : $\sum W(\vec{F}_{ext}) = E_{C_B} - E_{C_A} = \frac{1}{2}mv_B^2 - \frac{1}{2}mv_a^2$

- Energie mécanique :

$$E_M = E_C + E_P = \frac{1}{2}mv^2 + \frac{1}{2}kx^2$$

$$E_M = E_C + E_P = \frac{1}{2}mv^2 + mgz$$



- Pas de frottements (système isolé) : $E_M = \text{constante}$
Frottements (système non isolé) : E_M diminue