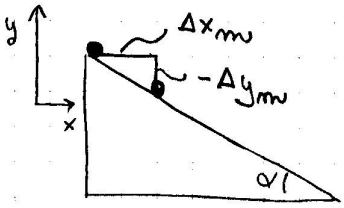
Il blocco si muove lungo il piano inclinato $\Rightarrow$



$$\frac{(-\Delta y_m)}{\Delta x_m} = \operatorname{tg}\alpha \quad \Rightarrow \quad \ddot{y}_m = -\operatorname{tg}\alpha\, \ddot{x}_m$$

$$\Rightarrow \quad a \equiv \ddot{x}_m \qquad \begin{cases} m a = R_c \sin\alpha \\ -m a \operatorname{tg}\alpha = -mg + R_c \cos\alpha \end{cases} \qquad (5)$$

$$m a \sin\alpha = mg\cos\alpha - R_c \cos^2\alpha = mg\cos\alpha - R_c + R_c \sin^2\alpha$$

$$m a \sin\alpha = mg\cos\alpha - R_c + m a \sin\alpha$$

$$R_c = mg\cos\alpha$$

$$a = g\cos\alpha \sin\alpha$$

$$\Rightarrow \quad \begin{cases} \ddot{x}_m = g\cos\alpha\sin\alpha \\ \ddot{y}_m = -g\sin^2\alpha \end{cases}$$

$$\begin{cases} F = mg\cos\alpha\sin\alpha \\ R_t = Mg + mg\cos^2\alpha \end{cases} \qquad (6)$$

Risolviamo in quest'altra maniera:

Sistema $\underbrace{(M+m)}_{m_t} \longrightarrow \vec{F}, M\vec{g}, m\vec{g}, \vec{R}_t$

$$\begin{cases} m_t \ddot{x}_{CM} = F \\ m_t \ddot{y}_{CM} = -(M+m)g + R_t \end{cases} \qquad (7)$$