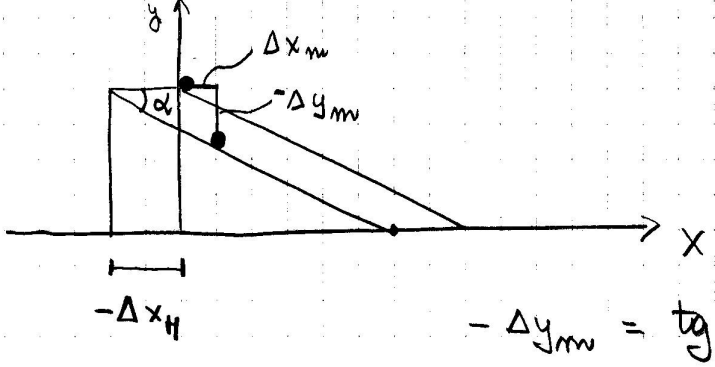

$$-\Delta y_m = \operatorname{tg}\alpha\,(\Delta x_m - \Delta x_H) \qquad (9)$$

$$\Rightarrow \quad -\ddot{y}_m = \operatorname{tg}\alpha\,(\ddot{x}_m - \ddot{x}_H)$$

$\Rightarrow$ (8) diventa: [uso $a \equiv \ddot{x}_m$, $A = \ddot{x}_H$]

$$\begin{cases} m\,a = R_c \sin\alpha \\ -m \operatorname{tg}\alpha\,(a - A) = -mg + R_c \cos\alpha \\ M\,A = -R_c \sin\alpha \\ 0 = -Mg + R_t - R_c \cos\alpha \end{cases} \qquad (10)$$

4 eqns e 4 incognite (a, A, R_c, R_t)

Risolviamo:

$$m\,(a-A)\sin\alpha = mg\cos\alpha - R_c\cos^2\alpha$$

$$R_c \sin^2\alpha - \frac{m}{M}\left(-R_c \sin_\alpha\right)\sin\alpha = mg\cos\alpha - R_c\cos^2\alpha$$

$$\Rightarrow \quad R_c\left(1 + \frac{m}{M}\sin^2\alpha\right) = mg\cos\alpha$$

$$R_c = \frac{m\,M}{M + m\sin^2\alpha}\, g\cos\alpha$$

$$a = \frac{Mg\cos\alpha\sin\alpha}{M + m\sin^2\alpha}$$