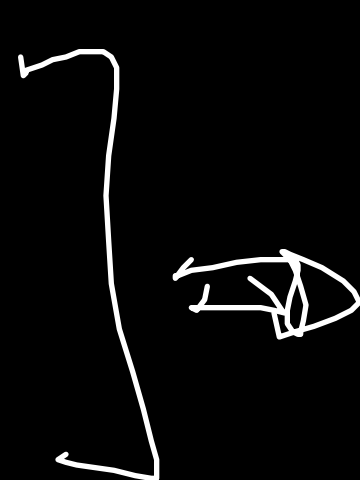


$\sum F_x = 0$ SEMPRE

$\sum F_y \neq 0$ (IMPATTO)



P_x è costante

P_y non è costante

$P_{ix} = m v_{ix} = P_{fx} = (m + M) v_{fx}$

$P_{iy} = m v_{iy} \neq P_{fy} = 0$

IMPULSO DI UNA FORZA

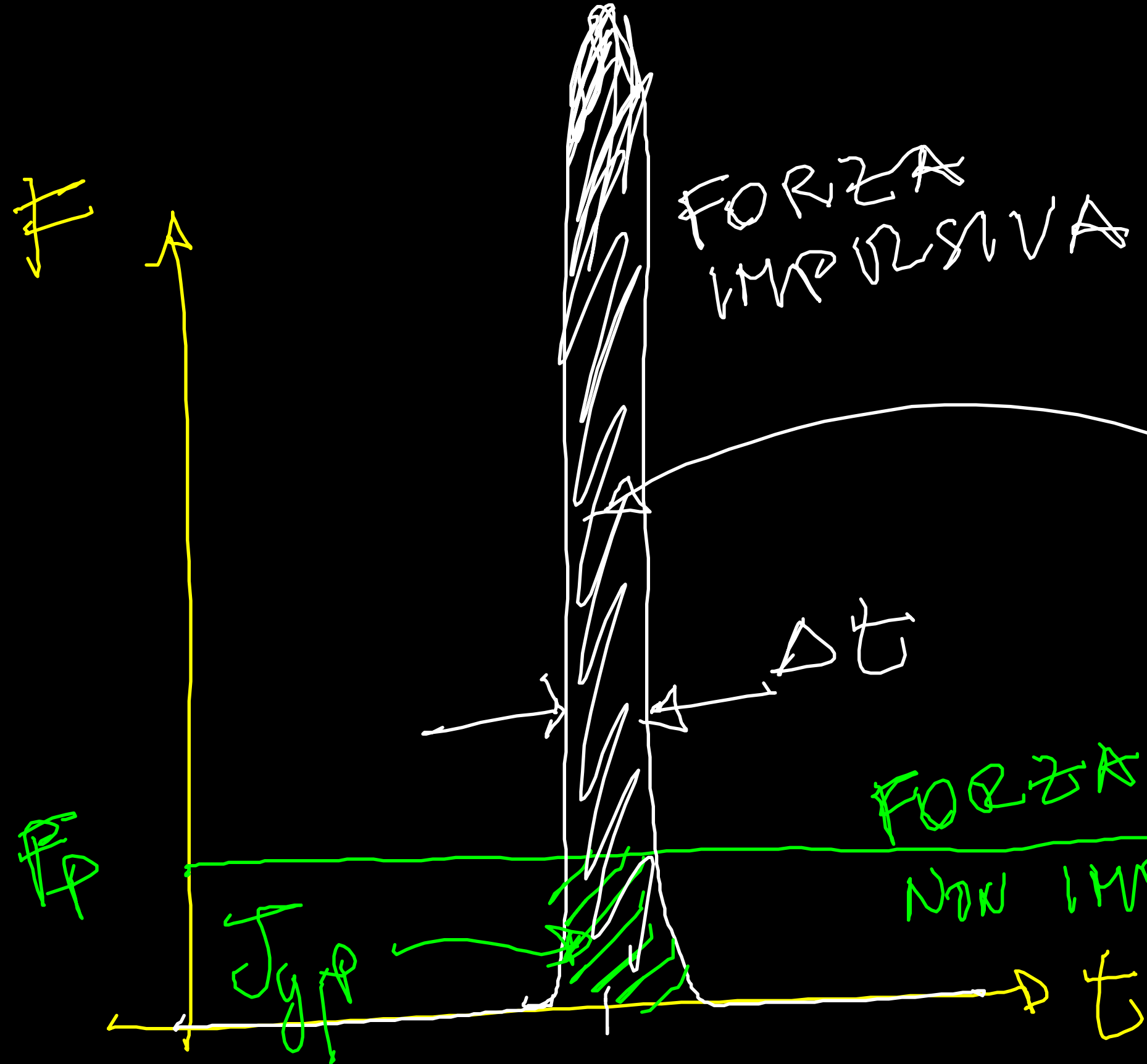
$$\sum \vec{F}_i = \vec{F} = \frac{d\vec{p}}{dt} \Rightarrow d\vec{p} = \vec{F} dt$$

intervallo inf.
durante il quale agisce

IMPULSO
DI \vec{F}

$$\int_{t_1}^{t_2} \vec{F} dt = \vec{p}(t_2) - \vec{p}(t_1) = \Delta \vec{p}$$

$$\int_{t_1}^{t_2} \vec{F} dt \approx \Delta \vec{p} \approx \vec{p}_2 - \vec{p}_1$$

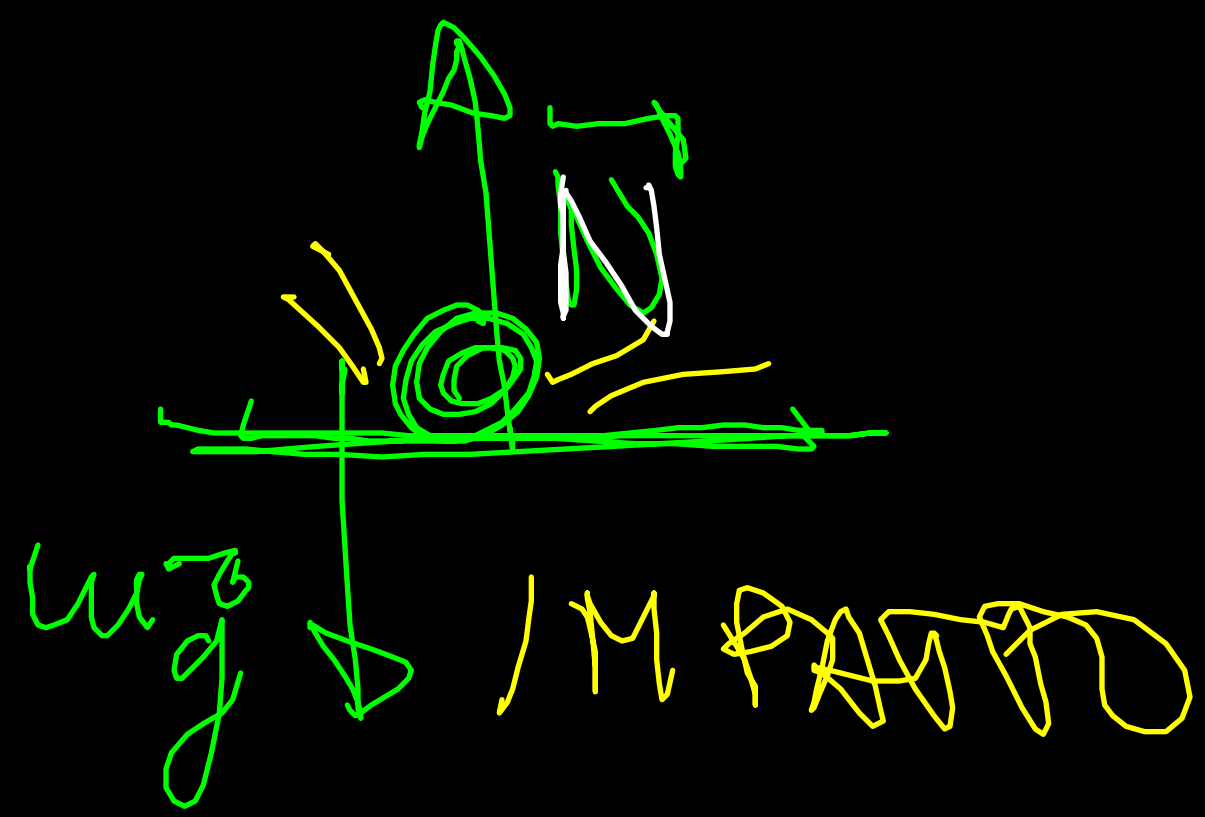
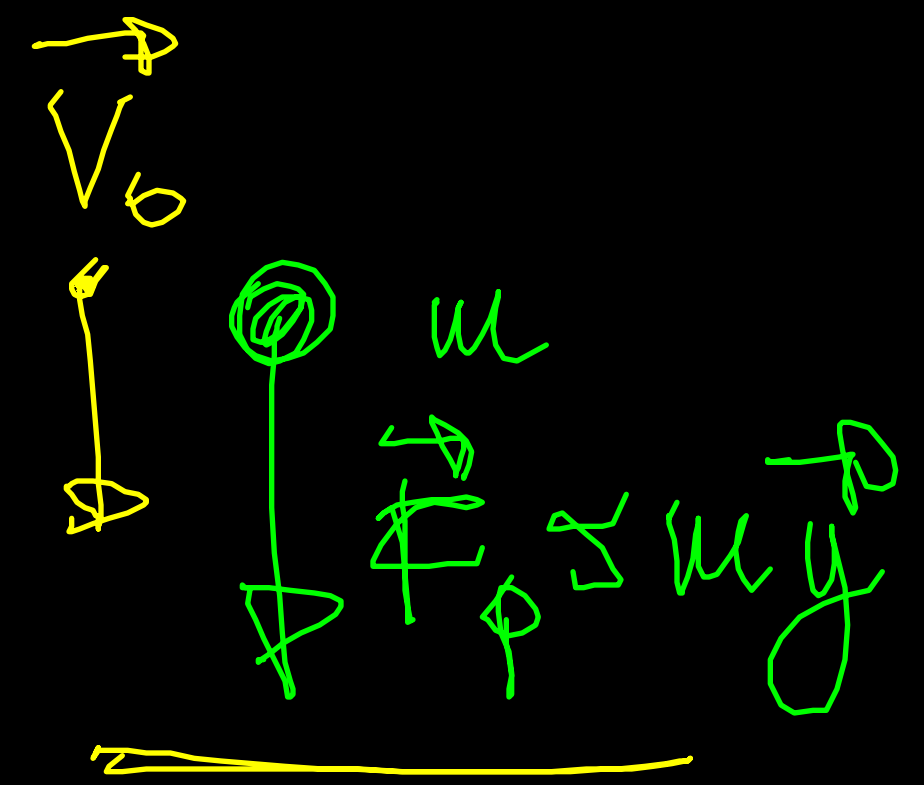


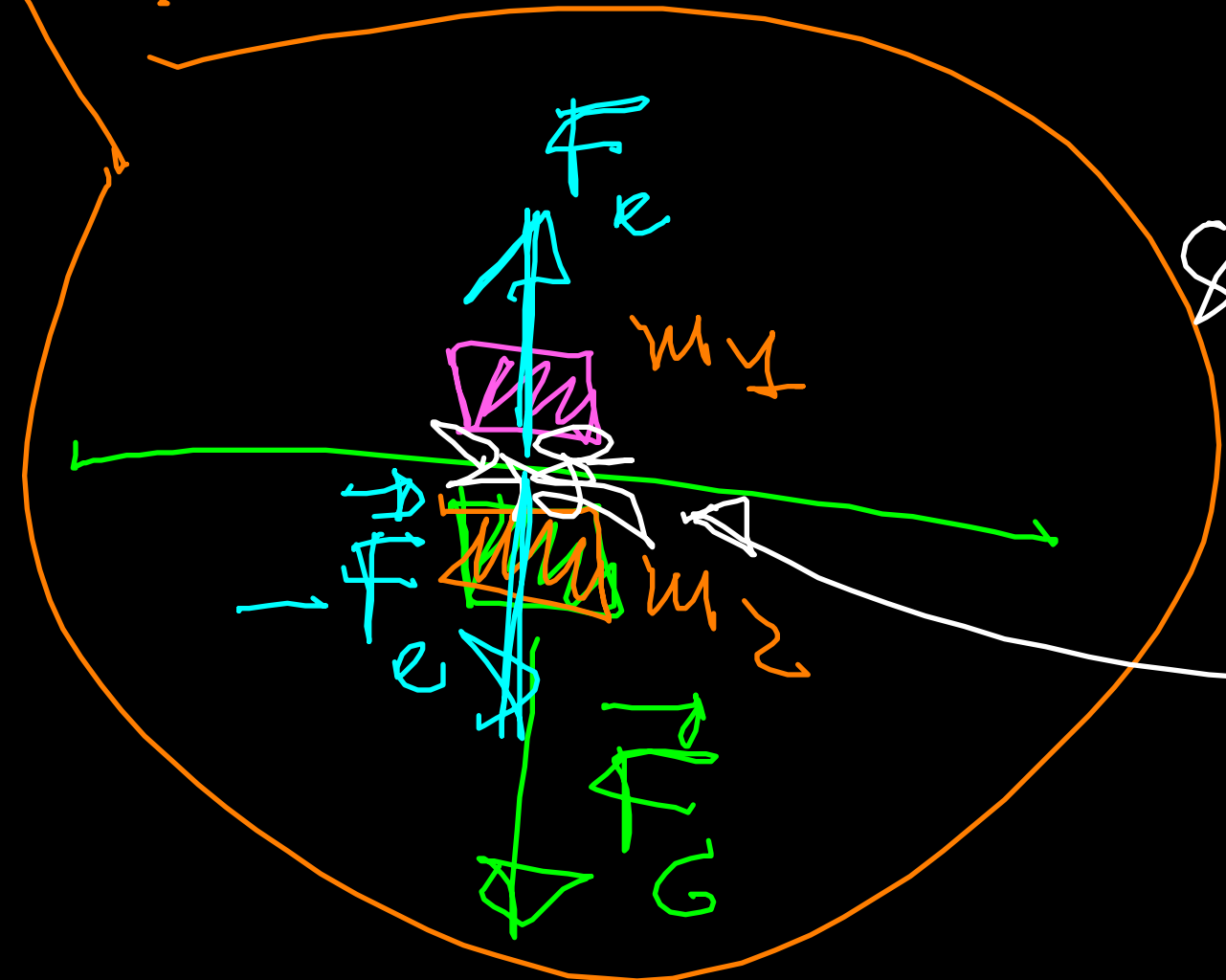
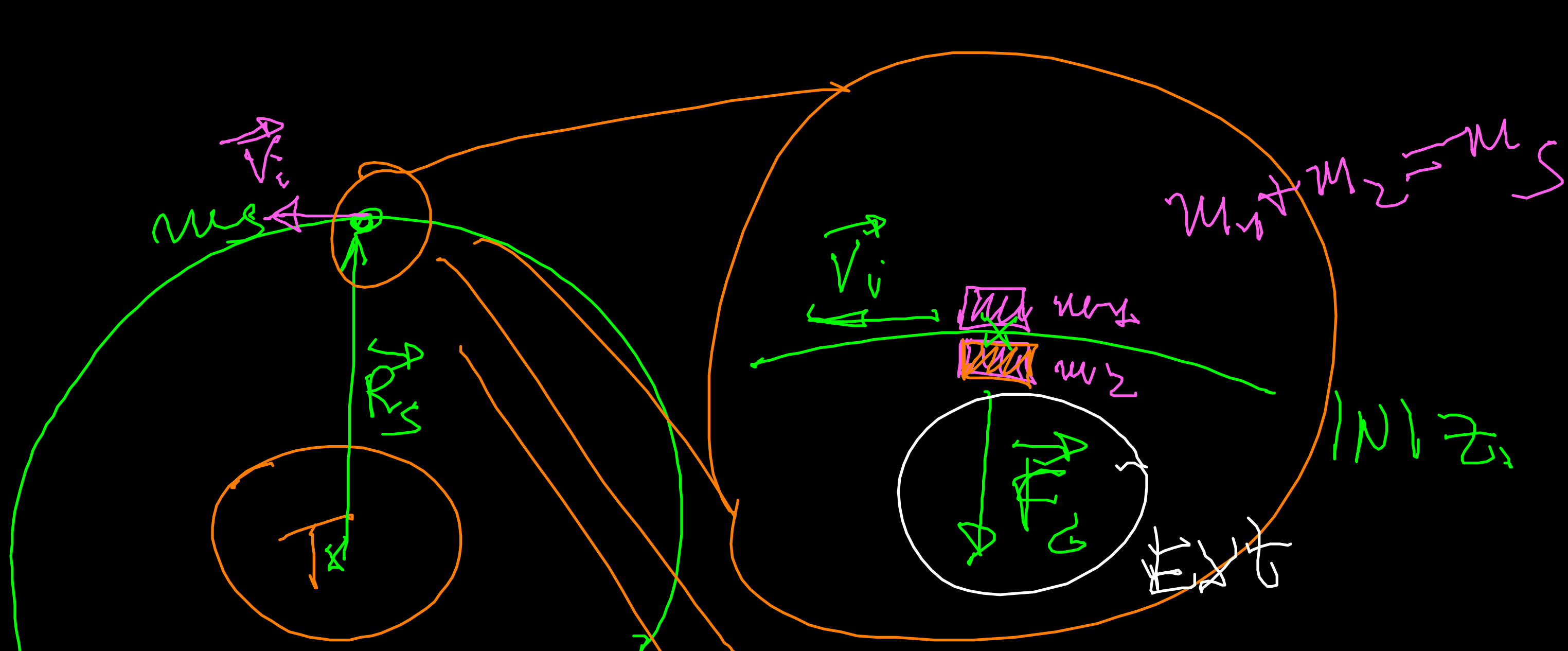
$$J_{y,p} = \int_{t_0}^{t_0 + \Delta t} mgy dt = mgy \Delta t$$

$$J_{y,N} = \int_{t_0}^{t_0 + \Delta t} N_y dt$$

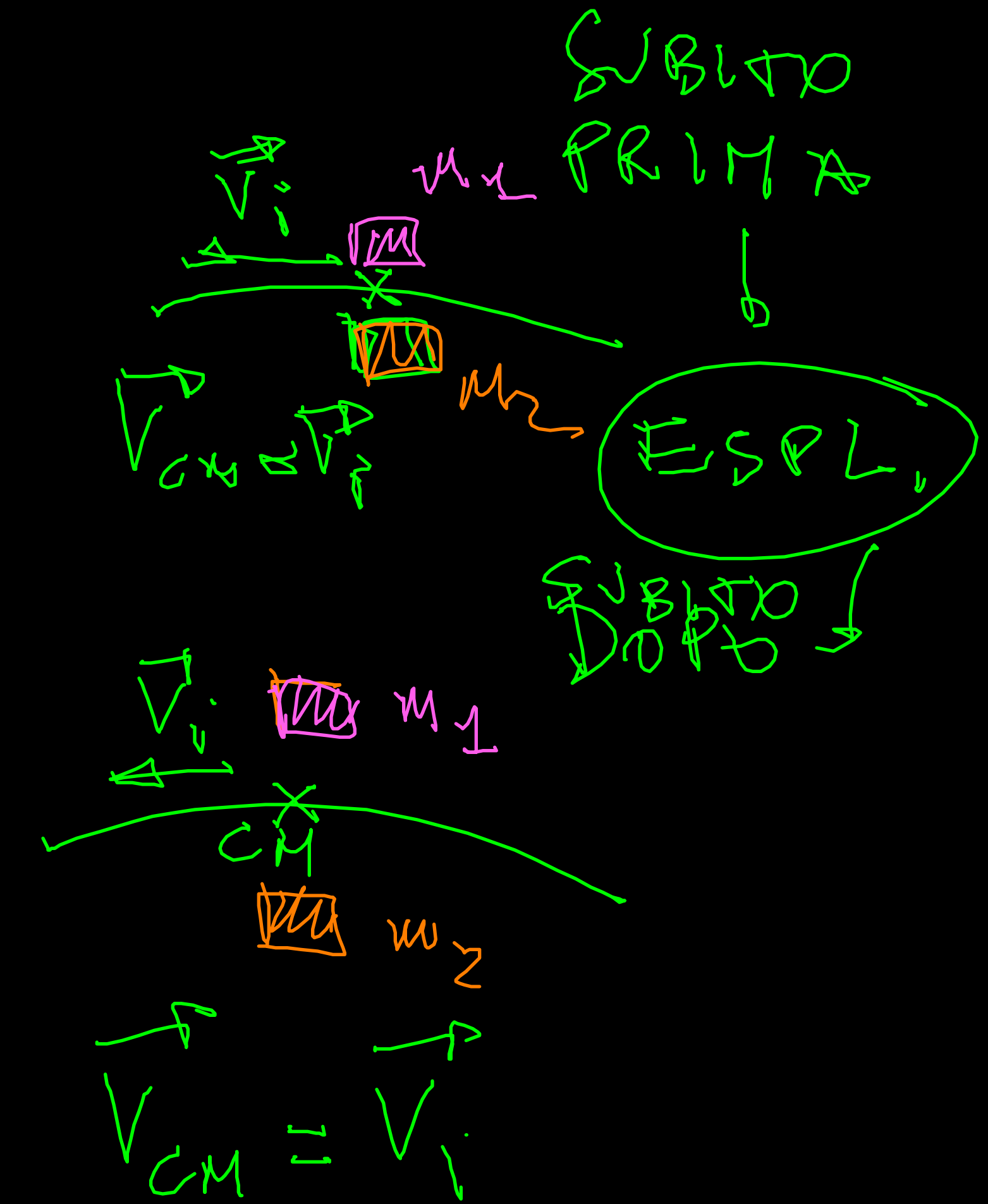
$$J_{y,N} \gg J_{y,p}$$

$$\Delta P_y = P_{yf} - P_{yi} = J_{y,N} + J_{y,p}$$





ESPLORIONE \Rightarrow Δt BREVE
 zona INTERNE



ESPL.

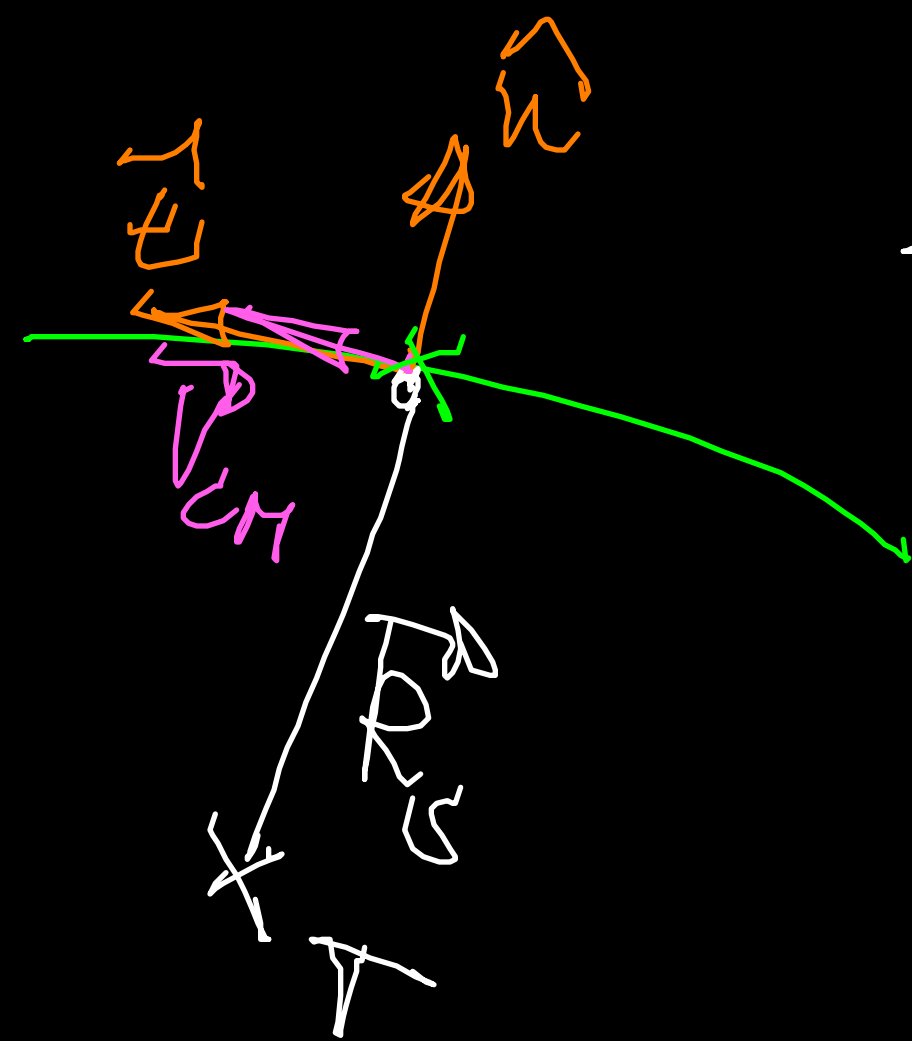
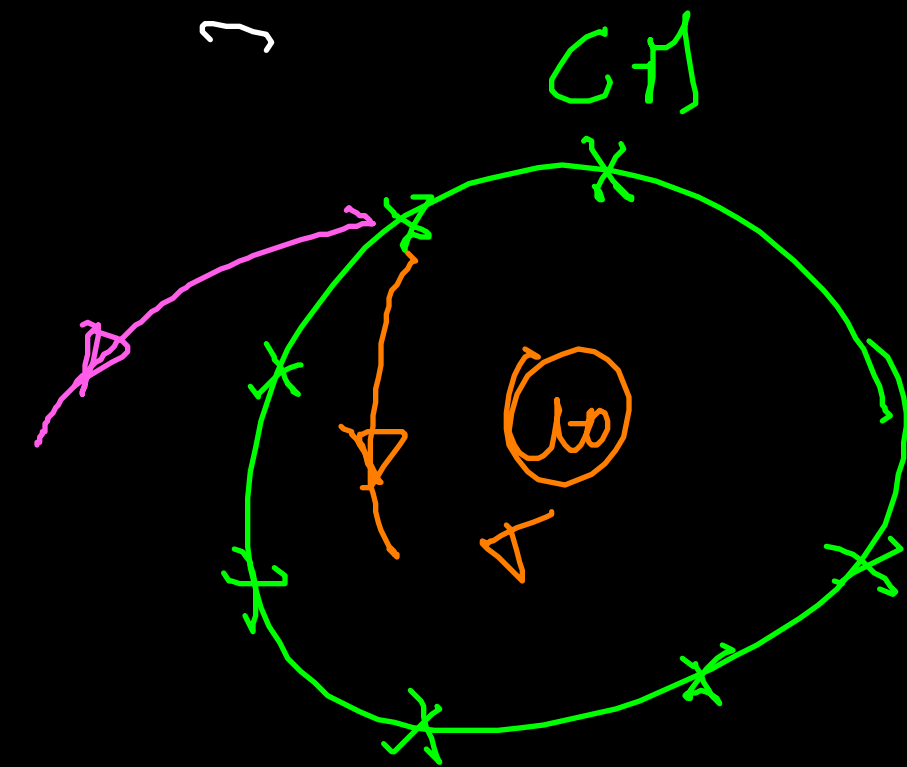
Δt BREVE $\Rightarrow |\vec{J}_e|$ è piccolo $\Rightarrow \Delta \vec{P} \approx 0$

PRIMA

$$M V_{CM,i} \approx M V_i \approx 0$$

DOPO

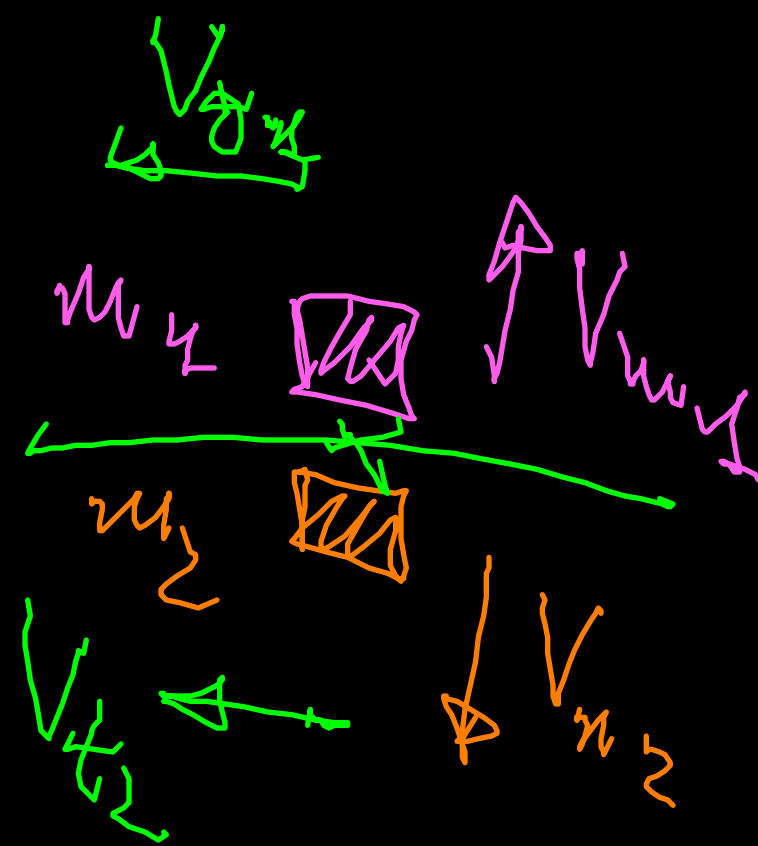
$$M V_{CM,f} \approx M V_i$$



$$\Delta \vec{P} \approx 0$$

$$P_{y,i} = P_{y,f}$$

$$(m_1 + m_2) V_{y,i} = (m_1 + m_2) V_{y,f}$$



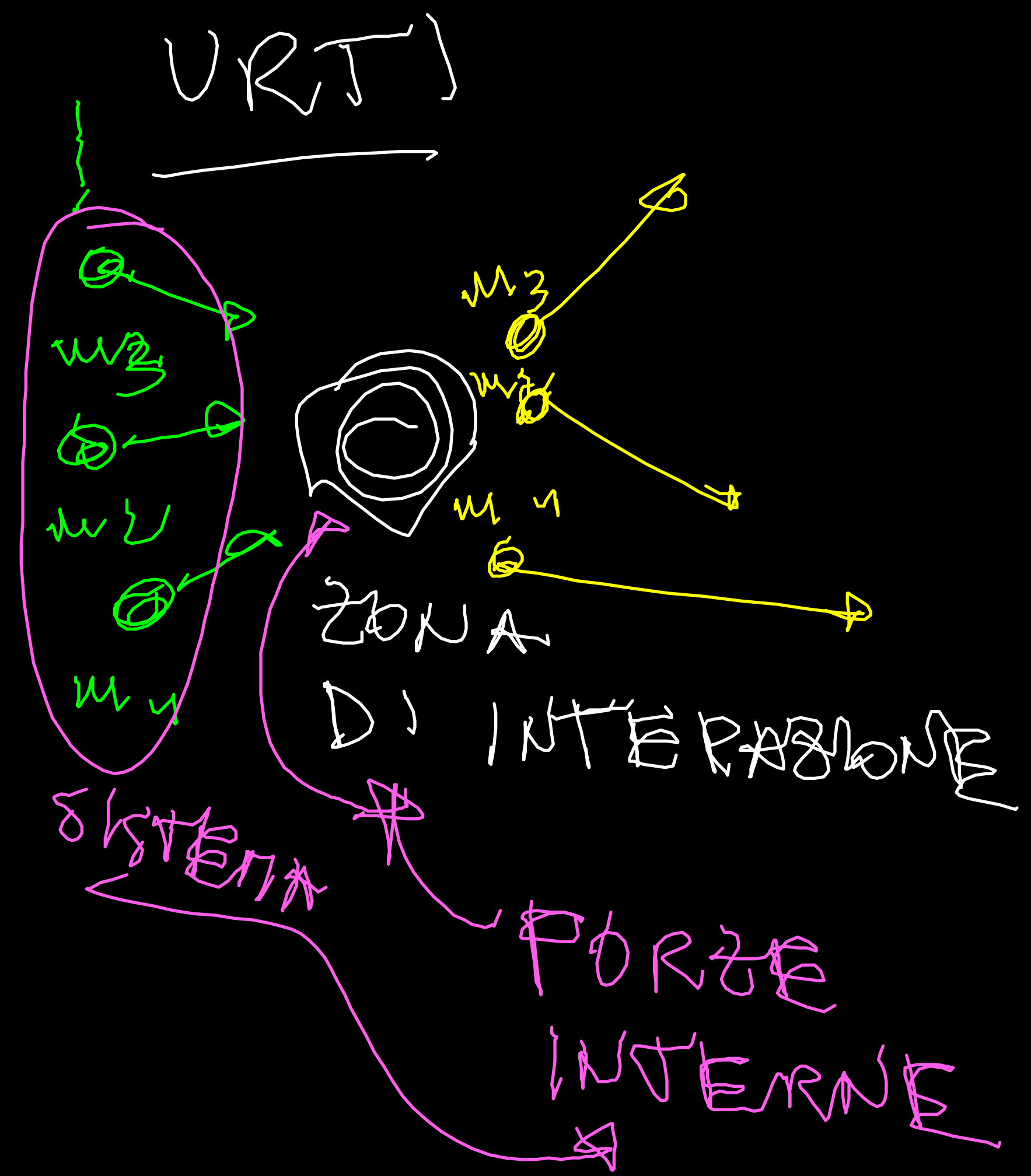
$$P_{x,i} = P_{x,f}$$

$$0 = m_1 V_{x1} + m_2 V_{x2}$$

$$m_1 V_{x1} = -m_2 V_{x2}$$

$$V_{x1} = V_{x2} = V_{CM}$$

PENDOLO BALLISTICO



Se E MECC. SI CONSERVA \Rightarrow URTI ELASTICO

Se E MECC. NON SI CONSERVA \Rightarrow URTI ANELASTICO

$\Rightarrow \vec{P}$ è istante