



$$\vec{R}^0 = \frac{\sum_i m_i \vec{r}_i^0}{\sum_i m_i} \quad \rightarrow \sum_i m_i = M$$

$$= \frac{\sum_i m_i \vec{r}_i^0}{M}$$

$$\vec{v}_{CM}^0 = \frac{d\vec{R}^0}{dt} = \frac{\sum_i m_i \vec{v}_i^0}{M} \quad \vec{p}_{TOT}^0 \quad \rightarrow \vec{v}_{CM}^0 = \frac{\vec{p}_{TOT}^0}{M}$$

$$\rightarrow \vec{p}_{TOT}^0 = \vec{v}_{CM}^0 \cdot M \quad \text{1 sola velocit\`a}$$

$$\vec{a}_{CM}^0 = \frac{d\vec{v}_{CM}^0}{dt} = \frac{\sum_i m_i \vec{a}_i^0}{M} = \frac{\sum_i m_i \vec{a}_i^0}{M} \quad \vec{F}^0 \quad \rightarrow \vec{a}_{CM}^0 = \frac{\sum_i \vec{F}_i^0}{M} \quad \rightarrow \sum_i \vec{F}_i^0 = M \cdot \vec{a}_{CM}^0 \quad \text{1 sola accelerazione}$$

$$\underline{\sum_i \vec{F}_{ext}^0 = M \cdot \vec{a}_{CM}^0}$$

II eq dinamica

$$\vec{M}^0 = \frac{d\vec{L}^0}{dt}$$

NON SI APPLICA AL CM