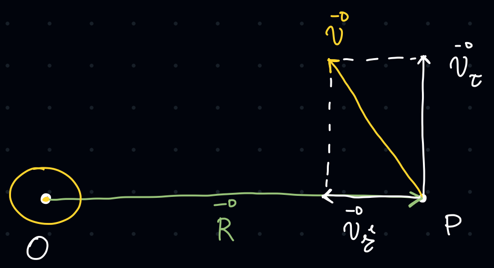
$$\vec{p} = m \cdot \vec{v}$$ Momentum / quant. di moto

Scegliamo un' origine O $\to$ $P(x,y,z)$ $\quad \vec{r} = \overline{OP}$ $\quad$ $\vec{L} = \vec{r} \wedge \vec{p}$ momento Angolare

$\to$ $\vec{M} = \vec{r} \wedge \vec{F}$ Momento di una forza

$$\vec{L} = \vec{r} \wedge \vec{p} \to \frac{d\vec{L}}{dt} = \frac{d}{dt}(\vec{r} \wedge \vec{p}) \Rightarrow \frac{d\vec{L}}{dt} = \frac{d\vec{r}}{dt} \wedge \vec{p} + \vec{r} \wedge \frac{d\vec{p}}{dt}$$

$$\to \frac{d\vec{L}}{dt} = \underbrace{\overset{0}{\cancel{\vec{v} \wedge \vec{p}}}}_{\vec{v} /\!/ \vec{p}} + \vec{r} \wedge \overset{\vec{F}}{m\vec{a}} \to \frac{d\vec{L}}{dt} = \vec{r} \wedge \vec{F} \to \frac{d\vec{L}}{dt} = \vec{M}$$



$$\vec{L} = \vec{r} \wedge \vec{p} = \vec{r} \wedge m \cdot \vec{v} = \vec{r} \wedge (\vec{v}_r + \vec{v}_\tau) m$$

$$\vec{L} = m(\vec{r} \wedge \hat{v}_\tau) + \underbrace{\overset{0}{\cancel{\vec{r} \wedge \vec{v}_r}} \cdot m}_{/\!/}$$

$\downarrow$

$\vec{v}_\tau = \emptyset \Rightarrow \vec{L} = \emptyset$

$$|\vec{L}| = m \cdot r \cdot v \to |\vec{L}| = m \cdot r^2 \omega$$

massa inerziale

$m r^2 = m$

momento d'inerzia

$$\omega = \frac{d\alpha}{dt} \to \alpha(t) = \omega \cdot t \to v = R \cdot \omega$$