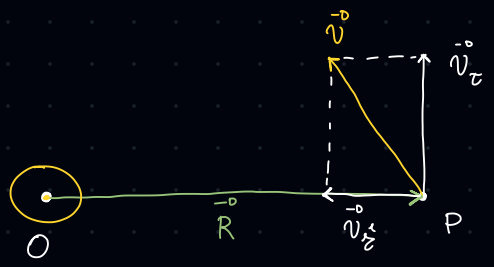
$\vec{p} = m \cdot \vec{v}$ Momentum / quant. di moto

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

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

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

$\rightarrow \frac{d\vec{L}}{dt} = \cancel{\vec{v} \wedge \vec{p}}^{\,0} + \vec{r} \wedge \overbrace{m\vec{a}}^{\vec{F}}$ ($\vec{v} \parallel \vec{p}$) $\rightarrow \frac{d\vec{L}}{dt} = \vec{r} \wedge \vec{F}$ $\rightarrow \boxed{\frac{d\vec{L}}{dt} = \vec{M}}$



$\vec{L} = \vec{r} \wedge \vec{p} = \vec{r} \wedge m \cdot \vec{v} = \vec{r} \wedge (\vec{v}_\perp + \vec{v}_\parallel)\, m$

$\vec{L} = m(\vec{r} \wedge \vec{v}_\perp) + \cancel{\vec{r} \wedge \vec{v}_\parallel}^{\,0} \cdot m$

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

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

$mr^2 = m$ massa inerziale

momento d'inerzia

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