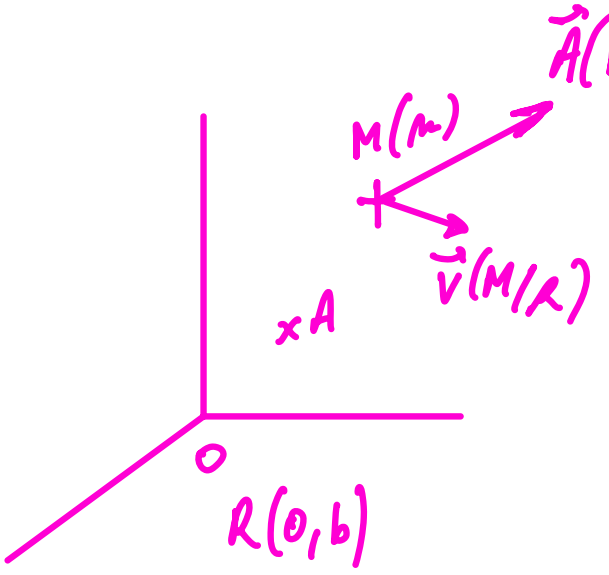
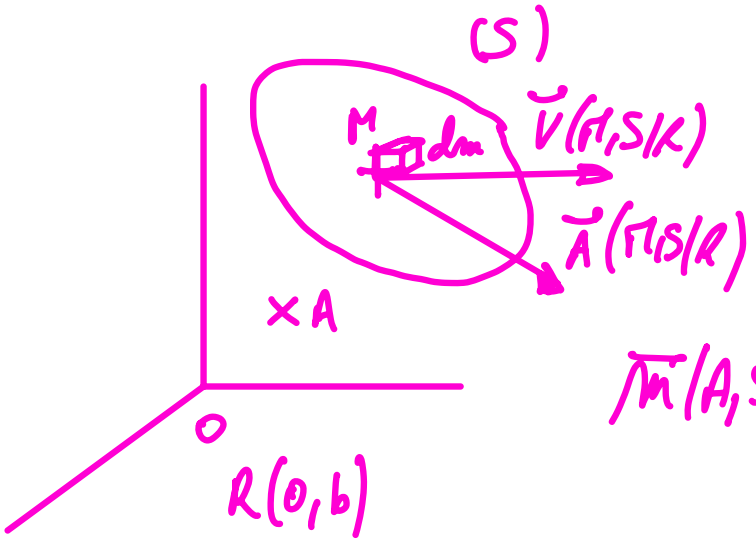


$$\left.\frac{d\vec{p}}{dt}\right|_R = \vec{Q}_A = m\,\vec{A}(M/R)$$

$$m\left.\frac{d\vec{v}}{dt}\right|_R$$

$$\vec{\mathcal{M}}(A,\Pi/R) = \vec{AM} \wedge \vec{Q}_A$$

$$= \vec{AM} \wedge m\,\vec{A}(\Pi/R)$$



$$\vec{Q}_A = \iiint_{M\in S} \vec{A}(M,S/R)\,dm$$

$$\vec{\mathcal{M}}(A,S/R) = \iiint \vec{AM} \wedge \vec{A}(M,S/R)\,dm$$

$$\vec{\mathcal{M}}(A,S/R) = \vec{\delta}(A,S/R)$$

$$\vec{\mathcal{M}}(B,S/R) = \vec{\mathcal{M}}(A,S/R) + \vec{BA} \wedge \int \vec{A}(M,S/R)\,dm$$

$$\int \vec{BM} \wedge \vec{A}(M,S/R)\,dm = \int_{M\in S} \vec{BA} \wedge \vec{A}(M,S/R)\,dm + \underbrace{\int \vec{AM} \wedge \vec{A}(M,S/R)\,dm}_{\vec{\mathcal{M}}(A,S/R)}$$

$$\vec{\mathcal{M}}(B,S/R) = \vec{\mathcal{M}}(A,S/R) + \vec{BA} \wedge \underbrace{\int \vec{A}(M,S/R)\,dm}_{\vec{Q}_A}$$

$$\mathcal{D}(S/R) = \left\{ \underbrace{\vec{Q}_A = \iiint \vec{A}(M,S/R)\,dm}_{\text{Résultante Dynamique}},\ \underbrace{\vec{\delta}(A,S/R) = \iiint \vec{AM} \wedge \vec{A}(M,S/R)\,dm}_{\text{Moment Dynamique}} \right\}_A$$

$$\vec{R}_D(S/R) = \iiint \vec{A}(P,S/R)\,dm = m\,\vec{A}(G,S/R)$$

$$\vec{\delta}(A,S/R) = \iiint_{P\in S} \overrightarrow{AP} \wedge \vec{A}(P,S/R)\,dm$$

$$\mathcal{R} \int_{P\in S} \vec{A}(P,S/R)\,dm = \int \left(\frac{d\vec{V}(P,S/R)}{dt}\right)_R dm = \left(\frac{d}{dt}\underbrace{\int \vec{V}(P,S/R)\,dm}_{\vec{Q}_V = m\vec{V}(G,S/R)}\right)_R$$

$$= m\,\vec{A}(G,S/R)$$

formule de $\vec{\delta}$ (4)

$$\vec{\delta}(A,S/R) = \int_{P\in S} \overrightarrow{AP} \wedge \vec{A}(P,S/R)\,dm = \int_{P\in S} \overrightarrow{AP} \wedge \left(\frac{d\vec{V}(P,S/R)}{dt}\right)_R dm.$$

$$= \int \left[\frac{d}{dt}\left(\overrightarrow{AP} \wedge \vec{V}(P,S/R)\,dm\right)\right]_R - \int_{P\in S} \left(\frac{d\overrightarrow{AP}}{dt}\right)_R \wedge \vec{V}(P,S/R)\,dm.$$

$$= \left[\frac{d}{dt}\int \left(\overrightarrow{AP} \wedge \vec{V}(P,S/R)\,dm\right)\right]_R - \int \left(\frac{d\overrightarrow{AO}}{dt}\right)_R \wedge \vec{V}(P,S/R)\,dm - \int \left(\frac{d\overrightarrow{OP}}{dt}\right)_R \wedge \vec{V}(P,S/R)\,dm$$

$$= \left[\frac{d\,\vec{\sigma}(A,S/R)}{dt}\right]_R + \underbrace{\left(\frac{d\overrightarrow{OA}}{dt}\right)_R}_{\vec{V}(A/R)} \wedge \underbrace{\int \vec{V}(P,S/R)\,dm}_{m\vec{V}(G,S/R)} - \int_{P\in S} \vec{V}(P,S/R)\wedge\vec{V}(P,S/R)\,dm$$

$$\boxed{\vec{\delta}(A,R) = \left[\frac{d\vec{\sigma}(A,S/R)}{dt}\right]_R + m\left(\frac{d\overrightarrow{OA}}{dt}\right)_R \wedge \vec{V}(G,S/R)} \quad (*)$$

$\overrightarrow{V(A,S/R)}$

↳ $\vec{V}(A,S/R)$

$\mathcal{D}(S/R) = \{ \vec{R_D} = m\vec{A}(G,S/R) \ , \ \vec{\delta}(A,S/R) \}_A$

$\vec{\delta}(B,S/R) = \vec{\delta}(A,S/R) + \vec{BA} \wedge m\vec{A}(G,S/R)$

$$\vec{\delta}(A,S/R) = \left[\frac{d\vec{P}(A,S/R)}{dt}\right]_R + m\left(\left[\frac{d\vec{OA}}{dt}\right]_R \wedge \vec{V}(G,S/R)\right)$$

1) $A \equiv G$ $\quad \vec{\delta}(G,S/R) = \left(\frac{d\vec{P}(G,S/R)}{dt}\right)_R$ $\quad$ "$J\frac{d\omega}{dt}$"

2) A fixe dans R $\quad \vec{\delta}(A,S/R) = \left(\frac{d\vec{P}(A,S/R)}{dt}\right)_R$

Système ou Ensemble de Solide : $S = (S_1 \cup S_2)$

$\mathcal{D}(S/R) = \mathcal{D}(S_1/R) + \mathcal{D}(S_2/R)$

~~$\mathcal{D}(2/0) = \mathcal{D}(2+1) + \mathcal{D}(1/0)$~~

$\mathcal{D}(2+1/0) = \mathcal{D}(2/0) + \mathcal{D}(1/0)$

$m\vec{A}(G_{1+2}/0) = m_1\vec{A}(G_1,1/0) + m_2\vec{A}(G_2,2/0)$

$\vec{\delta}(A, 2+1/0) = \vec{\delta}(A,2/0) + \vec{\delta}(A,1/0)$