

#### 4) LAW OF CONSERVATION OF ANGULAR MOMENTUM

$$\int_{t_1}^{t_2} \vec{M}(t) dt = \vec{L}_2 - \vec{L}_1 = \vec{0}$$

$$\vec{I}_M = \int_{t_1}^{t_2} \vec{M}(t) dt = \vec{0} \quad ( \vec{M} = \vec{0}, \int_{t_1}^{t_2} \vec{M}(t) = \vec{0} )$$

$$\vec{L}_2 - \vec{L}_1 = \vec{0} \Rightarrow \vec{L}_1 = \vec{L}_2$$

$$\vec{r}_1 \times m \vec{v}_1 = \vec{r}_2 \times m \vec{v}_2$$

$$\underline{\vec{r}_1 \times \vec{v}_1 = \vec{r}_2 \times \vec{v}_2}$$