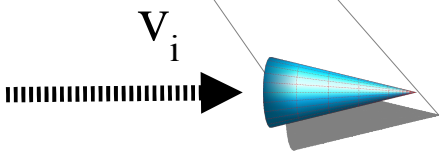
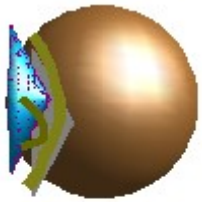
Corpi quasi rigidi

Pre Termodinamica

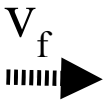
L'energia si conserva?



P



B



$$v_f = \frac{m_p}{m_p + m_b} v_i$$

Nel baricentro $v_f = 0$!

dal teorema delle forze vive

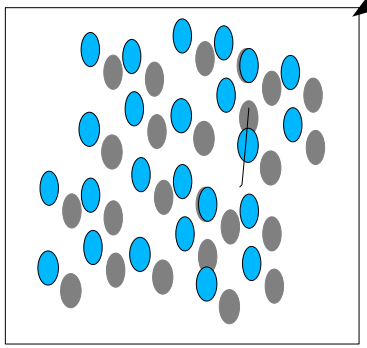
$$\Delta E_c^P + \Delta E_c^B = L_{diB\,suP}^{attr} + L_{diP\,suB}^{attr} = E_{dissipata} < 0$$

Corpi quasi rigidi

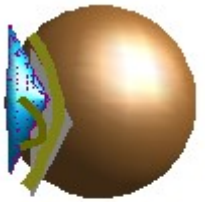
Pre Termodinamica

$$U = \sum_i \frac{1}{2} m_i v_i^2 + \sum_{ij} U_{ij}(r_{ij})$$ Interna

Nota
Corpo rigido
U=costante



$$E = E_c + U$$



B

$$E = E^P + E^B = E_c^P + U^P + E_c^B + U^B$$

$$\Delta E_c^P + \Delta E_c^B = -(\Delta U^P + \Delta U^B) = E_{dissipata}$$

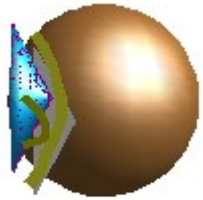
Corpi quasi rigidi

Pre Termodinamica

Proiettile $\Delta E^P = \Delta E_c^P + \Delta U^P = L_{PB}$

Bersaglio $\Delta E^B = \Delta E_c^B + \Delta U^B = L_{BP}$

Somma *sommando* $\Delta E_c + \Delta U = zero$



B

L_{PB} e' il lavoro generalizzato.....

$$L_{PB} = L_{PB}^{attr} + L'_{PB} \qquad \Delta U_{PB} = L'_{PB}$$

$$L_{BP} = L_{BP}^{attr} + L'_{BP} \qquad \Delta U_{BP} = L'_{BP}$$

Corpi quasi rigidi

Pre Termodinamica

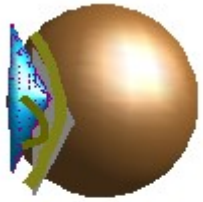
$$L_p = \sum_N \vec{F}_i \cdot \Delta \vec{r}_i$$

$$ma$$

$$\vec{F} = \frac{1}{N}\vec{F}_t = \frac{1}{N}\sum_n \vec{F}_i \quad \equiv \quad \vec{F}_i = \vec{F} + \delta\vec{F}_i$$

$$\Delta\vec{r} = \frac{1}{N}\sum_n \Delta\vec{r}_i \quad \equiv \quad \Delta\vec{r}_i = \Delta\vec{r} + \delta\vec{r}_i$$

$$L_p = \sum_N \vec{F}\cdot\Delta\vec{r} + \sum_N \delta\vec{F}_i\cdot\delta\vec{r}_i = \vec{F}_t\cdot\Delta\vec{r} + \sum_N \delta\vec{F}_i\cdot\delta\vec{r}_i$$



B

Ordinato = L

disordinato = Q ≡ L'

$$\Delta E = \Delta U + \Delta E_c = L + Q$$