

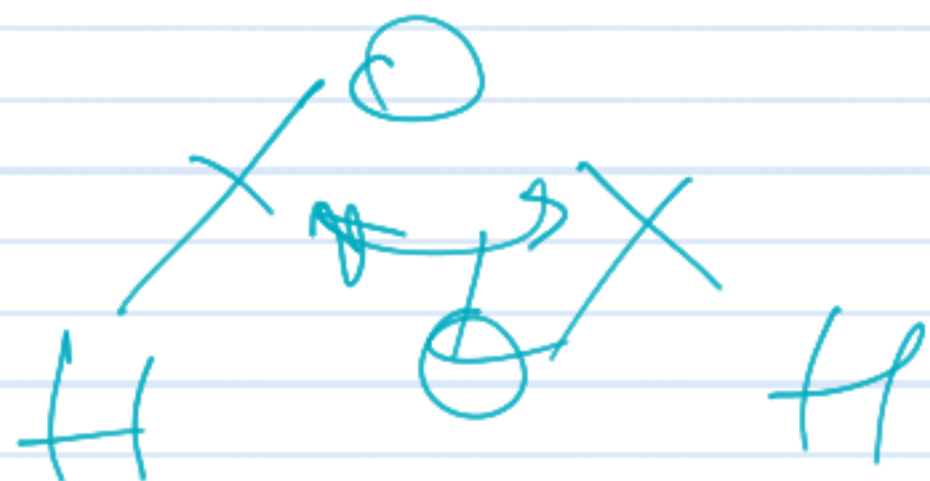
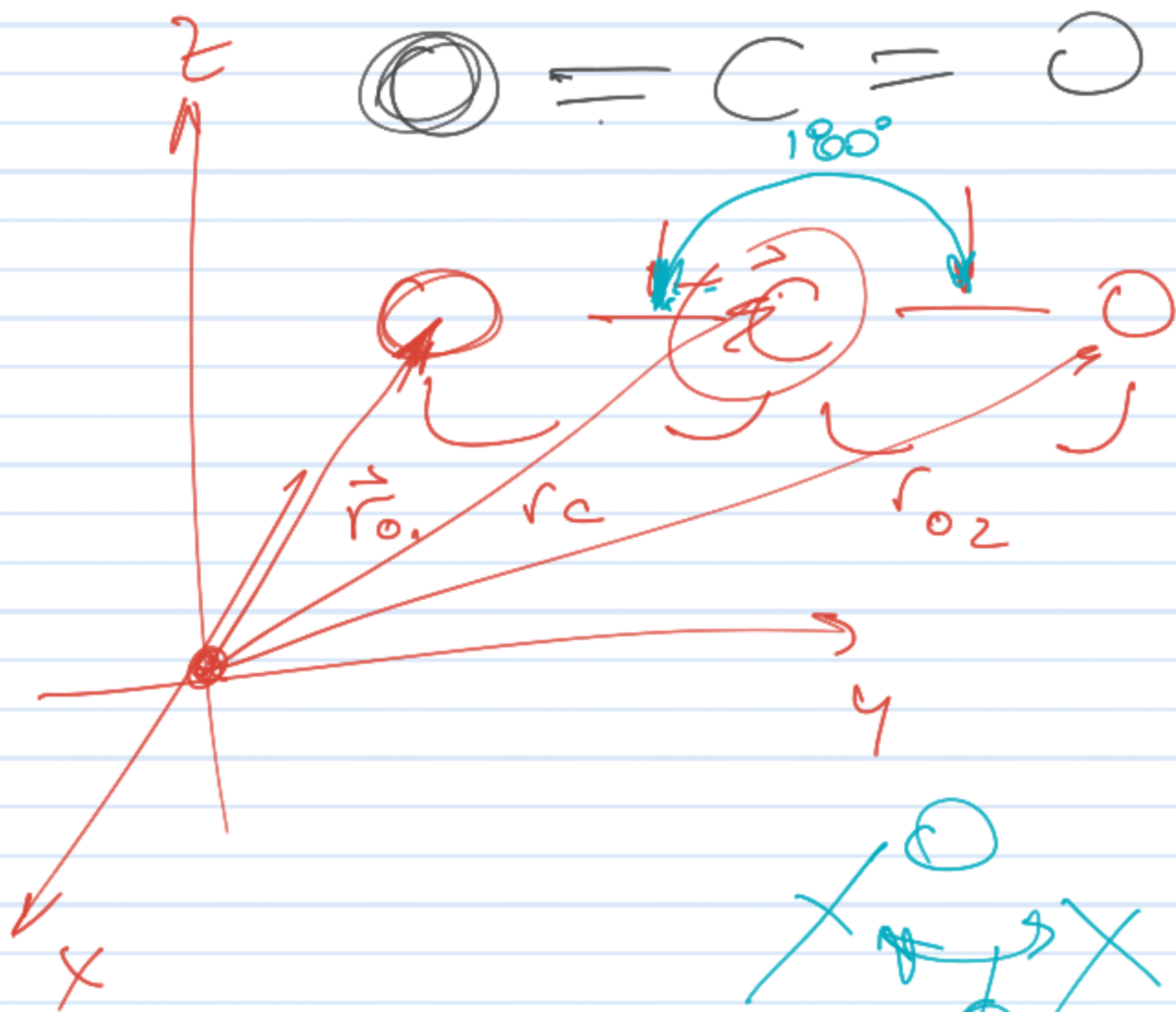
Universidad Nacional de Río Negro

Física III B – 2021

- **Unidad** 01
- **Clase** U01 C06 - 06/30
- **Fecha** 07 Abr 2021
- **Cont** Calor sensible y latente
- **Cátedra** Asorey - Calderón
- **Web** <https://gitlab.com/asoreyh/unrn-f3b>



Notas de clase



$$3 + 3 + 3 - 2 - 1$$

$$\underbrace{3 \times 3}_{\text{Gord}} - \underbrace{3}_{\text{no/ports}} = \underbrace{6}_{\text{nodes}}$$

$$\text{now: } z=3$$

$$\text{wh: } z=5$$

$$\text{dr: } z=6$$

Equipartición $\rightarrow z$ grados de libertad.

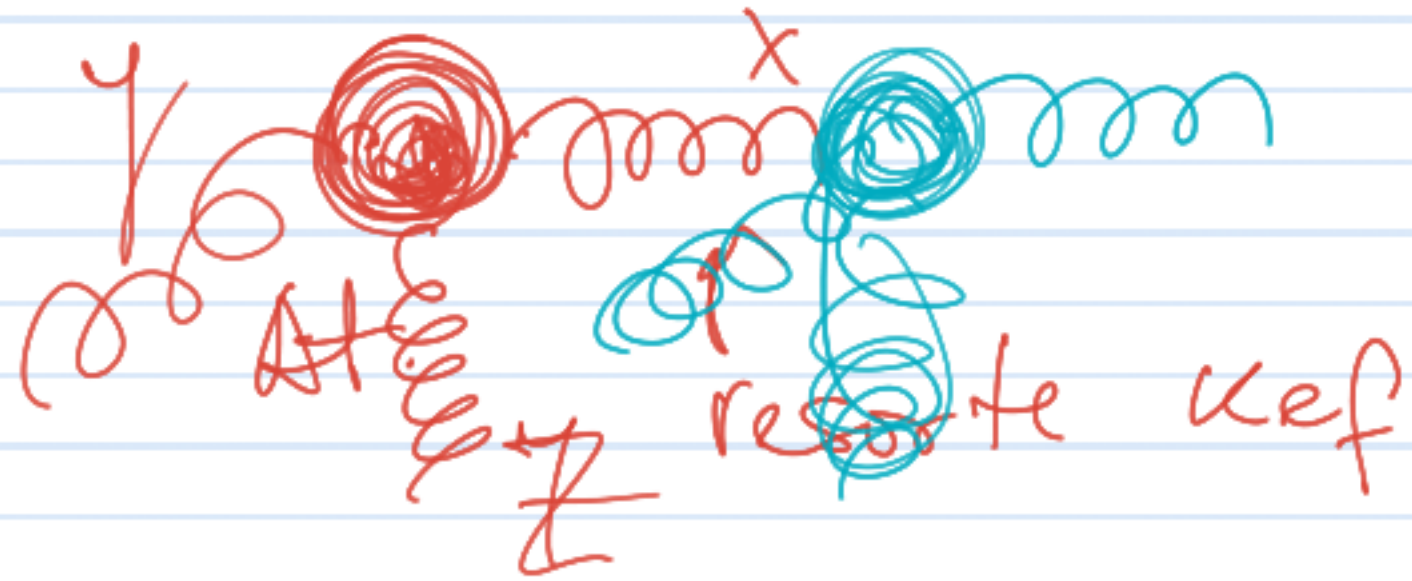
$$U = \frac{z}{2} k_B T$$

$$U_{\text{mono}} = \frac{3}{2} k_B T \quad // \quad U_{\text{bi}} = \frac{5}{2} k_B T \quad // \quad U_{\text{tri}} = \frac{6}{2} k_B T$$



$$U_{\text{cuadr}}: z=8 \quad U_{\text{cuadr}} = 4 k_B T$$

$$\underline{P} \quad \underline{V} = \underline{nRT}$$



$$E_k = \frac{1}{2} m (\dot{x}^2 + \dot{y}^2 + \dot{z}^2) + \frac{1}{2} k_{eff} (x^2 + y^2 + z^2)$$

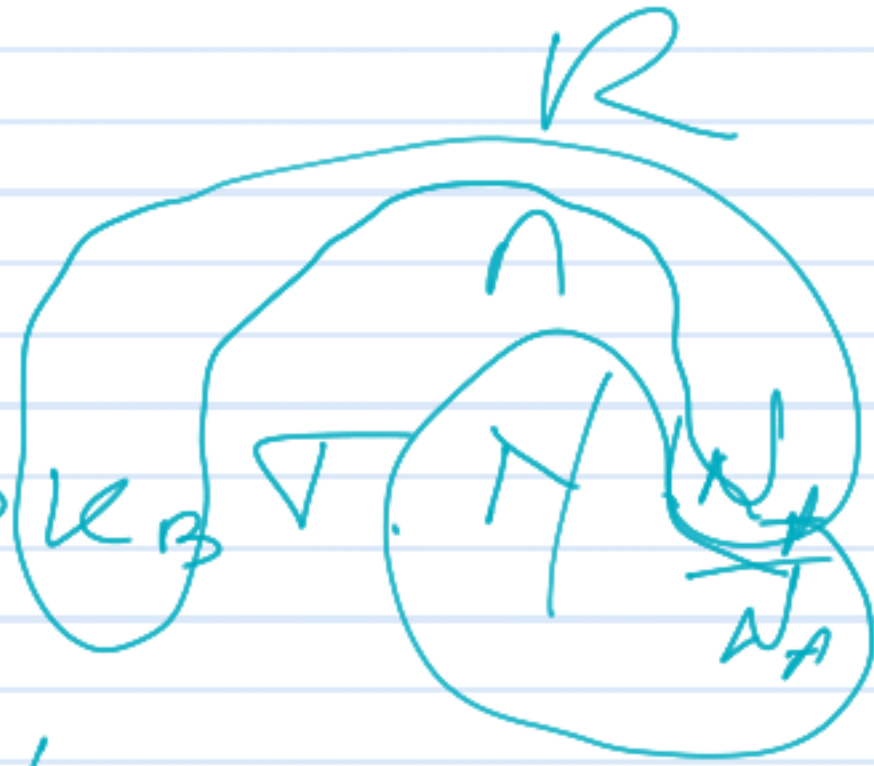


pero como partícula del sólido



6 degrees of freedom in a solid \Rightarrow

$$U = \frac{1}{2} k_B T \cdot 6 \Rightarrow U = 3 k_B T$$



$$U = 3nRT = \text{Ley de Dulong Petit}$$

A volume Cte $\Rightarrow Q = \Delta U$

$$nC \Delta T = 3nR \Delta T$$

$$\Rightarrow C = 3R$$

Duun pekti $C = 3 \text{ } ^\circ\text{C}$

$$n = 3 \text{ mol}$$

$$Q = 3n R \Delta T \Rightarrow Q = 3 \cdot 3 \text{ mol} \cdot \underbrace{8,314 \text{ J}}_{\text{mol K}} \cdot 100 \text{ K}$$

$$Q = 7482,6 \text{ J}$$

$$Q_{\text{Pb}} = 7482,6 \text{ J} \Rightarrow m_{\text{Pb}} = 621,6 \text{ g}$$

$$Q_{\text{Cu}} = 7482,6 \text{ J} \Rightarrow m_{\text{Cu}} = 190,64 \text{ g}$$

$$Q = \frac{m}{M} C_v \cdot \Delta T$$

Capacidad Calorífica.

Para un sólido $Q = \frac{m}{M} C_v \cdot \Delta T$

$$C_{\text{sust}} = \frac{C}{M_{\text{sust}}}$$

$$Q = m \cdot c \cdot \Delta T$$

