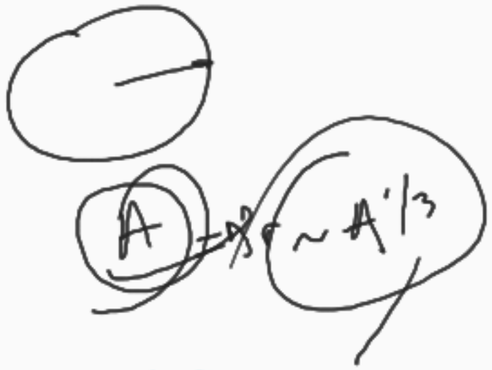
- **Unidad** 02-Astrofísica, estrellas y planetas
- **Clase** U02 C04 - 8/16
- **Fecha** 23 Sep 2020
- **Cont** Fusión 3, Evolución Estelar, Nebulosas
- **Cátedra** Asorey
- **Web** https://gitlab.com/asoreyh/unrn-ipac/

RIO NEGRO



$$E_T = N m_n + Z m_p + U_{XX}(Z,A)$$

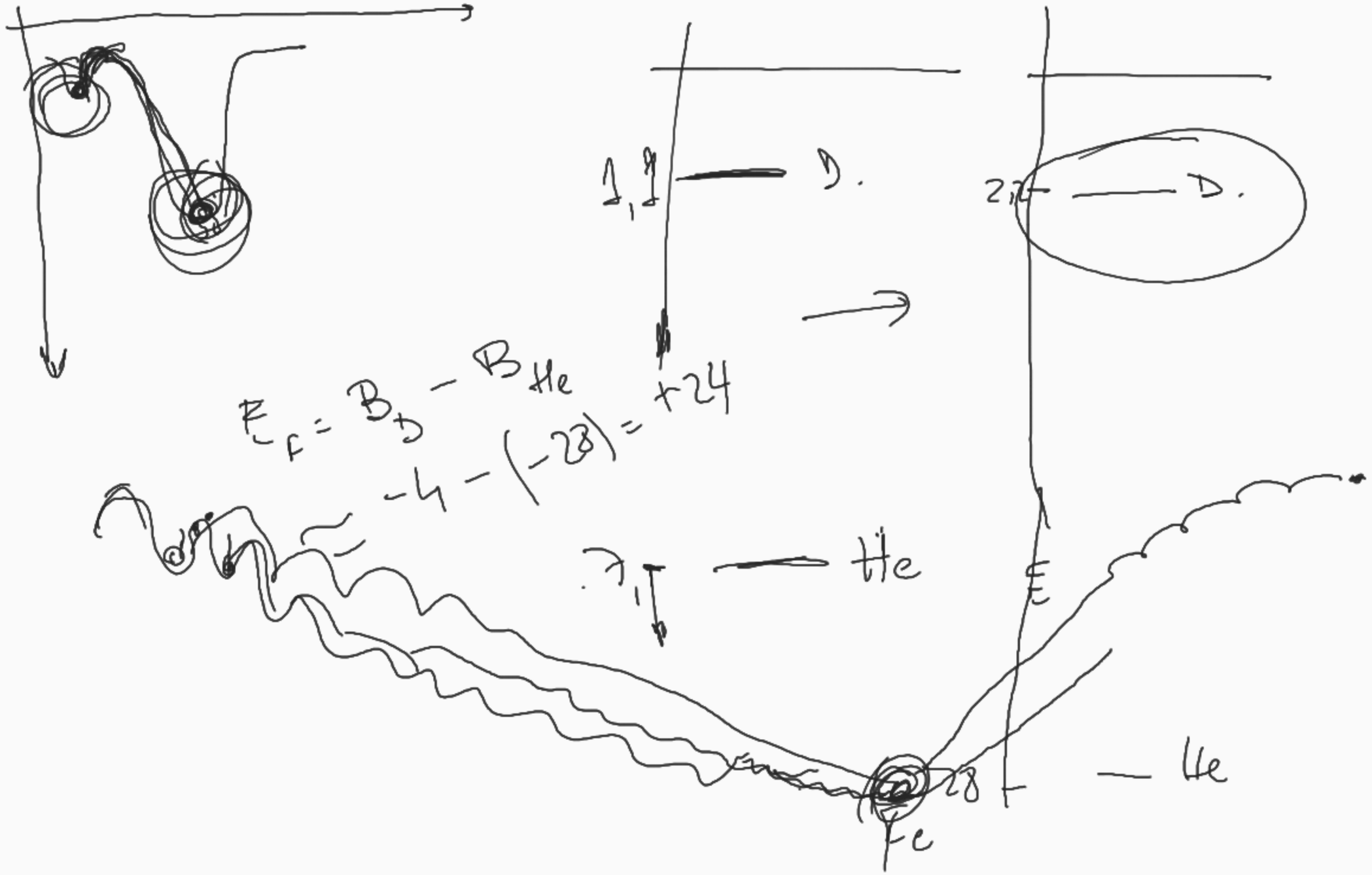
$$E_T = N m_n + Z m_p + U_{XX}(Z,A) - U_{FF}(Z,A)$$

Repulsiva

Atractiva

$$E_T = M_\oplus \cdot c^2 + m_L \cdot c^2 - \frac{G M_\oplus m_L}{d+L}$$

$$E_T = M_\odot \cdot c^2 + m_\oplus \cdot c^2 - \frac{G M_\odot m_\oplus}{2UA}$$


1,1
D.
2,1
D.
$E_F = B_D - B_{He}$
$-4-(-28) = +24$
2,1
He
E
28
He
Fe

$^3He + ^4He \rightarrow {}^7Be_4 + Q$.

$$m_{^3He} = 2m_p + 1m_n - B(3,2)$$
$$m_{^4He} = 2m_p + 2m_n - B(4,2)$$
$$m_{^7Be} = 4m_p + 3m_n - B(7,4)$$

} m reactivos.

$A = N + Z$ = Nucleones.

Z número atómico

N número neutrón

B/A

$$Q = m_r - m_p = m_{^3He} + m_{^4He} - m_{^7Be} =$$
$$= 2m_p + m_n - B(3,2) + 2m_p + 2m_n - B(4,2) - 4m_p - 3m_n + B(7,4)$$

$$Q = B(7,4) - B(4,2) - B(3,2) \Rightarrow$$

$$\boxed{Q = B_{Prod} - \sum B_{reactivos}}$$

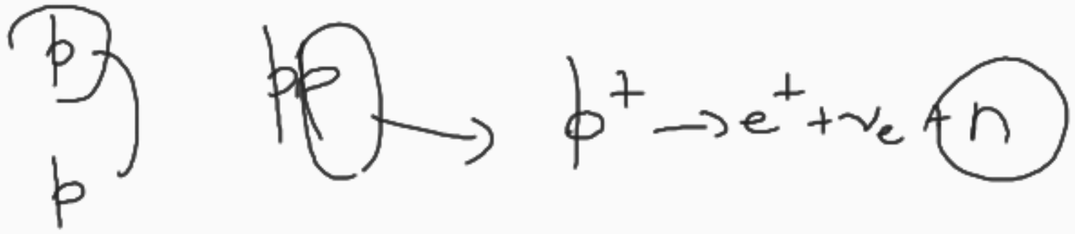
Si $Q > 0$ la fusión libera energía

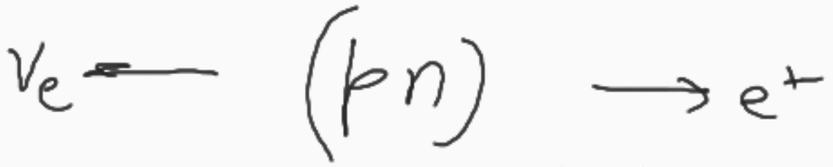
$$Q = 5{,}37\,Mev \cdot 7 - 7{,}07\,Mev \cdot 4 - 2{,}57\,Mev \cdot 3$$

En los tablas aparece sectorizado

$$Q = 1{,}594\,Mev > 0.$$

$$Q = \left(\frac{B_{pro}}{A_{prod}}\right) A_{prod} - \sum_{i=1}^{reac} \left(\frac{B_i}{A_i}\right) A_i \qquad B/A.$$





$^3He + {}^3He \rightarrow {}^4He + p + p + Q.$

$Q = B(4,2) - 2B(3,2)$ y recordad pasarlo a B/A.

$Q = \frac{B}{A}(4,2)\cdot 4 - 2\cdot\frac{B}{A}(3,2)\,3$

$= 7,07\cdot 4 - 2\cdot 2,572\ \text{MeV}\cdot 3$

$= 12,84\ \text{MeV}.$

$L = \frac{\Delta E}{\Delta t}$ n $\Rightarrow L = n \cdot \bar{E}_1$ $L = 3{,}85 \times 10^{26} J$

$\bar{E}_1 = 26{,}73 MeV$

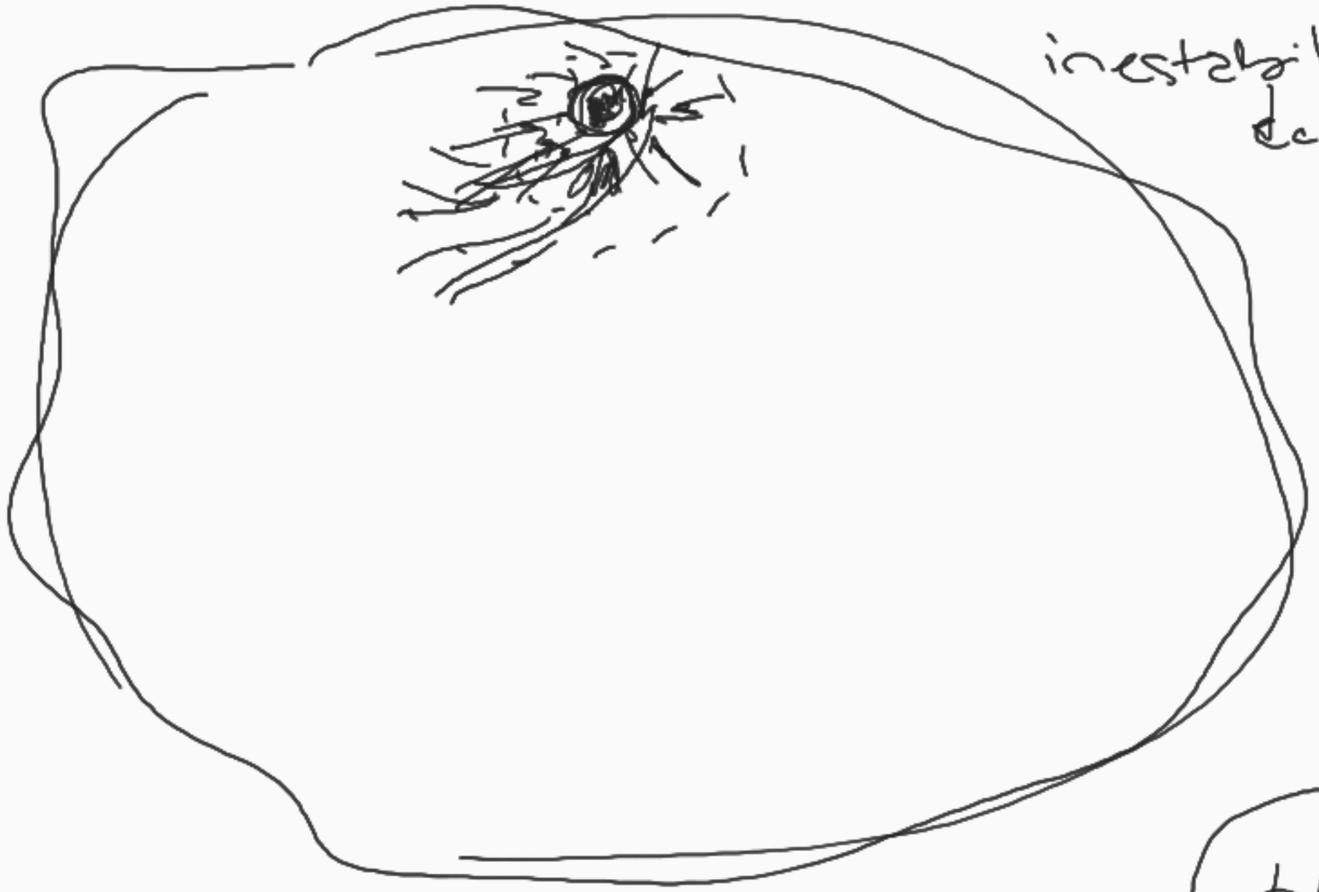
$\Rightarrow n = L / \bar{E}_1$

Pensar en la cant. de núcleos presentes

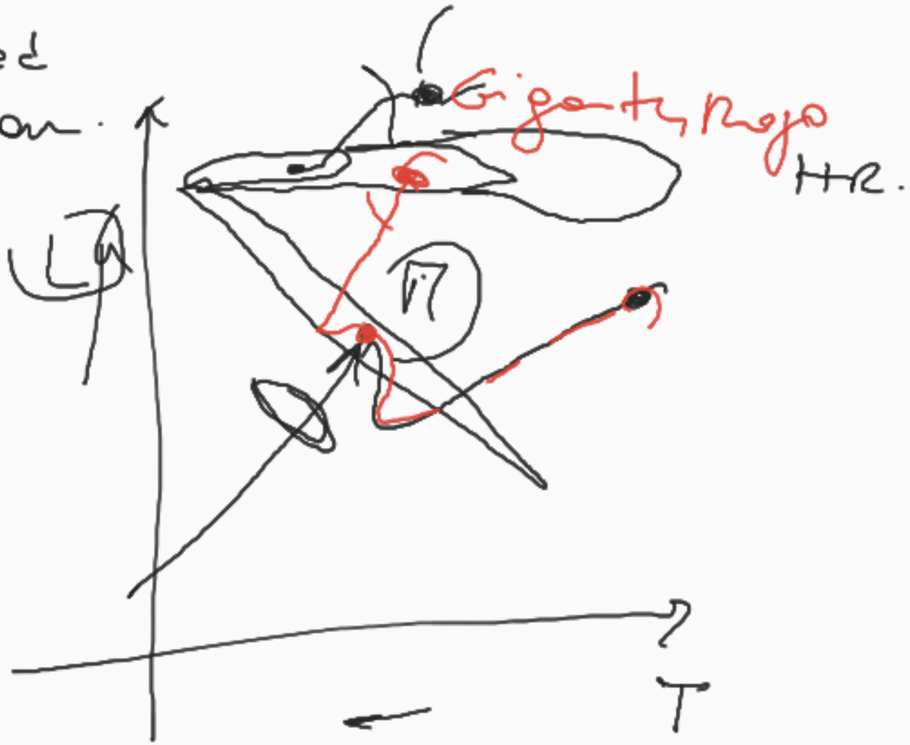
reaccionando.

$^7Be + e^- \rightarrow {}^7Li + \nu_e$

$p^+ + e^- \rightarrow n^\circ + \nu_e$ W^-

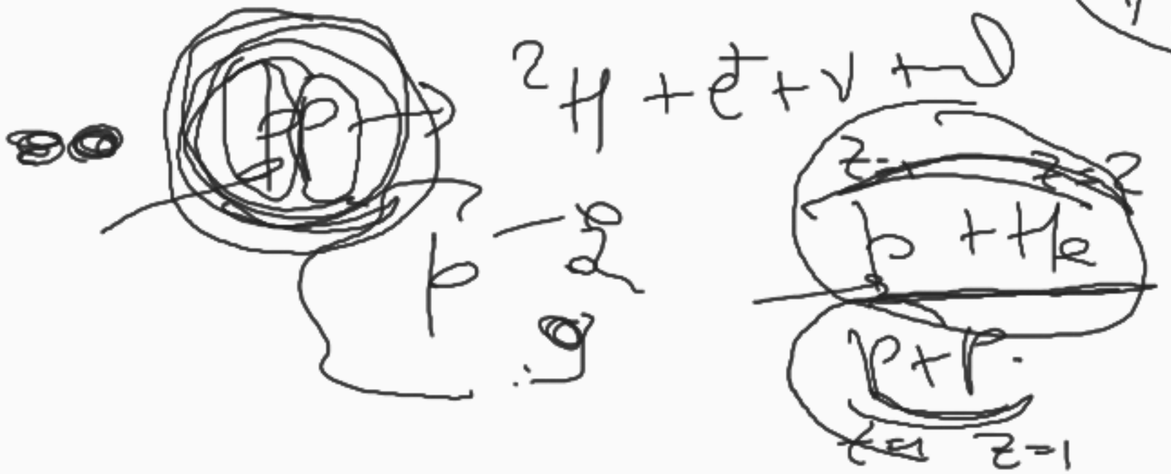


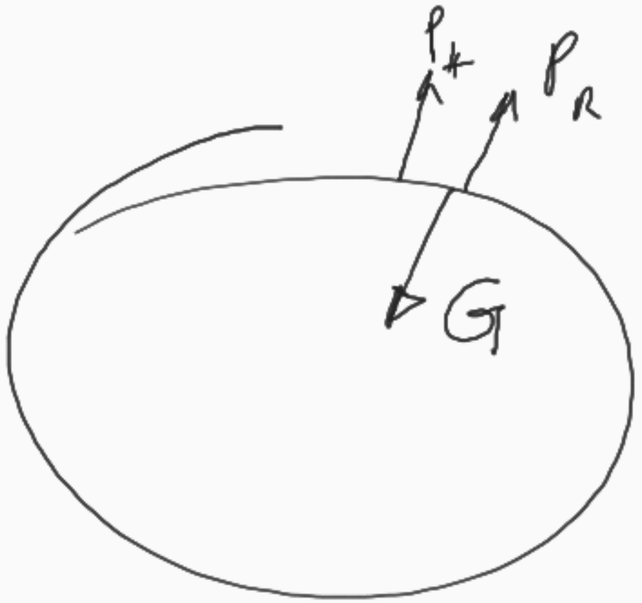
inestabilidad de Jeans.



pp chain

pHc ↑





— $^4He + {}^4He \rightarrow {}^8Be$

— $^4He + {}^3He$

— $^4He + {}^2H$

— $^4He + H$

$p^+ e^- \rightarrow n^0 + \nu_e$

$Fe + n \rightarrow Fe$