

Fysik - seminarium fortsätter.

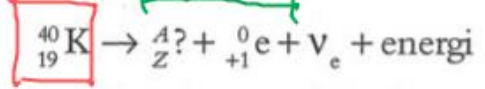
$^{40}_{19}\text{K}$



Tabellverk
FS. s. 76

β^+ -sönderfall:

Vi börjar med att skriva upp det vi vet.



Masstalet ska bevaras: $40 = A + 0$ ger $A = 40$

Laddningen ska bevaras: $19 = Z + 1$ ger $Z = 18$

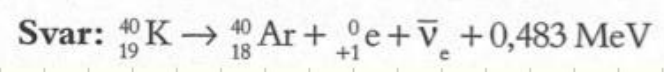
Grundämne nummer 18 är argon.

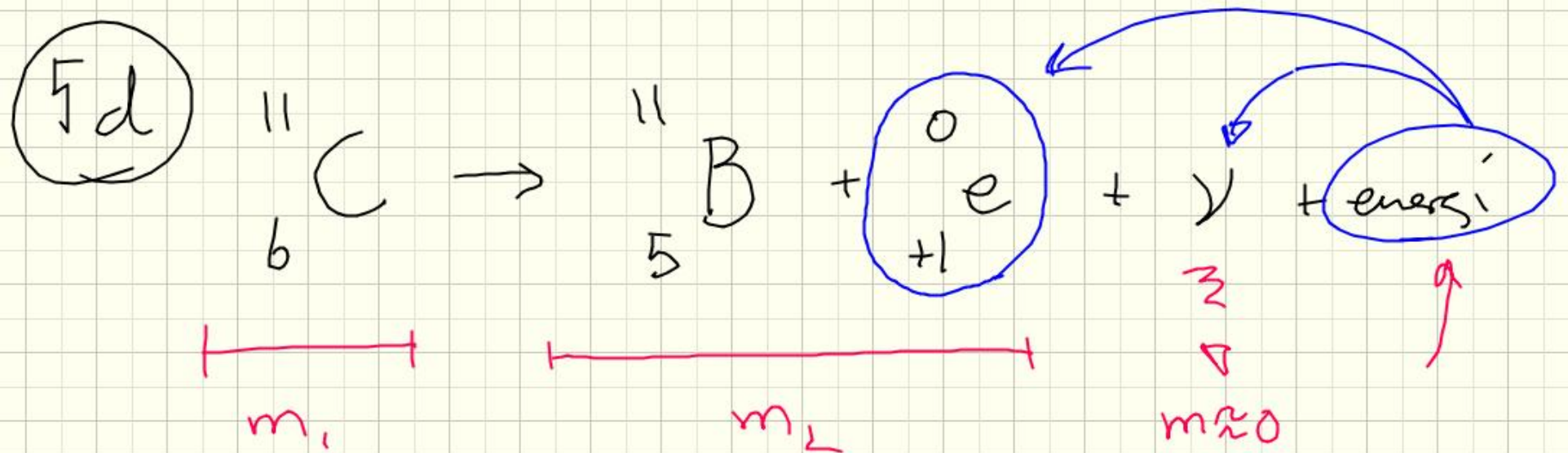
$$\Delta m = (m_{\text{K-40}} - 19m_e) - (m_{\text{Ar-40}} - 18m_e) + m_e = m_{\text{K-40}} - m_{\text{Ar-40}} - 2m_e =$$

$$= (39,96399848 - 39,962383123 - 2 \cdot 0,00054858) \text{ u} =$$

$$= 0,000518197 \text{ u}$$

0,000518197 u motsvarar $0,000518197 \cdot 931,49 \text{ MeV} = 0,483 \text{ MeV}$





$$m_1 = 11,011433613 - 6 \cdot 0,00054858 = 11,00814213$$

$$m_2 = 11,009306 - \underbrace{5 \cdot 0,00054858}_{\substack{0 \\ -e}} + \underbrace{0,00054858}_{\substack{0 \\ +e}}$$

$$m_2 = 11,00711168$$

$$\Delta m = m_1 - m_2 = 11,00814213 - 11,00711168 = \underline{\underline{0,00103045}}$$

$$\Delta m = 0,00103045 \text{ u}$$

$$\Delta E = \Delta m c^2 = [\text{omvandling u} \rightarrow \text{MeV, s. 69}] =$$

$$= 0,00103045 \cdot 931,494 =$$

Energien blir ungefär 1,0 MeV.