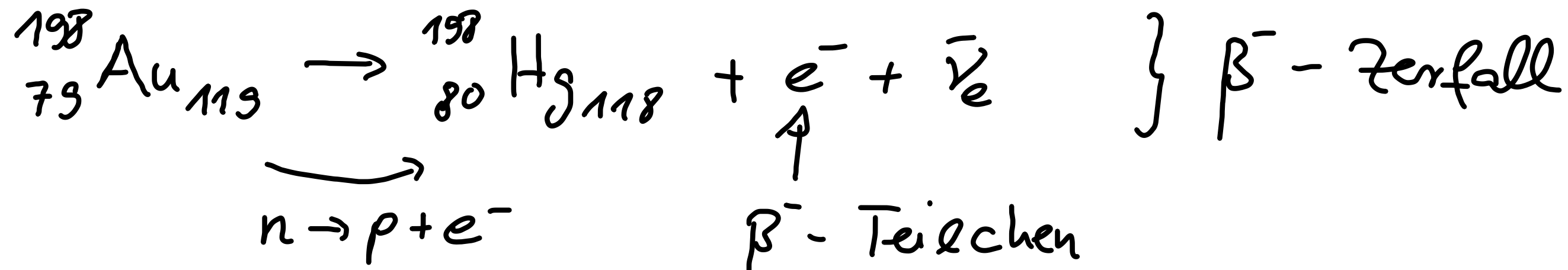
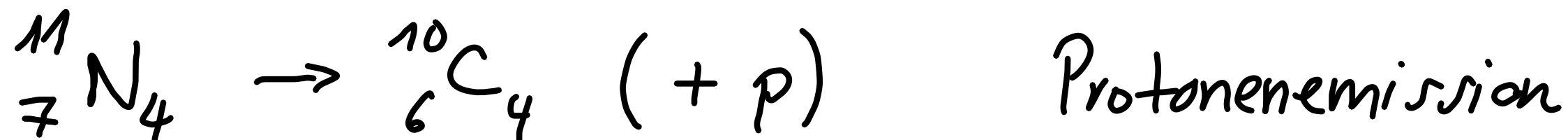


Physics hour 13

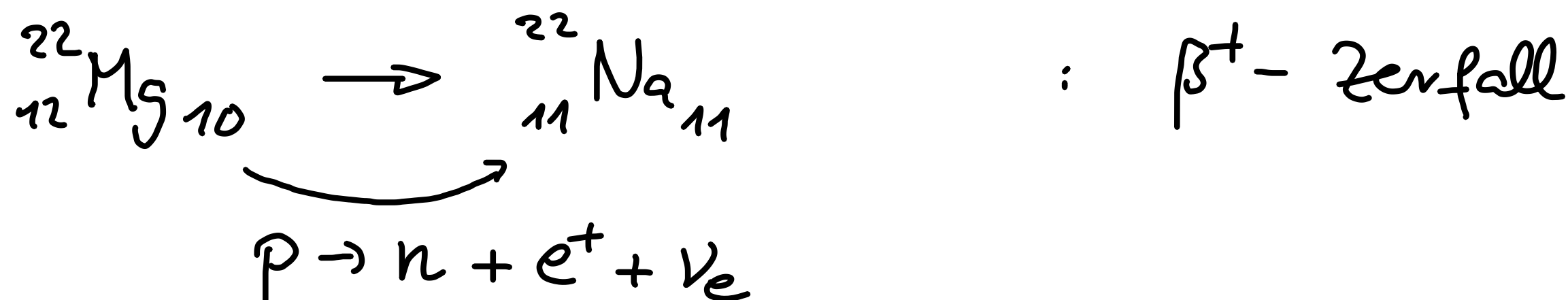
1) Kernzerfall I

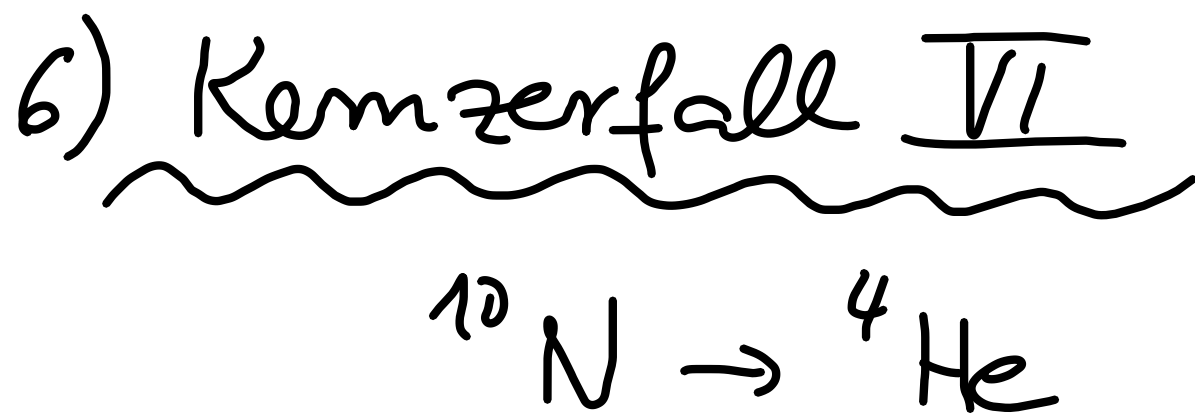
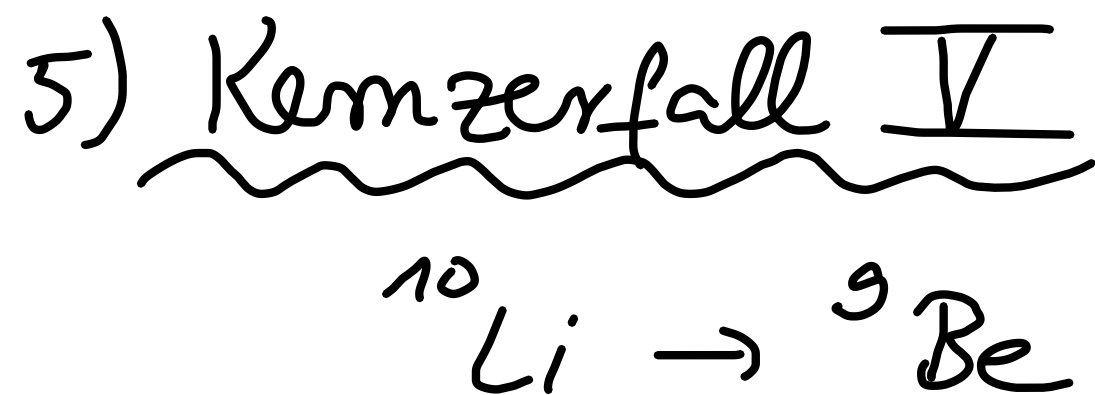
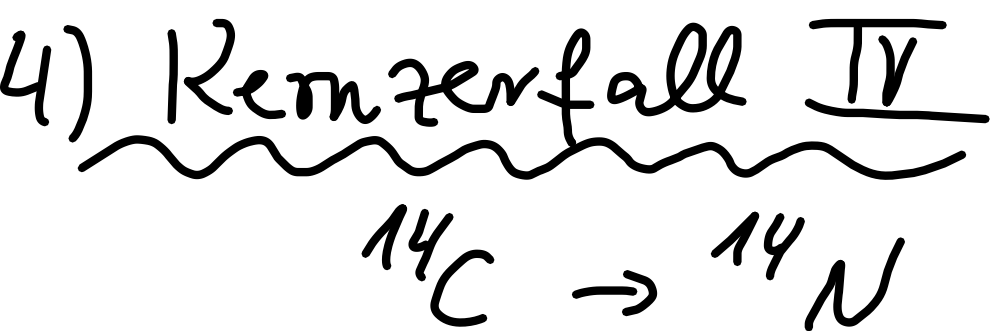


2) Kernzerfall II



3) Kernzerfall III





7) Aktivität

Masse eines Korns $m_{3H} = 3 \cdot m$

$$N_0 = \frac{m}{m_{3H}} = \frac{10^{-6} \text{ kg}}{3 \cdot 1,66 \cdot 10^{-27} \text{ kg}} = 2 \cdot 10^{20}$$

$$A = \frac{N_0}{\tau} = \frac{N_0}{T_{1/2}} \cdot \ln(2) = \frac{2 \cdot 10^{20}}{12,3 \cdot 3600 \text{ s}} \cdot \ln(2) = 3,1 \cdot 10^{15} \text{ Bq}$$

8) Energie beim Kernzerfall

$$E = \Delta m \cdot c^2 = (3,016049 - 3,016029) \cdot 1,66 \cdot 10^{-27} \text{ kg} \cdot 9 \cdot 10^{16} \frac{\text{m}^2}{\text{s}^2} \\ = 2,988 \cdot 10^{-15} \text{ J}$$

Energie in eV : $E = 2,988 \cdot 10^{-15} \text{ J} / 1,6 \cdot 10^{-19} \text{ C} = 18675 \text{ eV}$
 $= 18,7 \text{ keV}$