

Diapo 3

$$\lambda = 830 \mu\text{m}$$

$$P = 8 \text{ mW}$$

no fotones/s ?

$$f = \frac{c}{\lambda} = \frac{3 \cdot 10^8}{830 \cdot 10^{-9}} = 3,6 \cdot 10^{14} \quad \text{8 mW} \cdot 10^{-3} \frac{\text{J}}{\text{s}}$$

$$\text{Energia fotón (E)} = h \cdot f = 6,6262 \cdot 10^{-34} \frac{\text{J}}{\text{s}} \cdot \frac{3 \cdot 10^8}{830 \cdot 10^{-9}} \text{ Hz} = 2,395 \cdot 10^{-19} \text{ Julios}$$

$$\text{no fotones} = \frac{P}{\text{Energia fotón}} = \frac{1 \cdot 10^{-3} \frac{\text{J}}{\text{s}}}{2,395 \cdot 10^{-19} \text{ J}} = 4,18 \cdot 10^{15}$$

Diapo 6

Corresponde a la órbita más cercana al núcleo

Diapo 13

$$h = 4,135 \cdot 10^{-15} \text{ eV} \cdot \text{s}$$

$$E_4 = 12,75 \text{ eV}$$

$$E_3 = 12,09 \text{ eV}$$

$$E_2 = 10,2 \text{ eV}$$

$$E_1 = 0 \text{ eV}$$

$$\text{carga } 1,602 \cdot 10^{-19} \text{ C}$$

$$1 \text{ eV} = 1,602 \cdot 10^{-19} \text{ J}$$

$$ef = \frac{1,24}{\lambda}$$

$$\lambda = \frac{c}{f}$$

$$E = h \cdot f \rightarrow f = \frac{E}{h}$$

$$12,75 = 4,135 \cdot 10^{-15} \text{ eV} \cdot f \quad f =$$

$$E_{1-2} \Rightarrow 10,2 \text{ eV} = 4,135 \cdot 10^{-15} \text{ eV} \cdot \text{s} \cdot f \Rightarrow f = 2,46 \cdot 10^{15}$$

$$\lambda = \frac{c}{f} = \frac{3 \cdot 10^8}{2,46 \cdot 10^{15}} = 0,121 \mu\text{m}$$

$$E_3 - E_1 = 12,09 - 0 = 12,09$$

$$12,09 = 4,135 \cdot 10^{-15} \text{ eV} \cdot \text{s} \cdot f \Rightarrow f = \frac{12,09}{4,135 \cdot 10^{-15}} = 2,92 \cdot 10^{15}$$

$$\lambda = \frac{3 \cdot 10^8}{2,92 \cdot 10^{15}} = 1,03 \mu\text{m}$$