



»Z IZKUŠNJAMI SO KORAKI DO PRVE ZAPOSLOTITVE LAŽJI.«

FOTON

Fotoni so delci svetlobe - KVANTI.

$$W_f = h\nu$$

- mirovna masa $f. = 0$
- hitrost $f. = 3 \cdot 10^8 \text{ m/s}$

GIBALNA KOLIČINA F. :

$$p = m \cdot v$$

navidezna masa $f. :$

$$W^2 = c^2 p^2 + m^2 c^4$$

$$p = \frac{W}{c} = \frac{h\nu}{c} = \frac{h}{\lambda}$$

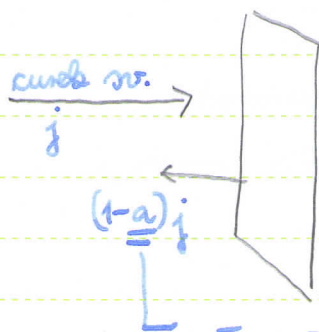
$$m = \frac{E}{c^2}$$
$$p = m \cdot v = \frac{E}{c} = \frac{h\nu}{c} = \frac{h}{\lambda}$$

$$p = \frac{h}{\lambda}$$

Newt.
mekanika

$$h\nu = c$$

$$\frac{\nu}{c} = \frac{1}{\lambda}$$



$$j = \frac{P}{S}$$

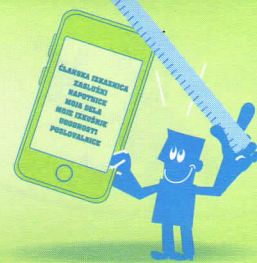
$$P = \frac{E}{t}$$

moč

črno telo : $a=1$ (ALBEDA)

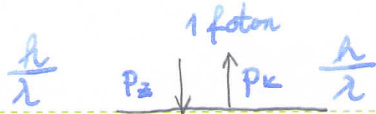
belo telo : $a=0$

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TLAK:

$$p = \frac{F}{S}$$



$\frac{2h}{\lambda}$ - se odboje
črna telo - $\frac{h}{\lambda}$

$$p = \frac{N_f F_1}{S} = \frac{N_f \cdot 2h}{\lambda \cdot t \cdot S} =$$

$$= \frac{j \cdot 2h}{\lambda \cdot t \cdot S} = \frac{2j}{c}$$

$F \cdot t = \Delta p$ - srednja sila je sprememba gib. količine

$$F = \frac{\Delta p}{t} = \frac{2h}{\lambda t}$$

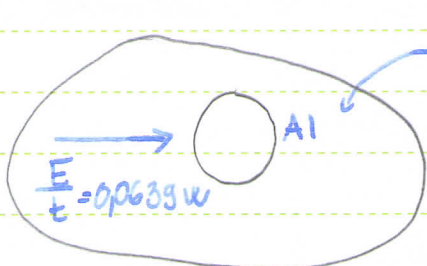
$$F = N_f \cdot F_1$$

$$j = \frac{E}{t \cdot S} = \frac{N_f \cdot 2h}{\lambda \cdot t \cdot S}$$

$$\frac{N_f}{t} = \frac{j \cdot S}{2h}$$

$$P_D = \frac{j(2-a)}{c}$$

SPLOŠNA ENAČBA



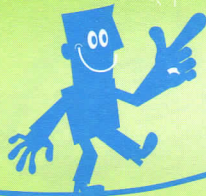
$p < 10^{-6}$ mbar

meritev: $F_M = 3,89 \cdot 10^{-10}$ N

$$F = 3,86 \cdot 10^{-10} \text{ N}$$

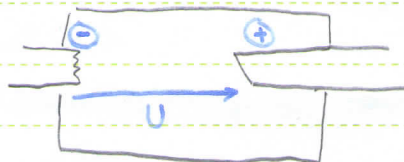
če imamo tlak, imamo silo => ideja o sončnih jadrnicah (res. plovila na sili sonca)

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RENTGENSKA SVETLOBA



$$U = (30 - 150) \text{ kV}$$

termična energija:

$$W_T = \frac{3}{2} kT$$

$k = 1,38 \cdot 10^{-23} \text{ J/K}$ - Boltzmannova konstanta

• segrejemo negativno elektrodo \rightarrow pospešitev prehajanja e^- na poz. elektrodo

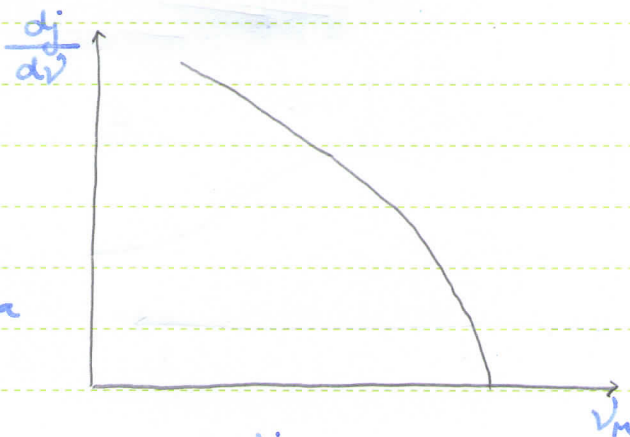
$$A = eU = \Delta W_k$$

$eU = W_k$ - e^- ima to W_k preden se zaleti v poz. elek.

$$W_k \geq E_f = h\nu$$

$$\frac{eU}{h} \geq \nu$$

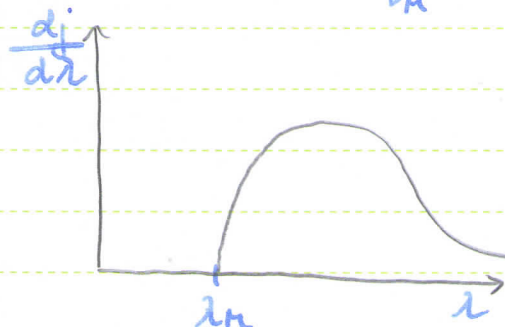
$$\frac{eU}{h} = \nu_c \text{ - mejna frekvenca}$$



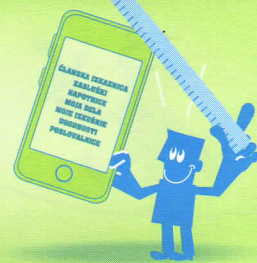
$$\frac{eU}{h} \geq \frac{c}{\lambda} \quad | \cdot \lambda h : eU$$

$$\lambda \geq \frac{hc}{eU}$$

$$\lambda_m = \frac{hc}{eU}$$



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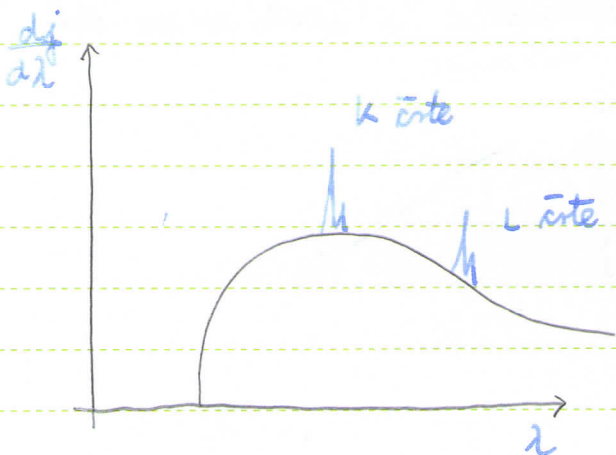
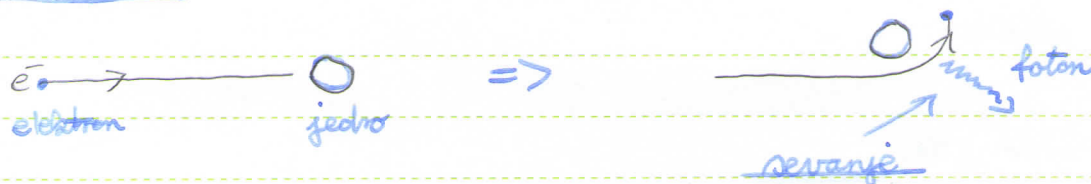


$$\frac{hc}{e} = 1240 \text{ Vnm} \quad \lambda_M = \frac{1240 \text{ Vnm}}{U}$$

če imamo $U = 30 \text{ kV} \Rightarrow \lambda_M = 0,042 \text{ nm}$
 $= 60 \text{ kV} \Rightarrow 0,021 \text{ nm}$
 $= 120 \text{ kV} \Rightarrow 0,0105 \text{ nm}$ } z večanjem napetosti, se manjša valovna dolžina

kin. energija elektrona $\Rightarrow < 1\%$ je foton

POT ELEKTRONA:

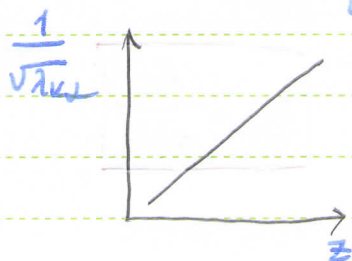


$$\frac{1}{\lambda_{K\alpha}} = \frac{(z-1)^2}{\lambda_0}$$

Moseleyeva enačba

$$\lambda_0 = 121,6 \text{ nm}$$

$$\frac{1}{\lambda_{K\alpha}} = \frac{z-1}{\lambda_0}$$



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