

چرا طیف خطی پرتوهای X عنصرها به جنس عنصر مورد مطالعه (آند) بستگی دارد؟

X
X

X
(Röntgen)

X

nm pm

(Coolidge)

(Sadler) (Barkla)

()

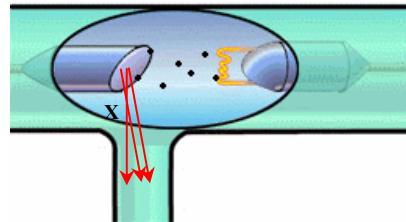
X

()

X

K

K

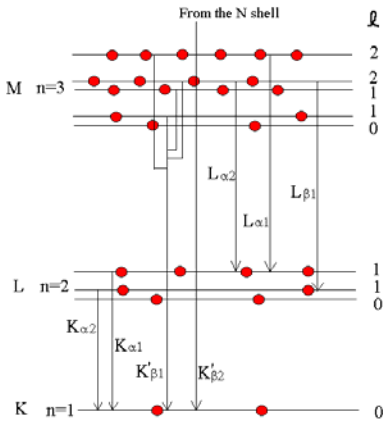


X

L

L

K



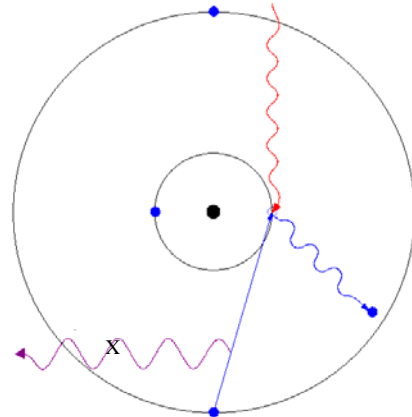
(L K)

X

()

X

(Bragg)

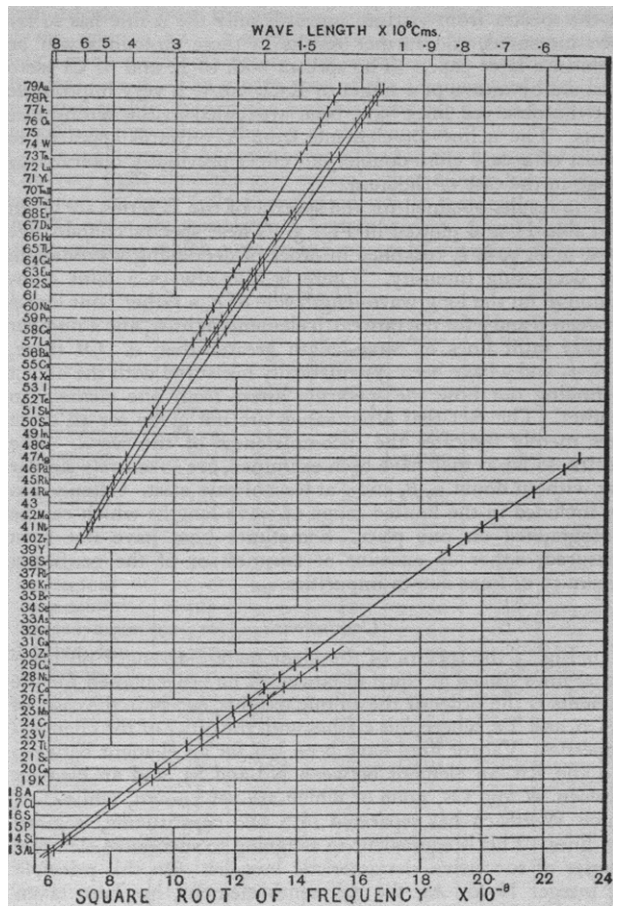


$$\frac{\sigma}{Z - \sigma} \nu$$

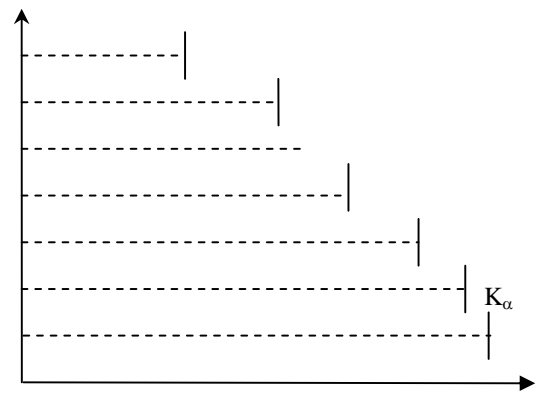
$$\nu = a^2 (Z - \sigma)^2 \quad a^2$$

$$\nu^{1/2} = a(Z - \sigma)$$

X



K_{α}



X

$$\nu^{1/2} = a(Z - \sigma)$$

$$\frac{\nu}{Z^2} = \frac{a^2}{Z^2} (Z - \sigma)^2$$

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- <http://ie.lbl.gov/xray>
- <http://www.colorado.edu/physics/2000/index>

$$\nu = 2\pi^2 m e^4 / h^3 (1/n^2 - 1/n'^2)$$

$$\nu = 2\pi^2 m e^4 / h^3 (1/n^2 - 1/n'^2) (Z - \sigma)^2$$