Energy of electron

$$E_{total} = E_p + E_k$$

$$E_n = -rac{ke^2}{2r_n}$$

Bohr's Postulate

$$F_c = F_E \Rightarrow rac{m v_n^2}{r_n} = rac{k e^2}{r_n^2} \; .$$

$$L=mv_nr_n=nrac{h}{2\pi}$$

Energy of electron remains constant.

$$E_i - E_f = hf = rac{hc}{\lambda}$$

Conditions of stability

$$r_n=rac{n^2h^2}{4\pi^2kme^2}$$

$$v_n=rac{e^2}{2arepsilon_0 nh}$$

$$E_n=rac{-13.6}{n^2}{
m eV}$$

Hydrogen spectral

$$rac{1}{\lambda}=R(rac{1}{n_f^2}-rac{1}{n_i^2})$$

 $n_f=1$: Lyman Series (u.v. series)

 $n_f=2$: Balmer Series (visible series)

 $n_f=3$: Paschen Series (I.R. series)

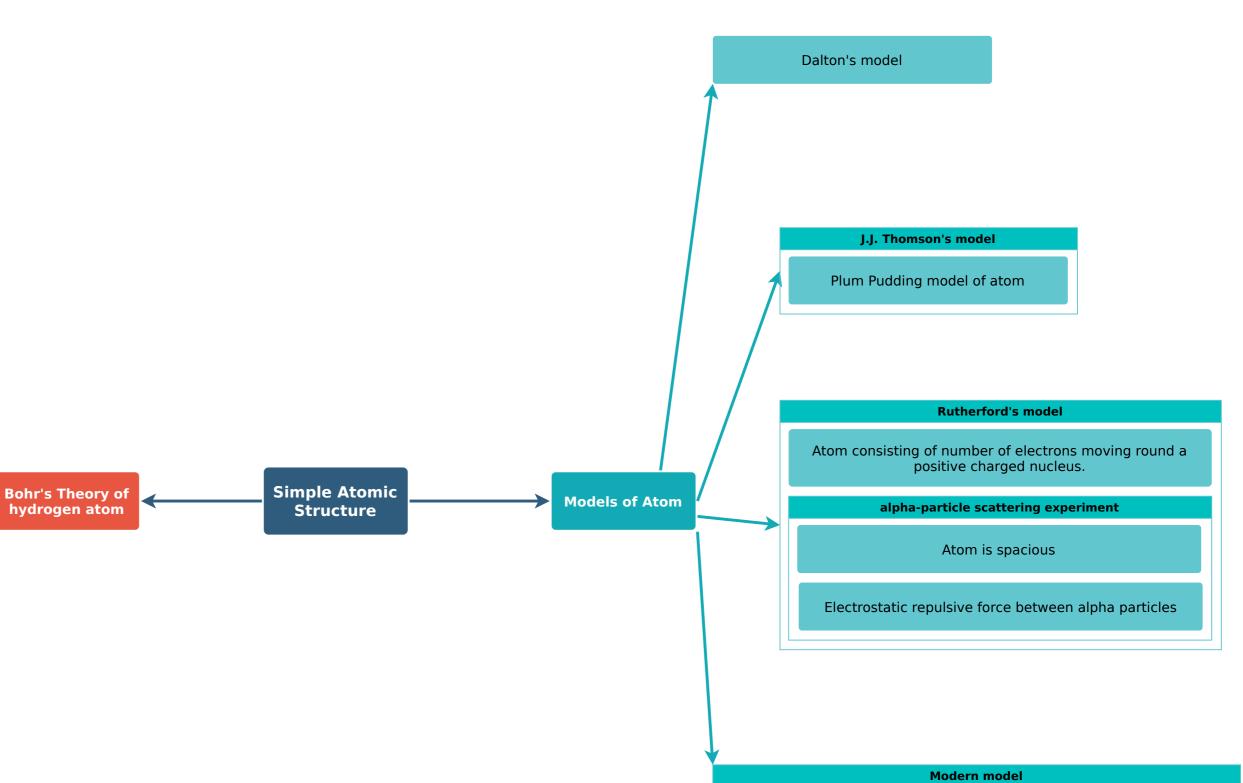
Energy levels in spectra

$$f_{max} = rac{E_n - E_1}{h}$$

$$f_{min}=rac{E_n-E_{n-1}}{h}$$

$$\lambda_{max} = rac{hc}{E_n - E_{n-1}}$$

$$\lambda_{min} = rac{hc}{E_n - E_1}$$



Electron cloud model