

$$r_n = \epsilon_0 \frac{n^2 h^2}{\pi m c^2}$$

$$v_n = \frac{1}{\epsilon_0} \frac{e^2}{2nh}$$

$$r_n = n^2 r_1$$

$$r_1 = \epsilon_0 \frac{h^2}{\pi m c^2}$$

$$= 0.53 \times 10^{-8} \text{ cm}$$