

Thomson's math

① $F_{\text{centrif}} = \frac{mv^2}{r}$

$F_{\text{mag}} = Bqv \sin \theta$

if $\theta = 90^\circ$
 $\sin \theta = 1$

$\frac{mv^2}{r} = Bqv$

$\frac{mE}{rB} = Bq$

$\frac{E}{rB^2} = \frac{q}{m}$
charge to mass ratio

$Bqv = Eq$

$v = \frac{E}{B}$

② $F_{\text{elec.}} = F_g$

③

notes: θ between v and B , dec. field strength

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Rutherford

phosphorescent screen

blip in wrong place

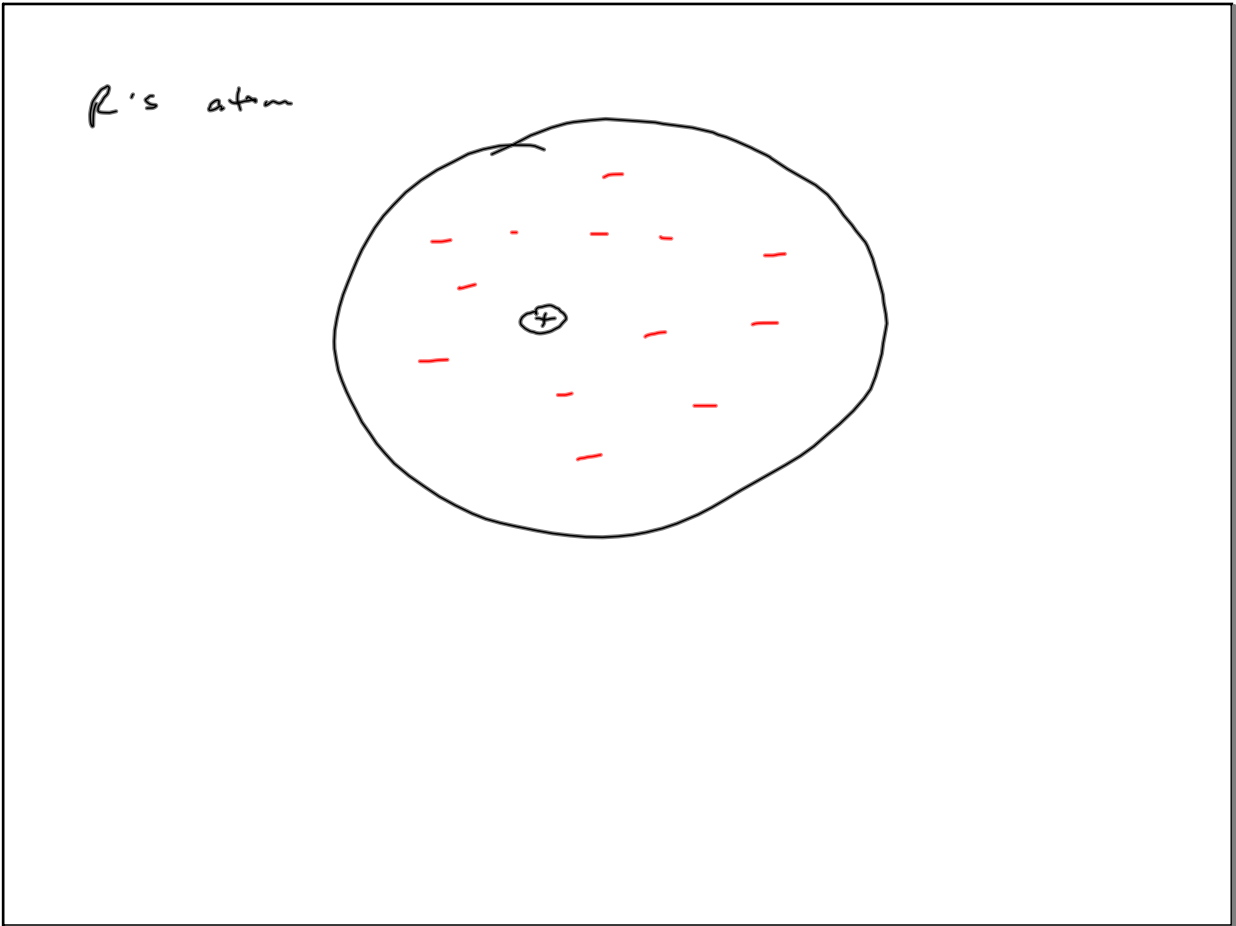
$\alpha = {}^4_2\text{He}^{+2}$

nucleus

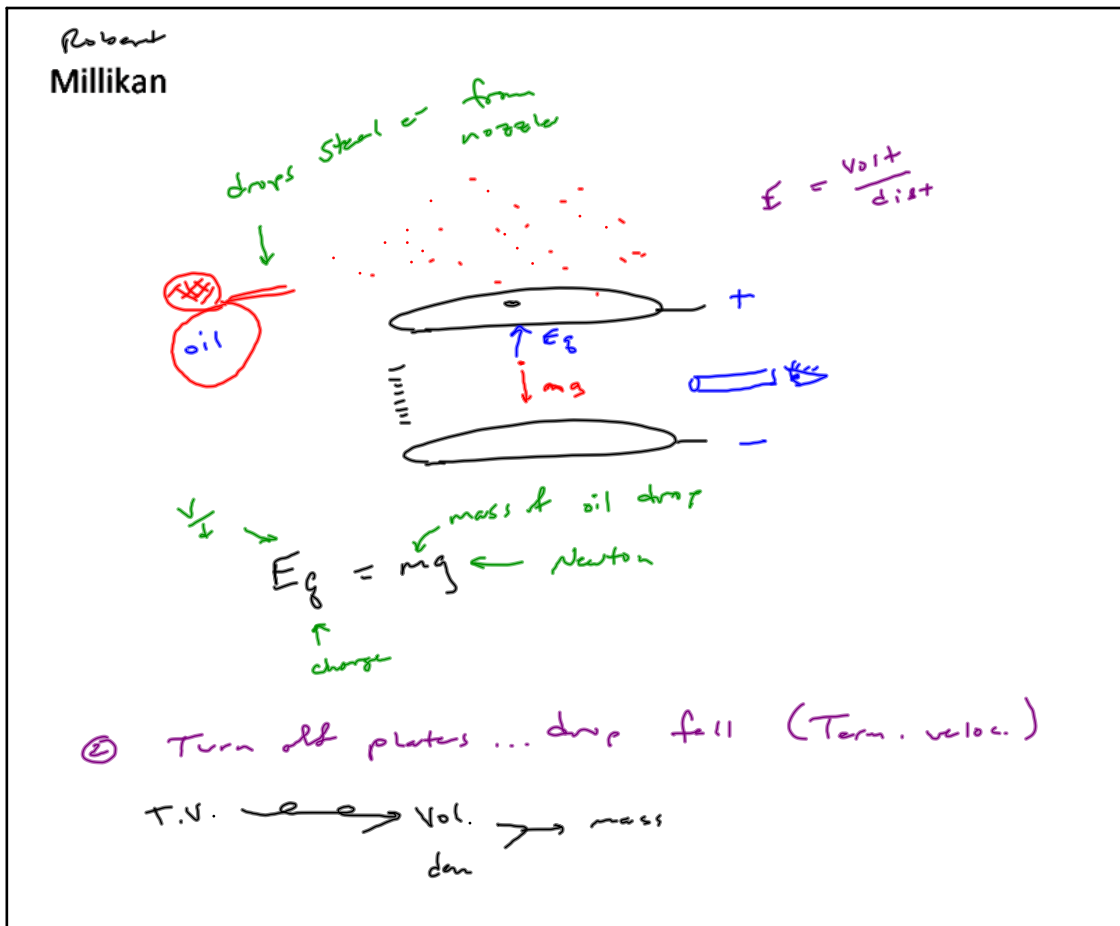
inside atom - something heavy \rightarrow α bounces back

- small \rightarrow almost always miss it (virtually all of mass of atom)

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