22.01 - Recitation #8

- Please grab a snack, get up off the sofa, look at something that isn’t a screen for 5 mins!

- Please turn on your video (if possible) and mute yourself.

- These slides are at: bit.ly/2201Rec8
Outline + Intended Learning Outcomes (ILOs)

- Electronic Stopping Power
- Nuclear Stopping Power
- Range of charged particles

- Recall the contributions to electronic stopping power.
- Determine the units of the Coulomb constant.
- Understand the dependency of stopping power on energy.
- Recall the differences between electronic and nuclear stopping power.
- Understand why we care about the range of charged particles.
Electronic stopping power of charged particles

Ion
$(Z_1, m_i, v, E_i)$

Material
$(Z_2, N, I)$

$e^-$
$(m_e, q_e)$
Electronic stopping power of charged particles

\[ -\frac{dT}{dx} = \frac{4\pi k_0^2 N Z_1^2 Z_2 e_c^4}{m_e v^2} \ln \left( \frac{2m_e v^2}{\bar{I}} \right) \]
Will Charlie’s IPad work?
Range of charged particles

\[ R = \int_0^{E_i} - \left( \frac{dT}{dx} \right)^{-1}_{\text{total}} \]
Range of charged particles
Office Hours 8.15-9am Monday

Office Hours 1-2pm Monday

Questions?

Please grab a snack, get up off the sofa, look at something that isn’t a screen for ~X mins!