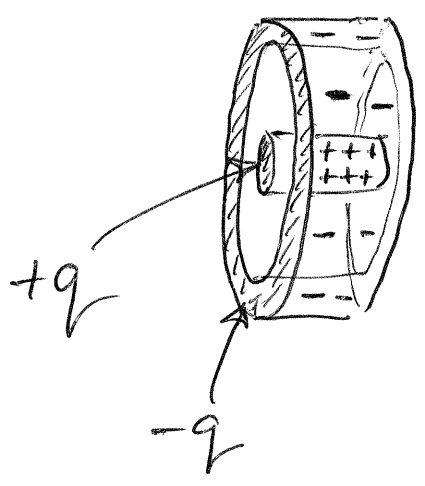
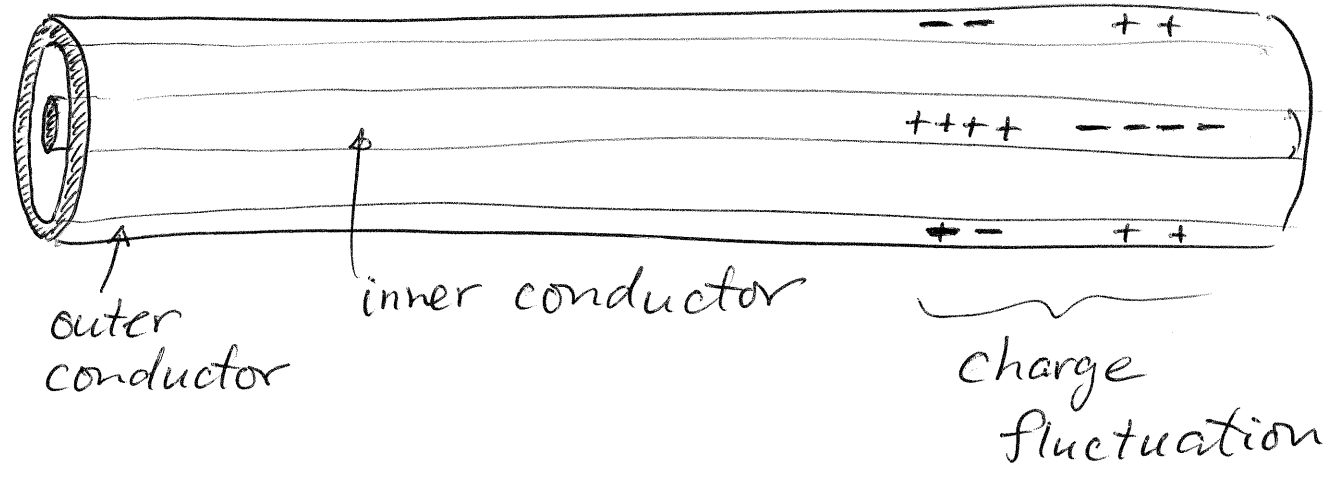
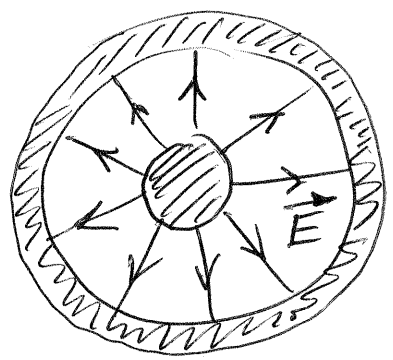
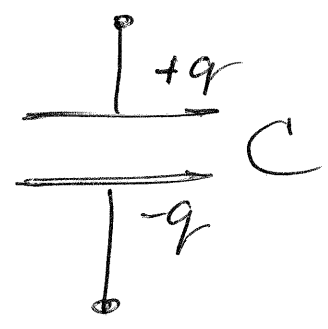


# Lecture 4

## co-axial cable ("co-ax")

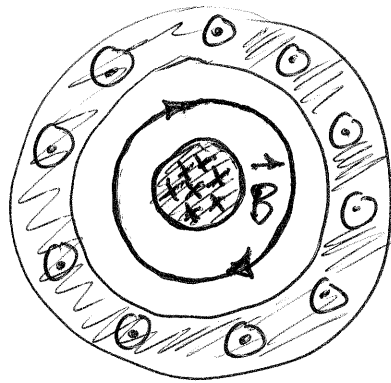
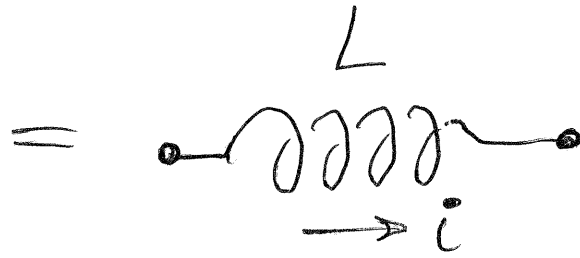
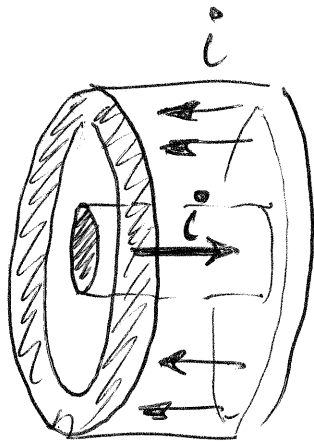


=



"stored energy"

(4.2)



"inertia"

$\tilde{C}$  = capacitance / length

$\tilde{L}$  = inductance / length



$$V_c = \frac{q}{C} \Rightarrow [C] = \frac{\text{Coul.}}{\text{Volt}}$$

$$[\tilde{C}] = \frac{\text{Coul.}}{\text{Volt} \times \text{m}}$$

$$V_L = L \frac{di}{dt} \Rightarrow$$

$$[L] = \frac{\text{Volt} \times \text{s}}{\text{Amp}} = \frac{\text{Volt} \times \text{s}}{\text{Coul/s}}$$

$$[\tilde{L}] = \frac{\text{Volt} \times \text{s}^2}{\text{Coul.} \times \text{m}}$$



$$\left[ \frac{1}{\sqrt{\tilde{L}}} \right] = \sqrt{\frac{\text{Volt} \times \text{m}}{\text{Coul.}} \times \frac{\text{Coul} \times \text{m}}{\text{Volt} \times \text{s}^2}}$$
  
$$= \text{m/s} = \sqrt{c}$$