

# Physics 11b

## Lecture #6

Capacitance

S&J Chapter 26

# What We Did Last Time

- Electric potential due to continuous charge distributions

- Use  $V(r) = \frac{1}{4\pi\epsilon_0} \int \frac{dq}{r}$

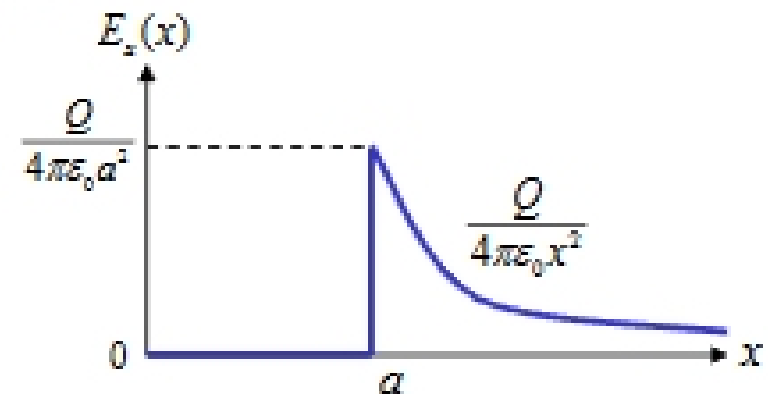
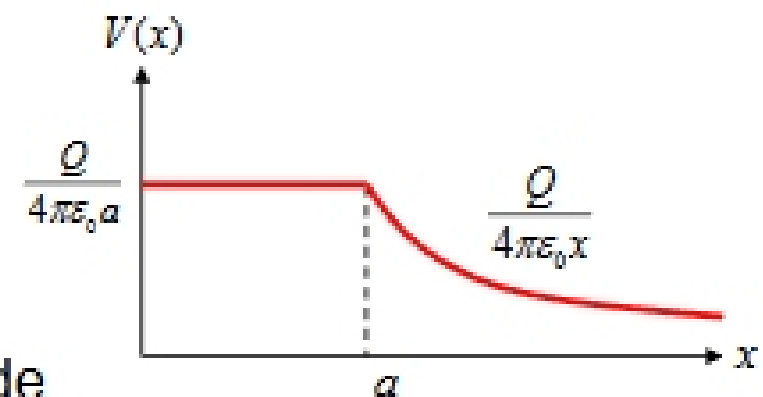
- Electric field/potential due to spherical charge distribution

- Looks like a point charge from outside
- Zero inside

- Discussed conductors

- Electric shielding (Faraday cage)

- Millikan's oil-drop experiment



# Today's Goals

- Define **capacitance**
  - Two conductors with electric charge → What is the potential difference between them?
  - Study **parallel-plate capacitor**
    - Will also do a cylindrical one
- Combination of capacitors → **Rules for “additions”**
  - Depend on the configuration: **parallel** and **serial**
- Discuss **energy stored in a capacitor**
  - And where the energy is