Electricity and Magnetism

- Physics 259 – L02
- Lecture 16

UNIVERSITY OF CALGARY

Chapter 23

(please read chapter 22 of the textbook)

Last time

- Chapter 23.2

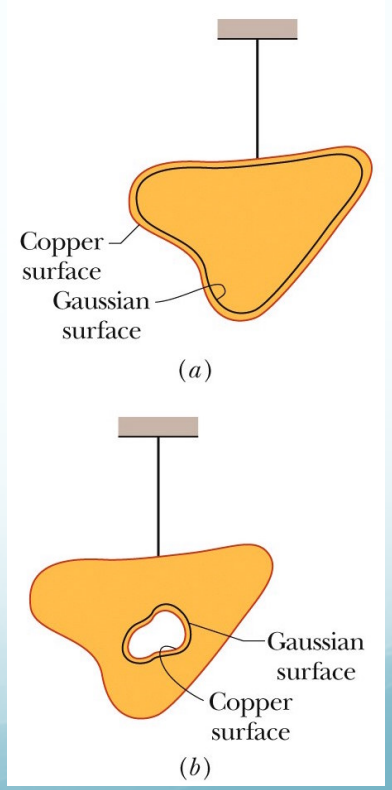
This time

- Chapter 23
- Class Activity

23-3: A Charged Isolated Conductor

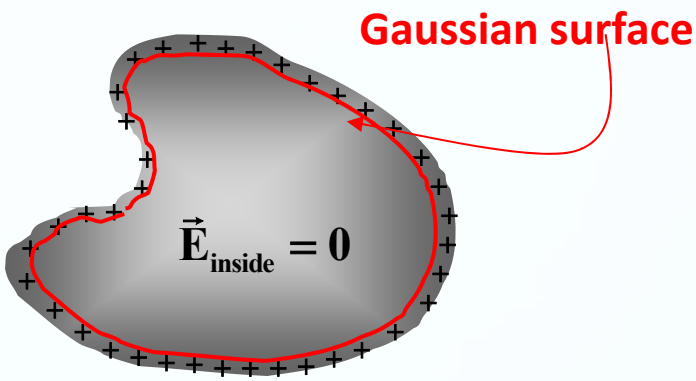
23-3 A Charged Isolated Conductor

If an excess charge is placed on an isolated conductor, that amount of charge will move entirely to the surface of the conductor. None of the excess charge will be found within the body of the conductor.



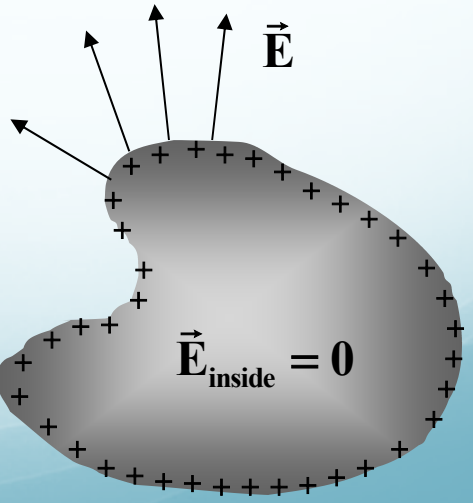
If we charge a conductor, where do the excess charges go?

A) The center of the conductor
B) The exterior surface of the conductor
C) Evenly inside the conductor
D) None of the above



The E-field right at the surface of the conductor is:

A) zero
B) parallel to the surface
C) perpendicular to the surface
D) in an arbitrary direction

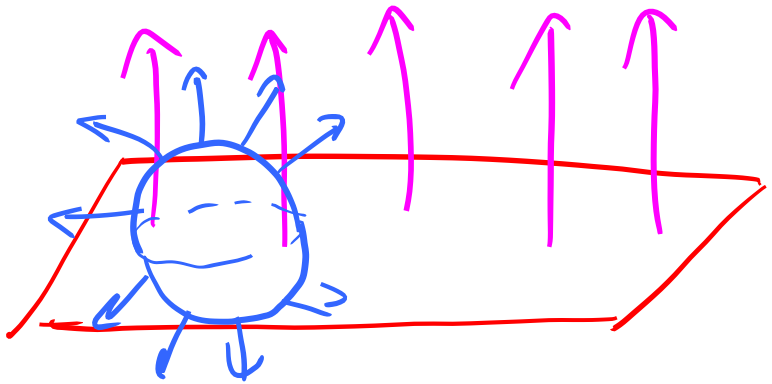


TopHat Questions

$$\Phi = \oint E \cdot dA = \frac{q_{enc}}{\varepsilon_0} \Rightarrow \quad S_1 \rightarrow \frac{10}{\varepsilon_0} = \frac{q}{\varepsilon_0}$$

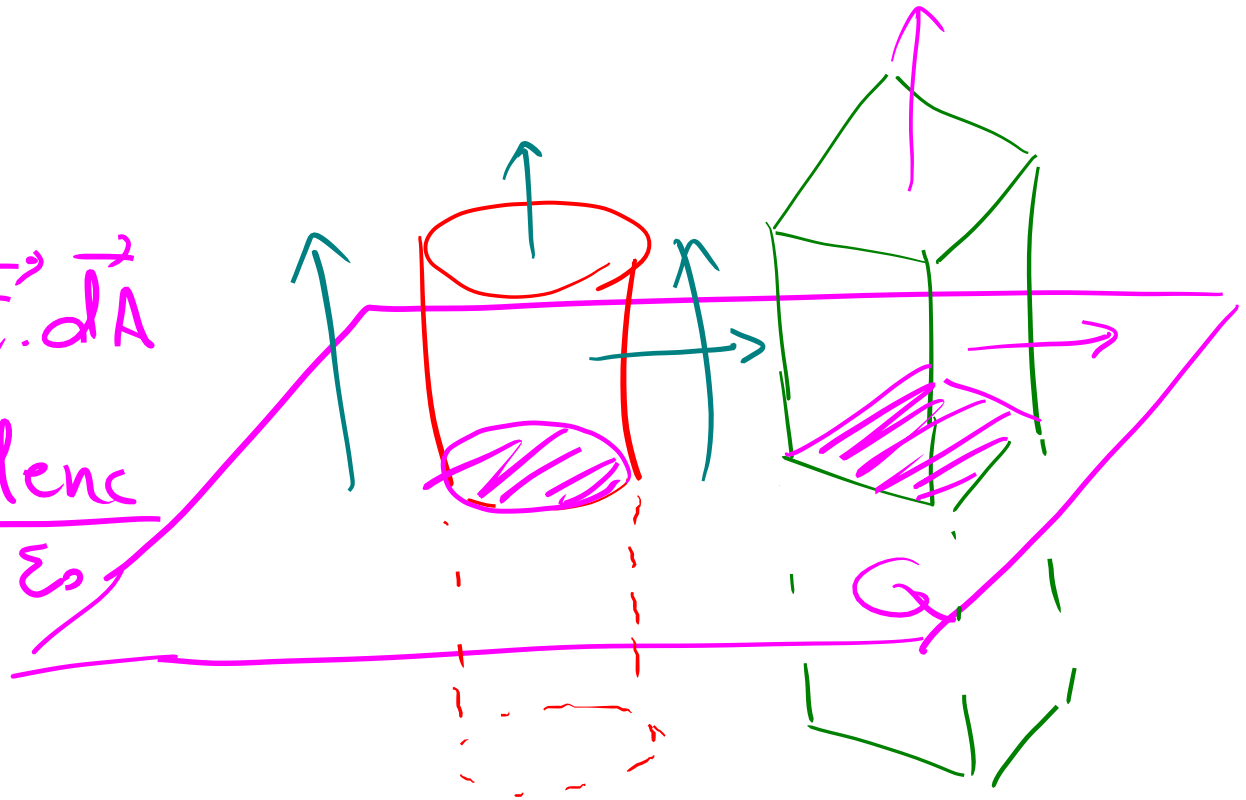
$$\rightarrow q = 10C$$

$$\Phi_e = \oint \vec{E} \cdot d\vec{A} = \frac{q_{enc}}{\varepsilon_0}$$



$$\Phi = \oint \vec{E} \cdot d\vec{A}$$

$$= \frac{q_{enc}}{\varepsilon_0}$$



$$q_{enc} = \sigma A$$

This section we talked about:

Chapter 23.1

See you on Monday