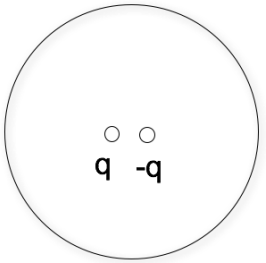
A Gaussian surface which is *not* a sphere has a single charge (q) inside it, *not* at the center. There are more charges outside. What can we say about total electric flux through this surface $\oint_S \mathbf{E} \cdot d\mathbf{A}$?

A. It is q/ε_0.
B. We know what it is, but it is NOT q/ε_0.
C. Need more info/details to figure it out.

An electric dipole ($+q$ and $-q$, small distance d apart) sits centered in a Gaussian sphere.



What can you say about the flux of $\mathbf{E}$ through the sphere, and $|\mathbf{E}|$ on the sphere?

A. Flux = 0, E = 0 everywhere on sphere surface
B. Flux = 0, E need not be zero *everywhere* on sphere
C. Flux is not zero, E = 0 everywhere on sphere
D. Flux is not zero, E need not be zero...

Tutorial follow-up:

Does the charge σ on the beam line affect the particles being accelerated inside it?

A. Yes
B. No
C. ???

Think: Why? Or why not?

Tutorial follow-up:

Could the charge σ affect the electronic equipment outside the tunnel?

A. Yes
B. No
C. ???

Think: Why? Or why not?