

PHYSICS 231 – CHAPTER 22: GAUSS'S LAW

Electric flux:

$$\Phi_E = \int \vec{E} \cdot d\vec{A}$$

Gauss's law:

$$\Phi_E = \frac{Q_{enc}}{\epsilon_0}$$

Electric field

- due to infinite wire:

$$E = \frac{1}{2\pi\epsilon_0} \frac{\lambda}{r}$$

- inside uniformly charged sphere:

$$E = \frac{1}{4\pi\epsilon_0} \frac{Qr}{R^3}$$

- due to infinite sheet:

$$E = \frac{\sigma}{2\epsilon_0}$$