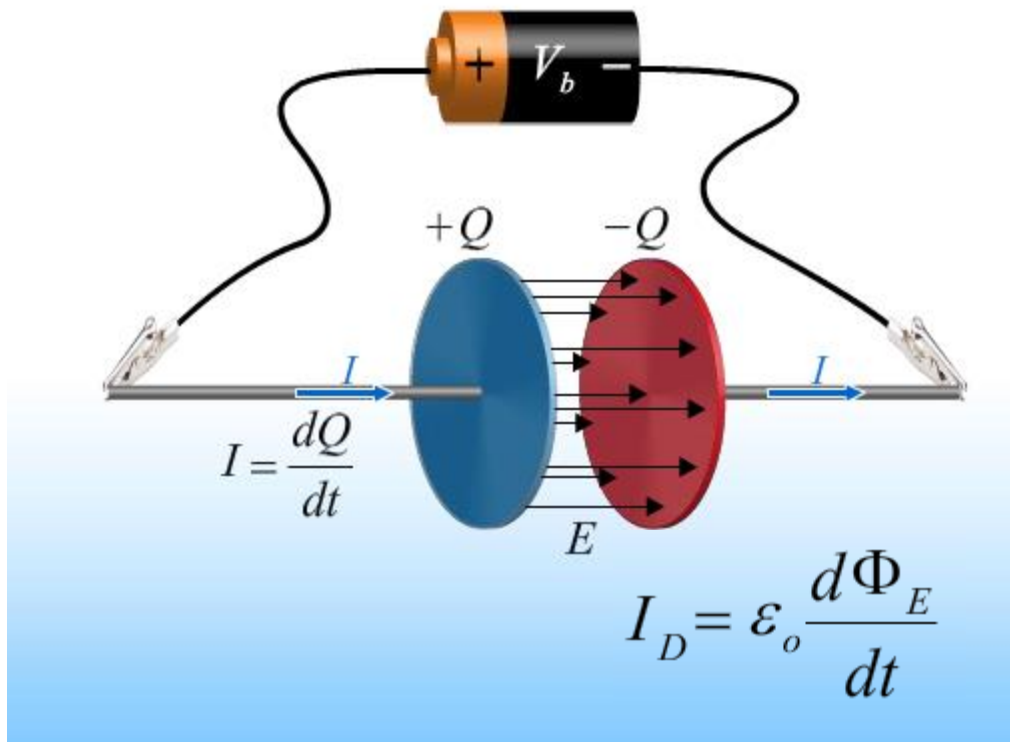


# After Prelecture 21: Modify Ampere's Law

Ampere's Law

$$\oint \vec{B} \cdot d\vec{l} = \mu_o I_{\text{enclosed}} = \mu_o (I + I_D)$$



$$E = \frac{\sigma}{\epsilon_0} = \frac{Q}{\epsilon_0 A}$$



$$\Phi = EA = \frac{Q}{\epsilon_0}$$



$$Q = \epsilon_0 \Phi$$



$$\frac{dQ}{dt} = \epsilon_0 \frac{d\Phi}{dt} \equiv I_D$$