



$$\nabla \cdot \mathbf{J} = -\frac{\partial \rho}{\partial t}$$

$$\left(\text{Gauss} \Rightarrow \iiint \nabla \cdot \mathbf{J} \, dV \equiv \underbrace{\oint \mathbf{J} \cdot d\mathbf{S}}_{\text{C/s}} = - \iiint \frac{\partial \rho}{\partial t} \, dV = - \frac{\partial}{\partial t} \underbrace{\iiint \rho \, dV}_{\text{"q", C}} \right)$$

$$\frac{\partial \rho(\mathbf{x}, t)}{\partial t} > 0 \quad \Leftrightarrow \quad \nabla \cdot \mathbf{J}(\mathbf{x}, t) < 0$$