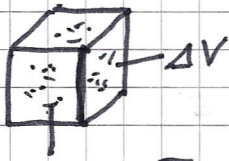


Raum dichte

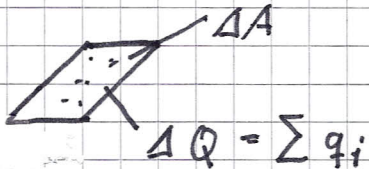
$$[\rho] = \frac{As}{m^3}$$



$$\Delta Q = \sum q_i \quad Q = N \cdot e$$

$$\rho = \lim_{\Delta V \rightarrow 0} \frac{\Delta Q}{\Delta V} \quad \rightarrow \quad Q = \int_V \rho \, dV$$

Oberflächenladungsdichte



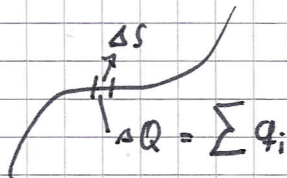
$$\Delta Q = \sum q_i$$

$$[\sigma] = \frac{As}{m^2}$$

$$\sigma = \lim_{\Delta A \rightarrow 0} \frac{\Delta Q}{\Delta A}$$

$$Q = \int_A \sigma \, dA$$

Linienladungsdichte



$$\Delta Q = \sum q_i$$

$$[\lambda] = \frac{As}{m} \quad \lambda = \lim_{\Delta s \rightarrow 0} \frac{\Delta Q}{\Delta s}$$

$$Q = \int_R \lambda \, dr$$

Ladungserhaltungsgesetz

In einem abgeschlossenen System ist die Summe aller Ladungen konstant.

$$\sum q_i = \text{const} \quad \rightarrow \quad \int_V \rho \, dV = \text{const.}$$