

$$\vec{F} = \frac{e_1 e_2}{4\pi\epsilon_0 r^2} \frac{\vec{r}}{|\vec{r}|} \quad \text{točk: elekt. la}$$

$$\int_{\partial D} \vec{E} d\vec{S} = \frac{1}{\epsilon_0} \sum_D e_i \quad \text{bloč}$$

polna kroga: $E(r) = \begin{cases} \frac{e}{4\pi\epsilon_0 r^2}; & r \geq R \\ \frac{e r}{4\pi\epsilon_0 R^3}; & r \leq R \end{cases}$



votla kroga: $E(r) = \begin{cases} 0; & r < R \\ \frac{e}{4\pi\epsilon_0 r} \end{cases}$

$$e = \epsilon_0 \oint_S \vec{E} \cdot \vec{n} dS \quad \vec{F} = e \vec{E}$$

Plošča: $E = \frac{\sigma}{2\epsilon_0}$ $\sigma \dots$ ploščinska gostota
2 plošči (kondenzator) $E = \frac{\sigma}{\epsilon_0}$

$$C = \frac{e}{U} \quad [F = \frac{As}{V}] \quad C = \epsilon_0 \frac{S}{d}$$

$$R = \left\{ \frac{l}{S} \quad U = RI \quad U = Ed \right.$$

$$W_{pe} = eU \quad P = IU = I^2 R = \frac{U^2}{R}$$

Vzporedna vezava: $R = \sum R_i$ zaporedna: $\frac{1}{R} = \sum \frac{1}{R_i}$

Polnjenje kondenzatorja: $e(t) = CU_0 (1 - e^{-\frac{t}{RC}})$

Magnetno polje

$$\vec{j} = \text{rot } \vec{B} = \frac{I}{S}$$

... gostota d. toka

$$\vec{B} = \mu_0 \vec{H} \quad \leftarrow \text{jakost}$$

$$\mu_0 = 4\pi \cdot 10^{-7} \frac{\text{Vs}}{\text{Am}}$$

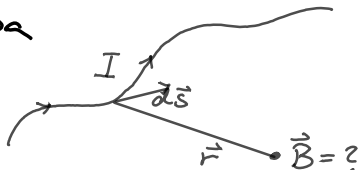
$$I = \frac{1}{\mu_0} \oint \vec{B} d\vec{s}$$

$$B = \frac{\mu_0 I}{2\pi r} \quad \text{ob zrci}$$

Biot-Savartova enačba

$$\vec{B} = \frac{\mu_0 I}{4\pi} \int \frac{\vec{r} \times d\vec{s}}{r^3}$$

po žici

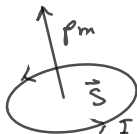


Lorentzova sila: $\vec{F} = e(\vec{E} + \vec{v} \times \vec{B})$

$$W = - \int \vec{F}_e d\vec{s}$$

$$W_e = -e \vec{E} \vec{s} = - \int \vec{E}(\vec{r}) d\vec{s} = - \vec{F}_e \vec{s}$$

$$p_m = I \cdot S$$



$$(\vec{p}_m = NI \vec{S})$$

$$M = \vec{p}_m \cdot \vec{B} = \vec{r} \times \vec{F}_m$$

$$dA = Fr dp = M dp$$

$$\vec{F}_{\text{zice}} = I \vec{l} \times \vec{B}$$

indukcija

$$\Phi_m = \vec{B} \cdot \vec{S} = \int_S \vec{B} \cdot d\vec{S}$$

$$U_i = \vec{B} \cdot d\vec{v} = \frac{d\Phi_m}{dt}$$

$$U_i = (\vec{a} \times \vec{B}) \cdot \vec{v}$$

Φ_m hače ostati
isti

$$M = J\alpha$$

$$[T] = \left[\frac{Ns}{C_m} \right] = \left[\frac{kg}{As^2} \right] = \left[\frac{N}{Am} \right] = \left[\frac{J}{Am^2} \right] = \left[\frac{Vs}{m^2} \right]$$

$$[V] = \left[\frac{Nm}{As} \right] = \left[\frac{W}{A} \right]$$

$$[N] = \left[\frac{kgm}{s^2} \right]$$

$$[J] = [Nm]$$

$$[W] = \left[\frac{Nm}{s} \right] = \left[\frac{J}{s} \right]$$

$$[\mathcal{E}] = \left[\frac{Nm}{A^2s} \right] = \left[\frac{V}{A} \right]$$

$$[F] = \left[\frac{A^2s^2}{Nm} \right] = \left[\frac{A}{V}s \right]$$

$$[H] = \left[\frac{Nm}{A^2} \right] = \left[\frac{Vs}{A} \right]$$

$$\mu : 10^{-6}$$

$$n : 10^{-9}$$