

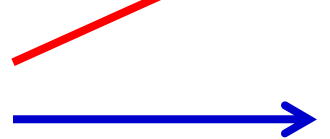
Maxwellsche Gleichungen

$$\operatorname{div} \vec{E} = \frac{\rho}{\epsilon_0}$$



Elektrostatik, falls $\frac{\partial \vec{B}}{\partial t} = \vec{0}$

$$\operatorname{rot} \vec{E} = -\frac{\partial \vec{B}}{\partial t}$$



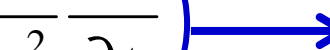
Faradaysches Induktionsgesetz

$$\operatorname{div} \vec{B} = 0$$



Magnetostatik, falls $\frac{\partial \vec{E}}{\partial t} = \vec{0}$

$$\operatorname{rot} \vec{B} = \mu_0 \vec{j} + \frac{1}{c^2} \frac{\partial \vec{E}}{\partial t}$$



Verschiebungsstrom (Maxwellsche Ergänzung)



Kraftgleichung (Lorentz-Kraft):

$$\vec{F} = q \left(\vec{E} + \vec{v} \times \vec{B} \right)$$

- Kontinuitätsgleichung: $\operatorname{div} \vec{j} + \frac{\partial \rho}{\partial t} = 0$
- elektromagnetische Wellen
- Lorentz-Kovarianz für $\epsilon_0 \mu_0 = c^{-2}$