

Elektromagnetická vlna ve vakuu

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

$$\text{grad div } \vec{E} - \Delta \vec{E} = -\text{rot } \frac{\partial \vec{B}}{\partial t}$$

$$\text{div } \vec{D} = 0 \rightarrow \text{div } \epsilon_0 \vec{E} = 0 \rightarrow \text{div } \vec{E} = 0$$

$$\vec{B} = \mu_0 \vec{H}$$

$$\Delta \vec{E} = \text{rot } \frac{\partial \vec{B}}{\partial t}$$

$$\Delta \vec{E} = \text{rot } \frac{\mu_0 \partial \vec{H}}{\partial t}$$

$$\Delta \vec{E} = \mu_0 \frac{\partial}{\partial t} \text{rot } \vec{H}$$

$$\Delta \vec{E} = \mu_0 \frac{\partial}{\partial t} \frac{\partial \vec{D}}{\partial t}$$

$$\Delta \vec{E} = \mu_0 \frac{\partial}{\partial t} \frac{\epsilon_0 \partial \vec{E}}{\partial t}$$

$$\Delta \vec{E} = \mu_0 \epsilon_0 \frac{\partial^2 \vec{E}}{\partial t^2}$$