

Paměťová rovnice z indexu času

$$\frac{\partial n}{\partial x} = - \frac{\gamma \Phi''}{4 \Phi^{3/2} \Phi_0} x - \frac{\gamma B}{2 \Phi_0^{3/2}} \gamma'$$

$$\frac{\partial n}{\partial y} = - \frac{\gamma \Phi''}{4 \Phi^{3/2} \Phi_0} \gamma - \frac{\gamma B}{2 \Phi_0^{3/2}} x'$$

$$\frac{\partial n}{\partial x'} = \frac{\Phi^{3/2}}{\Phi_0^{3/2}} x' + \frac{\gamma B}{2 \Phi_0^{3/2}} \gamma$$

$$\frac{\partial n}{\partial y'} = \frac{\Phi^{3/2}}{\Phi_0^{3/2}} \gamma' - \frac{\gamma B}{2 \Phi_0^{3/2}} x$$

$$\Phi^{x'} = \left[ \Phi \left( 1 + \frac{e\Phi}{2mc^2} \right) \right]' = \underbrace{\Phi'}_{\gamma} \left( 1 + \frac{e\Phi}{mc^2} \right) = \gamma \Phi'$$

$$(\Phi^{x/2})' = \frac{\gamma \Phi'}{2 \Phi^{3/2}}$$

$$\frac{d}{dz} \frac{\partial n}{\partial x} = \frac{\gamma \Phi'}{2 \Phi^{3/2} \Phi_0} x' + \frac{\Phi^{x/2}}{\Phi_0^{3/2}} x'' + \frac{\gamma B'}{2 \Phi_0^{3/2}} \gamma + \frac{\gamma B}{2 \Phi_0^{3/2}} \gamma'$$

$$\frac{d}{dz} \frac{\partial n}{\partial y} = \frac{\gamma \Phi'}{2 \Phi^{3/2} \Phi_0} \gamma' + \frac{\Phi^{x/2}}{\Phi_0^{3/2}} \gamma'' + \frac{\gamma B'}{2 \Phi_0^{3/2}} x + \frac{\gamma B}{2 \Phi_0^{3/2}} x'$$

$$\frac{d}{dz} \frac{\partial n}{\partial x} - \frac{\partial n}{\partial x'} = 0 \quad \Bigg| \cdot \frac{\Phi^{x/2}}{\Phi_0^{3/2}}$$

$$x'' + \frac{\gamma \Phi'}{2 \Phi} x' + \frac{\gamma \Phi''}{4 \Phi} x + \frac{\gamma B}{\Phi^{x/2}} \gamma' + \frac{\gamma B'}{2 \Phi^{x/2}} \gamma = 0$$

A obdobně pro  $\gamma$