

If we only take the lowest order effects of the motion of mass sources into account and neglect stresses, we can define two vector field,  $\vec{E}$  and  $\vec{B}$ , which are similar to the electric and magnetic field. We can define  $A_\mu = -\frac{1}{4}c_0\bar{h}_{\mu 0} = (\varphi/c_0, \vec{A})$ , then  $A_\mu$ , which are similar to the electromagnetic 4-potential, will satisfy

$$\partial^\nu \partial_\nu A_\mu = -\frac{4\pi G_0}{c_0^3} J_\mu, \quad \partial^\mu A_\mu = 0, \quad (1)$$

where  $J_\mu = -c_0 T_{\mu 0} = (c_0 \rho, \vec{j})$ . If we define  $\vec{E} = -\vec{\nabla}\varphi - \frac{\partial}{\partial t}\vec{A}$ ,  $\vec{B} = \vec{\nabla} \times \vec{A}$ , and  $\varepsilon_{G0} = \frac{c_0}{4\pi G_0}$ ,  $\mu_{G0} = \frac{4\pi G_0}{c_0^3}$ , then there will be

$$\begin{cases} \vec{\nabla} \cdot (\varepsilon_{G0} \vec{E}) = \rho, \\ \vec{\nabla} \cdot \vec{B} = 0, \\ \vec{\nabla} \times \vec{E} = -\frac{\partial}{\partial t} \vec{B}, \\ \vec{\nabla} \times (\mu_{G0}^{-1} \vec{B}) = \vec{j} + \frac{\partial}{\partial t} (\varepsilon_{G0} \vec{E}), \end{cases} \quad (2)$$

and the acceleration of mass particle  $\vec{a}$  will satisfy

$$\vec{a} = -\vec{E} - 4\vec{v} \times \vec{B} \quad (3)$$