

Golden Relativity Theory II

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The philosophical meaning of the physical laws is limited to what we can see. I would like to introduce a golden relativity theory which unifies gravitational and electromagnetic fields .

Postulates:

Mass is a subject of the gravitational field

Charge is a subject of the electromagnetic field.

If we have a charge moving in an electromagnetic field, so that it has kinetic energy and momentum, there is no mass because there is no gravitational field. The observer will observe this charge obeys Newton's laws. At high speed, the charge obeys the laws of relativity.

We can say the momentum of charge equals

$$P = Q v$$

and kinetic energy

$$E = 1/2 Qv^2$$

At high speed

$$Q = Q (1 - v^2/c^2)^{-1/2}$$

And momentum

$$P = Q v$$

So, we can say the energy of the charge equals

$$E_q = Qc^2$$

Energy can transform to charge. We have

$$E_m = Mc^2 , E_q = Qc^2$$

Mass can transform to energy, and charge can transform to energy. Also, the observer will observe the electromagnetic field is a curvature of space – time

$$EM_{ab} = k T_{ab}$$

Where EM_{ab} is electromagnetic tensor

T_{ab} ; is the energy momentum tensor of charge.

k ; is constant

C ; speed of light.

* The Gravitational field tensor

$$G_{ab} = G T_{ab}$$

T_{ab} is the energy – Momentum tensor of mass

G ; is constant

So mass is a five dimension and can appear as a charge according to the state of the observer .

if we have observer has a mass, detects a kinetic object so he determine the object has a mass M and the field between them is a gravitational field to obey the afifi postulates .

The charged observer will detect the kinetic object has charge and

The field between them is electromagnetic field so the fields must equal:

$$G_{ab} = EM_{ab}$$

So,

$$M = S Q$$

Where S: is the afifi constant $S = (K/G)$

$$S = 1.35 * 10^{20} \text{ kg/coul}$$

Mass can transform into charge and charge transform into mass. The “golden” gravitational field and electromagnetic field equal:

$$G_{ab} = (T_{ab})_g, EM_{ab} = (T_{ab})_g$$

Where $(T_{ab})_g$ is the golden energy momentum tensor.

$$(T_{ab})_{\text{mass}} = S (T_{ab})_{\text{charge}}$$

So, the unification field equation is:

$$G_{ab} = EM_{ab}$$

* Now, we can produce electromagnetic field from gravitational field and vice versa.

The Maxwell equations of the electromagnetic field is

$$\text{div } E_e = \rho_e \quad \text{Curl } B_e = J_e$$

$$\text{Curl } E_e = \text{zero} \quad \text{div } B_e = \text{zero}$$

Where ρ_e is the density of charge.

The Einstein – Maxwell equations of Gravitational field:

$$\text{div } E_g = \rho_g \quad \text{Curl } E_g = \text{zero}$$

$$\text{Curl } B_g = J_g \quad \text{div } B_g = \text{zero}$$

Where ρ_g is the density of mass.

So, we can unify Maxwell’s equations of the electromagnetic field and Einstein – Maxwell equations of the gravitational field.

$$\text{Div } E_g = \text{div } E_e$$

$$\text{Curl } B_g = \text{Curl } B_e$$

$$\text{Curl } E_g = \text{Curl } E_e = \text{zero}$$

$$\text{Div } B_g = \text{div } B_e = \text{zero}$$

If we apply the ricci tensor we have;

$$G_{ab} = R_{ab} - 1/2 g_{ab} R$$

$$EM_{ab} = Z_{ab} - 1/2 g_{ab} Z$$

$$G_{ab} = EM_{ab}$$

$$R_{ab} - Z_{ab} + 1/2 g_{ab} Z - 1/2 g_{ab} R = \text{zero}$$

So our universe is a one dimension and appears as five dimension according to an .observer