MATTER THEORY OF MAXWELL EQUATIONS

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Abstract. This article try to unified the four basic forces by Maxwell equations, the only experimental theory. Self-consistent Maxwell equation with the e-current from matter current is proposed. and is solved to four kinds of electrons and the structures of particles. The static properties and decay and scattering are reasoned, all meet experimental data. The equation of general relativity sheerly with electromagnetic field is discussed as the base of this theory. In the end the conformation elementarily between this theory and QED and weak theory is discussed compatible, except some bias in some analysis.

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1. Unit Dimension of sch

A rebuilding of units and physical dimensions is needed. Time s is fundamental. We can define:
The unit of time: s (second)
The unit of length: cs (c is the velocity of light)
The unit of energy: $\hbar/s$ (h is Plank constant)

Date: Mar 27, 2018.
Key words and phrases. Maxwell equations, Decay, Electron function,Recursive re-substitution.

The unit dielectric constant ϵ is

$$[\epsilon] = \frac{[Q]^2}{[E][L]} = \frac{[Q]^2}{\hbar c}$$

The unit of magnetic permeability μ is

$$[\mu] = \frac{[E][T]^2}{[Q]^2[L]} = \frac{\hbar}{c[Q]^2}$$

We can define the unit of Q (charge) as

$$c\epsilon = c\mu = 1$$

then

$$[Q] = \sqrt{\hbar}$$
$$[H] = [Q]/[L]^2 = [cD] = [E]$$

Then

$$\sqrt{\hbar} : C = (1.0546 \times 10^{-34})^{1/2}$$

C is charge SI unit Coulomb.

For convenience we can define new base units by unit-free constants

$$c = 1, \hbar = 1, [Q] = \sqrt{\hbar}$$

then all physical unit are power of second s^n, the units are reduced.

Define

$$UnitiveElectricalCharge : \sigma = \sqrt{\hbar}$$
$$\sigma = 1.03 \times 10^{-17} C \approx 64e$$
$$e_{/\sigma} = e/\sigma = 1.57 \times 10^{-2} \approx 1/64$$

The unit of charge can be reset by *linear variation of charge-unit*

$$Q \to CQ, Q : \sigma/C$$

We will use it without detailed explanation.

2. Self-consistent Electrical-magnetic Fields

Try equation for the free E-M field in mass-center frame

$$\partial \cdot \partial' A = iA^{\nu *} \cdot \partial A_\nu/2 + cc. = -J, \quad Q_e = 1 \tag{2.1}$$
$$\partial_\nu \cdot A^\nu = 0$$

with definition

$$(A^i) := (V, \mathbf{A}), (J^i) = (\rho, \mathbf{J}), (J_i) = (-\rho, \mathbf{J})$$
$$\partial := (\partial_i) := (\partial_t, \partial_{x_1}, \partial_{x_2}, \partial_{x_3})$$
$$\partial' := (\partial^i) := (-\partial_t, \partial_{x_1}, \partial_{x_2}, \partial_{x_3})$$

Q_e is the absolute value of the charge of electron. It's deduced by using momentum to express e-current in a electron. The equation 2.1 have symmetry

$$CPT, cc.PT$$

The energy of the field A are

$$\varepsilon := \int dV(E \cdot E^* + H \cdot H^*)/2 = - < A^\nu|\nabla^2|A_\nu > /2 \tag{2.2}$$

It's also valid with Lorentz gauge. As a convention the time-variant part is neglected.

3. Calculation of Recursive Re-substitution

We can calculates the solution by recursive re-substitution for the two sides of the equation. For the equation

$$\hat{P}'B = \hat{P}B$$

make the algorithm

$$\hat{P}'(\sum_{k\leq n} B_k + B_{n+1}) = \hat{P}\sum_{k\leq n} B_k$$

One can write down a function initially and correct it by re-substitution. Here is the initial state

$$V = V_i e^{-ikt}, A_i = V, \partial_\mu \partial^\mu A_i^\nu = 0$$

Substituting into equation 2.1

$$\partial \cdot \partial' A = iA^{\nu *}\partial A_\nu/2 + cc., Q_e = 1$$

with

$$\partial_\nu \cdot A^\nu = 0$$

We calls the fields' correction A_n with n degrees of A_i the n degrees correction. The dynamic process in the mass-center frame also can be solved by recursive re-substitution in the same form, with harmonic initial wave. The second degree correction (dependence) is

$$< iA_f\partial A_f + cc.|1/(\partial^{\cdot}\partial')|iA_i\partial A_i + cc. > /4$$

The normalization is on $< A|\partial^{\cdot}\partial'|A >$, the static mass of wave.

The decay to a stable state is calculated. The system is isolated,

$$< A^\nu \cdot \nabla^2 A_\nu > +cc. =< A^\nu, \partial_t^2 A_\nu > +cc.$$

Presume

$$A_t = A_i e^{-Ct/2}$$

Make $t \to 0$

$$A \to e^{-Ct/2}A_i$$

$$e^{-Ct} < A_i^\nu \cdot \nabla^2 A_{i\nu} > +cc. =< e^{-Ct/2}A_i^\nu, \partial_t^2 e^{-Ct/2}A_{i\nu} > +cc.$$

As C is little, delete the terms of higher degree,

$$-Ce^{-Ct} < A_i^\nu, \partial_t A_{i\nu} > +cc. = e^{-Ct} < A_i^\nu, J_{i\nu} > +cc. = 2e^{-Ct}(\varepsilon_i - \varepsilon_f), Q_e = 1$$

Hence for the consonance state A_i

$$e^{-Ct} \approx \varepsilon/\varepsilon_i$$

and use the charge condition, then

$$|Q_x/Q_e|C \approx \varepsilon_i - \varepsilon_f$$

Q_x is the charge of the system. $\varepsilon_i - \varepsilon_f$ is obviously the crossing energy of all the decayed blocks,

4. Solution

Firstly

$$\nabla^2 A = -k^2 A$$

is solved. Exactly, it's solved in spherical coordinate

$$0 = r^2(\nabla^2 f + k^2 f) = k^2 r^2 f + (r^2 f_r)_r + \frac{1}{\sin\theta}(\sin\theta f_\theta)_\theta + \frac{1}{\sin^2\theta}(f_\phi)_\phi$$

Its solution is

$$f = R\Theta\Phi = R_l Y_{lm}$$
$$\Theta = P_l^m(\cos\theta), \Phi = \cos(\alpha + m\phi)$$
$$R_l = N j_l(kr)$$

$j_l(x)$ is spherical Bessel function.

$$j_1(x) = \frac{\sin(x)}{x^2} - \frac{\cos x}{x}$$
$$j_1(0) = 0$$

Contrary to the well-known result:

$$\int_0^\infty x^2 j_1(ax) j_1(bx) dx = \frac{1}{a}\delta(a-b)$$

the functions $j_1(ax), j_1(bx)$ are not orthogonal (why? CV), because a direct calculation shows that.

The solution of $l = 1, m = 1, Q = e_{/\sigma}$ is calculated or tested for electron,

$$V = -N R_1(kr) Y_{1,-1} e^{-ikt}$$

5. Electrons and Their Symmetries

Some states of electrical field A are defined as the core of the electron, it's the initial function $A_i = V$ that is electrical, for the re-substitution to get the whole electron function:

$$e_r^+ : N R_1(k_e r) Y_{1,1} e^{ik_e t}$$
$$e_l^+ : N R_1(k_e r) Y_{1,-1} e^{ik_e t}$$
$$e_r^- : -N R_1(k_e r) Y_{1,-1} e^{-ik_e t}$$
$$e_l^- : -N R_1(k_e r) Y_{1,1} e^{-ik_e t}$$

r, l is the direction of the spin. We use these symbols e to express the complete potential field A or the abstract particle.

Define the notations of particle x

$$e_{xr}^+ := N R_1(k_x r) Y_{1,1} e^{ik_x t}$$

By mainly the second rank of correction A_2, a static field, we have

$$< e_{c\mu} | i\partial_t | e_c^\mu > /2 + cc. = Q_c, \sigma = 1, |Q_c| = Q_e$$

We can use this to normalize the electron functions.

$$< \nabla e_{c\mu} | \nabla e_c^\mu > /2 + cc. \approx |k_e| e, \sigma = 1$$
$$< \nabla e_{c\mu} | -i\partial_\phi | \nabla e_c^\mu > /(4|k_e|) + cc. \approx S_{zc}$$
$$< e_{c\mu} | -i\partial_\phi | e_c^\mu > /4 + cc. \approx \mu_{zc}$$

The magnetic dipole moment of electron is calculated as the first rank of proximation

$$-\mathbf{r} \times \partial \cdot \partial' A/4 + cc.$$

$$\mu_z = < A_i| - i\partial_\phi |A_i > /4 + cc.$$

$$= \frac{Q_e}{2k_e}, \sigma = 1$$

The spin is

$$S_z = < \nabla e_{c\mu}| - i\partial_\phi |\nabla e_c^\mu > /(4|k_e|) + cc., Q_e = 1$$

$$= 1/2$$

The correction of the equation 2.1 is

$$A_n = A_{n-1} \cdot (\partial(iA_i - iA_i^*)/2) * u$$

$$= A_i^*(i\partial_t A_i)(\partial_t(iA_i - iA_i^*)/2)^{n-3}\partial(iA_i - iA_i^*)/2$$

$$u = \delta(t-r))/(4\pi r)$$

The convolution is made in 4-d space.

The function of e_r^+ is decoupled with e_l^+

$$< \nabla(e_r^+)^\nu + \nabla(e_l^+)^\nu, \nabla(e_r^+)_\nu + \nabla(e_l^+)_\nu > /2$$

$$- < \nabla(e_r^+)^\nu, \nabla(e_r^+)_\nu > /2 - < \nabla(e_l^+)^\nu, \nabla(e_l^+)_\nu > /2 = 0$$

The increment of field energy ε on the coupling of e_r^+, e_r^- mainly between A_2 is

$$\varepsilon_e \approx -e^3_{/\sigma} k_e = -\frac{1}{1.66 \times 10^{-16} s}$$

This value of increments on the coupling of electrons are

ε_e	e_r^+	e_r^-	e_l^+	e_l^-
e_r^+	$+$	$-$	0	0
e_r^-	$-$	$+$	0	0
e_l^+	0	0	$+$	$-$
e_l^-	0	0	$-$	$+$

The increment of field energy ε on the coupling of e_r^+, e_l^- mainly between A_4 is

$$\varepsilon_x \approx -\frac{1}{2} e^7_{/\sigma} k_e \approx -\frac{1}{2.18 \times 10^{-8} s}$$

The calculations referenced to latter theorems. This value of increments on the coupling of electrons are

ε_x	e_r^+	e_r^-	e_l^+	e_l^-
e_r^+	$+$	0	0	$-$
e_r^-	0	$+$	$-$	0
e_l^+	0	$-$	$+$	0
e_l^-	$-$	0	0	$+$

Because

$$\partial \cdot \partial'(-e) = -i(-e)^{\nu *} \cdot \partial(-e)_\nu/2 + cc., Q_e = 1$$

the properties of electrons are

	e_r^+	e_r^-	e_l^+	e_l^-	$-e_r^+$	$-e_r^-$	$-e_l^+$	$-e_l^-$
Q	$+$	$-$	$+$	$-$	$-$	$+$	$-$	$+$
S	r	r	l	l	l	l	r	r
μ_B	r	l	l	r	l	r	r	l
$\varepsilon(m/2)$	$+$	$+$	$+$	$+$	$+$	$+$	$+$	$+$

6. Propagation and Movement

Because field F is additive, the group of electrons are express by:

$$F = \sum_i f_i * \nabla e_i, < f_i | f_i >= 1$$

It's called *propagation. The convolution is made only in space:*

$$f * g = \int d^3x f(t,x) g(t, y-x)$$

Each f_i is normalized to 1. We always use

$$\sum_i f_i * e_i, \sum_i f_i * \nabla e_i$$

to express its abstract construction and the field. The following are stable propagation:

particle	*electron*	*photon*	*neutino*
notation	e_r^+	γ_r	ν_r
structure	e_r^+	$(e_r^+ + e_r^-)$	$(e_r^+ + e_l^-)$

Define

$$\varsigma_{k,l,m}(x) := R_l(kr) Y_{l,m}, \varsigma_k = \varsigma_k^{\pm}(x) := \varsigma_{k,1,\pm 1}(x)$$
$$< \varsigma_k(x), \varsigma_k(x) >= \delta(0)$$

It meets the following results

Theorem 6.1.

$$\int d^3\mathbf{x} R(\varsigma_k^{\pm}(x)) \varsigma_k^*(y-x) = 0, y \neq O$$

R is any rotation.

Proof. Use the limit

$$\lim_{k' \to k} \int dV \varsigma_k^{\pm}(x) \varsigma_{k'}^*(x-y)$$

and the identity

$$h\nabla^2 g - g\nabla^2 h = \nabla \cdot (h\nabla g - g\nabla h)$$

□

Theorem 6.2.

$$\varsigma_1 * \frac{1}{4\pi r} = \varsigma_1$$
$$\varsigma_1 e^{it} * \delta(t-r))/(4\pi r) = \varsigma_1 e^{it}$$
$$\varsigma_1^n \varsigma_1^{*n'} * \frac{1}{4\pi r} = \varsigma_1^n \varsigma_1^{*n'}$$
$$\varsigma_1^n e^{int} \varsigma_1^{*n'} e^{-in't} * \delta(t-r))/(4\pi r) = \varsigma_1^n e^{int} \varsigma_1^{*n'} e^{-in't}$$

Proof. Calculate

$$\nabla^2(\varsigma_1 * \frac{1}{4\pi r}) = \nabla^2\varsigma_1$$

$$\nabla^2(\varsigma_1 e^{it} * \delta(t-r))/(4\pi r)) = \nabla^2(\varsigma_1 e^{it})$$

$$F_{\lambda_i}(\varsigma_1^n \varsigma_1^{*n'} * \frac{1}{4\pi r}) * e^{i\lambda_i x_i}$$

and use the identity

$$\delta(t-r)/(4\pi r) = \delta(t)/(4\pi r) * \delta(t-r)$$

□

Theorem 6.3.

$$\nabla(\varsigma_k * \varsigma_{k'}) = (\nabla\varsigma_k) * \varsigma_{k'} + \varsigma_k * \nabla(\varsigma_{k'})$$

Use this condition to prove:

$$\varsigma_k(x-c) * \varsigma_{k'}(x+c) = C\varsigma_k(x-c)\varsigma_{k'}(x+c) * \delta(x-2c)$$

Theorem 6.4.

$$< \varsigma_1^n, \varsigma_1^n > = < \varsigma_1, \varsigma_1 >$$

Prove in Fourier space.

Theorem 6.5.

$$(\nabla\varsigma_k) * \varsigma_1 = k\varsigma_k * \nabla\varsigma_1$$

The movement of the propagation is called *Movement*, ie. the third level wave:

$$F = f * \sum f_i * \nabla e_i$$

Calculating the following coupling system

$$A = \sum_i e_i, A' = \sum_j -e_j$$

$$B =: \int d\mathbf{x} \cdot e_x * \nabla A, B' := \int d\mathbf{x} \cdot e_x * \nabla A'$$

with the condition 2.1

$$\partial \cdot \partial' e_x \approx 0$$

$$e_x = e^{iNt}\varsigma_N \tag{6.1}$$

With the condition of charge

$$< (B+B')^\nu | i\partial_t | (B+B')_\nu > /2 + cc. \approx Q_x, Q_e = 1$$

$$N \approx (< A^\nu, A_\nu > + < A'^\nu, A'_\nu >)/Q_x, Q_e = 1 \tag{6.2}$$

because

$$\partial \cdot \partial' A' \approx -iA'^{\nu*}\partial A'_\nu/2 + cc., Q_e = 1$$

$$\partial \cdot \partial'(A+A') \approx iA^{\nu*}\partial A_\nu/2 - iA'^{\nu*}\partial A'_\nu/2 + cc., Q_e = 1$$

$$\partial \cdot \partial'(A+A') \approx iA^{\nu*}\partial A_\nu/2 + i\overline{A'}^{\nu*}\partial \overline{A'}_\nu/2 + cc., Q_e = 1$$

$$\overline{A'} := A'(-x)$$

Consider the reaction

$$e_r^+ - e_r^+ \to e^{ipx} * e_r^+ - e^{ip'x} * e_r^+$$

to find the crossing part between $e_r^+, -e_r^+$ is zero. This result is crucial in calculate the the mass of particle. In fact, when the whole wave form is unclear, the first correction of interaction can be obtained by the current, and it's clear that the crossing part is zero. We always use

$$|_{-t}^{t'} < B, A >= |_{-t}^{t'} \int dV(h(t)+h(-t))A\cdot(h(t)+h(-t))B^*$$

with their Fourier expansions. The right is the crossing between initial state and final state, but the left is not.

The static MDM (magnetic dipole moment) of a group of electrons is

$$-\mathbf{r}\times\partial\cdot\partial'(\int d\mathbf{x}\cdot e_{xs} * \sum_j \nabla e_j^{\mu})/4 + cc.$$

$$\mu =< \int d\mathbf{x}\cdot e_{xs} * \sum_j \nabla e_j^{\mu} | -\mathbf{r}\times i\nabla | \int d\mathbf{x}\cdot e_{xs} * \sum_j \nabla e_j^{\mu} > /4 + cc.$$

$$=< e_j^{\mu} | -\mathbf{r}\times i\nabla | \sum_j e_j^{\mu} > s|k_e|/(2|k_x|) + cc.$$

7. Conservation Law and Balance Formula

No matter in E-M fields level or in movement (the third) level, the conservation law is *conservation of momentum and conservation of angular momentum.* A *balance formula* for a reaction is the equivalent formula in positive matter, ie. after all negative terms is shifted to the other side of the reaction formula. Balance formula is suitable for the analysis of the energy transition of decay. The *invariance of electron itself* in reaction is also a conservation law.

8. Muon

Generally, there are kinds of energy increments.

Weak coupling

$$W :< \nabla(e_r^+)^{\nu} | \nabla(e_l^-)_{\nu} >$$

Light coupling

$$L :< \nabla(e_r^+)^{\nu} | \nabla(e_r^-)_{\nu} >$$

Weak side coupling

$$Ws :< e_x * \nabla(e_r^+)^{\nu} | e_x * \nabla(e_l^-)_{\nu} > - < e_x * \nabla(e_r^+)^{\nu} | e^{ipx} * \nabla(e_l^-)_{\nu} >$$

Light side coupling

$$Ls :< e_x * \nabla(e_r^+)^{\nu} | e_x * \nabla(e_r^-)_{\nu} > - < e_x * \nabla(e_r^+)^{\nu} | e^{ipx} * \nabla(e_r^-)_{\nu} >$$

Strong coupling

$$S :< \nabla(e_r^+)^{\nu} | \nabla(e_r^+)^{\nu} >$$

μ is composed of

$$\mu_l^+ : e_{\mu} * (e_l^+ - \nu_l)$$

From the equation 13.1, μ is approximately with mass $3m_e/e_{/\sigma} = 3\times 64 m_e$ [3.2][1], spin 1/2, MDM $\mu_B k_e/k_{\mu}$.

The main channel of decay

$$\mu_l^+ \to M_l^+ - \nu_l$$
$$M_r^+ = e_M * (-e_r^- + \nu_l)$$
$$e_\mu * e_l^+ + e^{ip_1x} * e_M * e_r^- + e^{ip_2x} * \nu_l \to e_\mu * \nu_l + e^{ip_1x} * e_M * \nu_l$$

The outer waves e_μ and $e^{ip_1x} * e_M^*$, e_μ and e^{ip_2x} are coupling. The energy difference is kind of Ws, the interacting field is between A_4.

$$2 < e_\mu * \nabla(e_l^+)^\nu | e^{ip_1x} * \nabla(e_r^-)_\nu > -2 < \nabla(e_l^+)^\nu | \nabla(e_r^-)_\nu > +cc.$$

Sum up in spectrum of p_1 that with the emission positive:

$$= 2\frac{k_e}{k_\mu + k_e} < \nabla(e_\mu * (e_l^+, A_4)^\nu) | e^{int} \nabla(e_r^-, A_4)_\nu / k_e > -2 < \nabla e_l^+ | \nabla(e_r^-)_\nu) > +cc.$$

$$= -(\frac{2k_\mu}{k_\mu + k_e} - 2)\varepsilon_x$$

$$= \frac{2\varepsilon_x k_e}{k_\mu + k_e}$$

The emission of decay is

$$= -\frac{1}{2.1 \times 10^{-6}s} \quad [2.1970 \times 10^{-6}s][1]$$

The data in square bracket is experimental data. The decay of particle M is like a scattering with no energy emission

$$M_r^+ \to -e_l^- + \nu_l$$

9. Pion Positive

Pion positive is

$$\pi_l^+ : e_\pi * e_r^+ + e_\pi^* * (e_l^- - e_r^+)$$

It's approximately with mass $4 \times 64m_e$ [4.2][1], spin 1/2 and MDM $\mu_B k_e / k_{\pi^+}$.

Decay Channels:

$$\pi_l^+ \to \mu_l^- + \nu_r$$

It's with balance formula

$$e_\pi^* * e_r^+ + e_\pi * e_l^- + e^{ip_1x} * e_\mu * \nu_r \to e_\pi^* * e_r^+ + e^{ip_1x} * e_\mu * e_l^- + e^{ip_2x} * \nu_r$$

The the emission of energy, ie. the cross energy, is kind of W

$$-\varepsilon_x = \frac{1}{2.18 \times 10^{-8}s} \quad [(2.603 \times 10^{-8}s][1]$$

10. Pion Neutral

Pion neutral is atom-like particle

$$\pi^0 : e_{\pi^0} * (e_r^+ + e_l^+) + e_{\pi^0}^* * (e_r^- + e_l^-)$$

It has mass approximately $4 \times 64m_e$ [4.2][1], zero spin and zero MDM. Its decay modes are

$$\pi^0 \to \gamma_r + \gamma_l$$

The loss of energy is kind of L

$$-2\varepsilon_e = \frac{1}{8.3 \times 10^{-17}s} \quad [8.4 \times 10^{-17}s][1]$$

11. TAU

τ maybe that

$$\tau_r^- : e_\tau * (5e_r^+ - 5e_r^+ - e_r^-)$$

Its mass approximately $51 \times 64 m_e$ [54][1], spin 1/2, MDM $\mu_B k_e / k_\tau$. It has decay mode

$$\tau_l^+ \to \mu_l^+ + \nu_l^+ - \nu_l$$

$$e_\tau * 5e_r^+ + e^{ip_1 x} * e_\mu * \nu_l + e^{ip_2 x} * \nu_l \to e_\tau * 5e_r^+ + e_\tau * e_r^- + e^{ip_1 x} * e_\mu * e_l^+ + e^{ip_3 x} * \nu_l$$

The energy gap is kind of Ls

$$\begin{aligned} & 5 < e_\tau * \nabla(e_r^+)^\nu | e^{ip_1 x} * e_\mu * \nabla(e_r^-)_\nu > -5 < e_\tau * \nabla(e_r^+)^\nu | e_\tau * \nabla(e_r^-)_\nu > +cc. \\ & = 5 < e_\tau * \nabla(e_r^+)^\nu | e^{ip_1 x} * \nabla(e_r^-)_\nu > -5 < e_\tau * \nabla(e_r^+)^\nu | e_\tau * \nabla(e_r^-)_\nu > +cc. \\ & \approx \frac{5\varepsilon_e}{k_\tau / k_e} \\ & = -\frac{1}{1.79 \times 10^{-13} s} \quad [2.91 \times 10^{-13} s; BR. \quad 0.17][1] \end{aligned}$$

Depending on this kinds of particle including

$$q_r^{n+} := n(e_r^+ - e_r^+)$$

we can construct particles of great mass decaying without strong emission (light radiative), for example

$$e_L * (q_r^{n+} - e_l^-)$$

This series of particle include μ, τ and in fact almost all light radiative particles are of this kind, they are created in colliding. Another condition is possibly that, in the collision, the created light radioactive particle $(q_r^{n+} - e_l^-)$ with different n is mixed to some rates as to the detector can't distinguish them.

Because the channel width decides the channel branch rates, obviously the most experimental data violate this rule. So that the channels listing after the same name of a particle in fact belong to different particles.

12. Proton

Proton may be like

$$p_r^+ : -e_{pr}^+ * 4e^+ - e_{pl}^+ * 3e_l^- - e_{pl}^- * 2e_l^-$$

The mass is $29 \times 64 m_e$ [29][1] that's very close to the real mass. The MDM is calculated as $3\mu_N$, spin is 1/2. The proton thus designed is eternal.

13. Great Unification

The mechanic feature of the electromagnet fields is

$$T_{ij} = F_i^{k*} F_{kj} - g_{ij} F_{\mu\nu} F^{\mu\nu^*} / 4$$

T is stress-energy tensor,

$$T_{ij} = \sum m u_i u_j, u = dx/ds$$

T_{00} is quantum expression of the energy, by Lorentz transform it's easy to get the quantum expression of momentum. And then the observed static mass of system is

$$\sum m = \sum tr(m u_i u_j) =< \nabla A^\nu, \nabla A_\nu >= 2\varepsilon, Q_e = 1 \tag{13.1}$$

The General Theory of Relativity is

$$R_{ij} - \frac{1}{2}Rg_{ij} = 8\pi GT_{ij}/c^4 \tag{13.2}$$

Firstly we redefine the unit second as S to simplify the equation 13.2

$$R_{ij} - \frac{1}{2}Rg_{ij} = T_{ij}, Q_e = 1$$

We observe that the co-variant curvature is

$$R_{ij} = F^*_{ik}F_j{}^k + g_{ij}F^*_{\mu\nu}F^{\mu\nu}/8, Q_e = 1$$

14. Conclusion

Fortunately this model explained all the effects in the known world: strong, weak and electromagnetic effects, and even subclassify them further if not being to add new ones. In this model the only field is electromagnetic field, and this stands for the philosophical with the point of that unified world is from an unique source. All depend on a simple fact: the current of matter in a system is time-invariantly zero in mass-center frame, then we can devise current of matter to analysis the e-charge current.

Except electron function my description of particles in fact is compatible with Quantum Electromagnetic Mechanics, and they two should reach the similar result. But my theory isn't compatible to the theory of quarks, if not it is calculated in the style of Quantum Electromagnetic Mechanics. In fact, The electron function is a good promotion for the experimental model of proton that went up very early.

Underlining my calculations a fact is that the electron has the same phase (electron resonance), which the BIG BANG theory would explain, all electrons are generated in the same time and place, the same source.

References

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