THEORY OF ELECTRON

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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 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.

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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)

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The unit of energy: $\hbar/s$ ($\hbar$ is Plank constant)

The unit dielectric constant $\epsilon$ is

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

The unit magnetic permeability $\mu$ is

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

We can define the unit of charge $Q$ (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 units are power of second $s^n$, the units are reduced.

Define

$$UnitiveElectricalCharge : \sigma = \sqrt{\hbar}$$

$$\sigma = 1.03 \times 10^{-17} C \approx 64 e$$

$$e/\sigma = e/\sigma = 1.57 \times 10^{-2} \approx 1/64$$

Define and rebuild the system:

$$s \rightarrow Cs : 1 = m_e/e/\sigma =: \beta$$

$s \rightarrow Cs$ means the value of the redefined second becomes $c$ seconds. We always use this units system.

2. Self-consistent Electrical-magnetic Fields

Try so-called expanded Maxwell equation for the free E-M field in the previously defined units

(2.1) \[ \partial \cdot \partial' A = iA' \cdot \partial A / 2 + cc. = - J \]

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

with definition

$$\begin{align*}
(A') & := (V, A), (J') = (\rho, J), (I) = (-\rho, J) \\
\partial & := (\partial_t, \partial_{x_1}, \partial_{x_2}, \partial_{x_3}) \\
\partial' & := (\partial') := (-\partial_t, \partial_{x_1}, \partial_{x_2}, \partial_{x_3})
\end{align*}$$

It’s deduced by using momentum to express e-current in an electron: the mass and charge have the same movement in an electron. The equation 2.1 have symmetry

$CPT, cc.PT$

The energy (reference to the section 15) of the field $A$ under Lorentz gauge are

(2.2) \[ \varepsilon := < \nabla A^\nu, \nabla A_\nu > = < E, E > / 2 + < H, H > / 2 \]
(2.3) \[ \varepsilon |^t_\infty = - < A^\nu, J_\nu > |^t_\infty = < \rho, V > |^t_\infty \]

The previous presumption is used again. As a convention the time-variant part of energy is neglected.

3. Calculation of Recursive Re-substitution

We can calculate the solution by recursive re-substitution (RRS) for the two sides of the equation. For the equation \[ \hat{P}^\nu B = \hat{P} B \]

make the algorithm (It’s approximate, the exact solution needs a rate in the re-substitution)

\[ \hat{P}^\nu(\sum_{k \leq n} B_k + B_{n+1}) = \hat{P} \sum_{k \leq n} B_k \]

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

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

Substituting into equation 2.1. We call the fields’ correction \( A_n \) with \( n \) degrees of \( A_i \) the \( n \) degrees correction.

4. Solution

Firstly \[ \nabla^2 A = k^2 A \]

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

\[ 0 = r^2(\nabla^2 f - k^2 f) = -k^2 r^2 f + (r^2 f)_r + \frac{1}{\sin \theta} (\sin \theta f_\theta)_\theta + \frac{1}{\sin^2 \theta} (f_\varphi)_\varphi \]

Its solution is

\[ f = R \Theta \Phi = R_l Y_{lm} \]

\[ \Theta = P_l^m (\cos \theta), \Phi = \cos(\alpha + m \varphi) \]

\[ R_l = N j_l(kr) \]

\( j_l(r) \) is spherical Bessel function.

\[ j_1(r) = \frac{\sin(r)}{r^2} - \frac{\cos(r)}{r^2} \]

\[ j_1(0) = 0 \]

\[ \int_0^\infty dr \cdot r^2 j_1(kr) j_1(k' r) = C k^{-2} \delta(k - k') \]

Define

\[ F(x) := NR_1(r) Y_{1,1}(\theta, \varphi) \]

\[ < k^{3/2} F(kx), k^{3/2} F(kx) >= 1 \]

then by unitary discrete coordinates

\[ k^{3/2} F(kx) * k^{3/2} F*(kx) = k \delta(kr)/(4 \pi) \]

and

\[ < F^n(x), F^n(x) >= 1 \]

Define

\[ \Omega_k(x) := NR_1(kx) Y, < \Omega_k(x), \Omega_k(x) >= 1 \]
The solution of \( l = 1, m = 1, Q = e/\sigma \) is calculated or tested for electron,
\[
V = NR_1(-k_e r)Y_{1,1}e^{-ik_et}
\]
The equation 2.1 with this solution has a singularity at \( O \), to avoid the singularity
use this equation to replace it
\[
\partial A^\nu \cdot \partial' A_\nu = A^\nu (A^\mu i\partial_\nu A_\mu / 2 + cc.)
\]
The latter calculations is similar to debar the singularity.

5. Electrons and Their Symmetries

Some states of electrical field \( A \) are defined as the core of the electron, which’s
the start function \( A_i = V \) that is electrical, for the RRS to get the whole electron
function \( e \):
\[
\begin{align*}
   e^+_r & : NR_1(k_e r)Y_{1,1}e^{-ik_et}, \\
   e^+_l & : NR_1(k_e r)Y_{1,-1}e^{-ik_et} \\
   e^-_r & : NR_1(-k_e r)Y_{1,-1}e^{ik_et} \\
   e^-_l & : NR_1(-k_e r)Y_{1,1}e^{ik_et}
\end{align*}
\]
Define the symbols:
\[
\begin{align*}
   (-e^-_r) & := -e^+_r(-t), (-e^+_l) := -e^-_r(-t) \\
   (-e^-_l) & := -e^+_l(-t), (-e^+_r) := -e^-_l(-t)
\end{align*}
\]
\( r, l \) is the direction of the spin.

Normalize the electron function with charge and mass, using the equation 2.1
\[
\begin{align*}
   < e^\mu_i | i\partial_k | e^\mu > &= Q_e \\
   < \nabla e_\mu | \nabla e^\mu > &= m_e
\end{align*}
\]
Then
\[
k_{ec} = m_e/Q_e
\]
The magnetic dipole moment of electron is calculated as the first rank of approximation
\[ -r \times \partial \cdot \partial' A/4 + cc. \]
\[ \mu_z = \langle A_i | -i \partial | A_i \rangle /4 + cc. \]
\[ = \frac{Q_e}{2m_e} \]
By the discussion in the section 2 the spin is
\[ S_z = \mu_z k_z/e = 1/2 \]
The correction in RRS of the equation 2.1 is
\[
A_n = A_{n-1} i \partial (A_i - A_i^*)/2 * u
\]
\[ = (A_i^* (i \partial_i A_i)) * u * (i \partial_i (A_i - A_i^*)/2 * u)^n /4 * i \partial (A_i - A_i^*)/2 * u \]
\[ = (A_i^* (i \partial_i A_i))(i \partial_i (A_i - A_i^*)/2)^n /4 * i \partial (A_i - A_i^*)/2 \]
\[ u = \delta(t - r)/(4\pi r) \]
The convolution is made in 4-d space. Generally
\[ \partial x \cdot \partial x - \partial x' = \partial x \cdot \partial x' \]
\[ (x', t') := (x, t - r), r^2 = x' \cdot x' \]
and
\[ f(x)e^{ict} * u = f(x)e^{ict(x + r)} * \frac{1}{4\pi r} = f(x')e^{ict} * \frac{1}{4\pi t'} = f(x)e^{ict} * \frac{1}{4\pi r} \]
\[ \delta(x - 2a) * f_a(x - a) * g_a(-(x - a)) = \delta(x - 2a) * g_a(x - a) \cdot f_a(-(x - a)) \]
with definition
\[ f(x) *' g(x) := \int_{-\infty}^{\infty} f(x + t)g(t)dt \]
hence
\[ h(x) *' f(x) * g(-x) = h(x) *' g(x) * f(-x) \]
\[ h(x) *' f(-x) * g(-x) = h(x) * g(-x) * f(-x) \]
Calculate with the properties of RRS start state \( A_{ri}^\pm \) for \( e_{ri}^\pm \)
\[ A^+ (k_e, \varphi) = A(-k_e, -\varphi) \]
\[ A^- (k_e, \varphi) = A^+ (-k_e, \varphi) \]
\[ A_1 (k_e, \varphi) = A_r (k_e, -\varphi) \]
\[ \partial A (k_e, \varphi) = -ik_e A (k_e, \varphi) \]
Correct the first degree term of electron function with magnetic part
\[ A^\nu = (-\Omega_k(x)e^{-ikt}, i\nabla \Omega_k(x)e^{-ikt}/k) \]
to find
\[ < e^{\nu} | \partial \cdot \partial' | e^{\nu} > = 0 \]
\[ \partial_{\nu} \cdot J_{\nu}^c = 0 \]
\[ \partial_{\nu} \cdot e^{\nu} = 0 \]
These are Lorentz gauge and current constraint.
We have with the discussion of the section 7:
\[ < \nabla (e^+_{ri})^\nu, \nabla (-e^+_{ri})_\nu > = 0 \]
\[ <\nabla(e^+)^\nu, \nabla(-e^-)_\nu >= 0 \]
\[ <\nabla(e^+)^\nu, \nabla(-e^-)_\nu >= 0 \]

The function of \( e^+ \) is decoupled with \( e^+_l \)

\[ 2 <\nabla(e^+)^\nu, \nabla(e^+_l)_\nu >= 0 \]

The increment of field energy \( \varepsilon \) on the coupling of \( e^+_r, e^-_r \) mainly between \( A_2 \) is

\[ \varepsilon_e = 2 <\nabla(e^+)^\nu, \nabla(e^-)_\nu >= -\frac{1}{1.66 \times 10^{-16}s} \]

Use the condition 2.2. This value of increments on the coupling of electrons are

\[
\begin{array}{cccc}
\varepsilon_e & e^+_r & e^-_r & e^+_l & e^-_l \\
\varepsilon^+_r & + & - & 0 & 0 \\
\varepsilon^-_r & - & + & 0 & 0 \\
e^+_l & 0 & 0 & + & - \\
e^-_l & 0 & 0 & - & + \\
\end{array}
\]

The increment of field energy \( \varepsilon \) on the coupling of \( e^+_r, e^-_l \) mainly between \( A_4 \) is

\[ \varepsilon_x = 2 <\nabla(e^+)^\nu, \nabla(e^-)_\nu >= -\frac{1}{1.09 \times 10^{-8}s} \]

Other parts are counteracted, including the degree 8. This value of increments on the coupling of electrons are

\[
\begin{array}{cccc}
\varepsilon_x & e^+_r & e^-_r & e^+_l & e^-_l \\
\varepsilon^+_r & + & 0 & 0 & - \\
\varepsilon^-_r & 0 & + & - & 0 \\
e^+_l & 0 & - & + & 0 \\
e^-_l & - & 0 & 0 & + \\
\end{array}
\]

6. Propagation and Movement

The propagation:

\[ A := f \ast \sum e_i, \]
\[ f \ast e := \int d^3 y f(y) e(x - y) \]

The following are stable propagation:

- **Particle**: electron, photon, neutrino
- **Notation**: \( e^+_r, \gamma_r, \nu_r \)
- **Structure**: \( e^+_r, (e^+_r + e^-_r), (e^+_l + e^-_l) \)

By the condition of 5.2, their static mass except the couplings is zero.

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

\[ f \ast \sum f_i \ast e_{ij} \]

Calculate the following coupling system of particle \( x \). The initial state is

\[ A = \sum e_x * n_c e_c \]

(6.1) \[ <e_x | e_x > = 1, t = 0 \]
c differ in charge, spin, and being negative or positive:

\[ c = (r, l)(+, -)(p, n) \]

With the equation 2.1 in the initial time

\[ (6.2) \quad \partial \cdot \partial'A_0 = \bar{A}^\nu i\partial_t A_\nu /2 + cc. = Q_s + Q_c, t = 0 \]

The magnetic part is irrelevant while existing (reference to the condition 2.3). For the light decay the self-effect

\[ Q_{sc} := (e_x \ast n_c e_c)^{\mu \ast} \ast i\partial_t (e_x \ast n_c e_c)_{\mu} / 2 + cc. \]

\[ Q_s = \sum_c Q_{sc} \]

the crossing effects

\[ Q_c := cc. + (n_{r+p} n_{r-p} - n_{r+n} n_{r-n}) (e_x \ast e_r^{\ast})_{\mu} \ast i\partial_t (e_x \ast e_r^{\ast})_{\mu} \]

\[ + (n_{l+p} n_{l-p} - n_{l+n} n_{l-n}) (e_x \ast e_l^{\ast})_{\mu} \ast i\partial_t (e_x \ast e_l^{\ast})_{\mu} \]

\[ + (n_{r+p} n_{r-p} - n_{r+n} n_{r-n}) (e_x \ast e_r^{\ast})_{\mu} \ast i\partial_t (e_x \ast e_r^{\ast})_{\mu} \]

\[ + (n_{l+p} n_{l-p} - n_{l+n} n_{l-n}) (e_x \ast e_l^{\ast})_{\mu} \ast i\partial_t (e_x \ast e_l^{\ast})_{\mu} \]

The self-effect of \( Q_{sc} \) is inner force in the decayed blocks, with zero Lorentz force. We notice that the terms in the equation are all delta functions of space, so that the interaction including \( 2 < Q_s, Q_c > \) between the decayed blocks are released suddenly all at one time, if choose the following \( e_x \):

\[ e_x = \Omega k_x (x')e^{-ik_x^t}, x' = R(x) \]

\( R \) is a rotation. The calculation of strong effect is similar.

With 6.1, 6.2 and charge normalization

\[ (6.3) \quad < A^\nu |i\partial_t| A_\nu > = Q_x \]

we have

\[ k_x' \approx k_x \approx n/Q_x, n := \sum_c n_c^2 \]

the initial EM energy

\[ \varepsilon_i = < \nabla A^\nu |\nabla A_\nu > \approx n/e_\sigma \]

the initial MDM

\[ \mu_z \approx < A^\nu | -i\partial_\nu| A_\nu > / 4 + cc. \approx \frac{1}{2|k_x|} \sum_c Q_c n_c^2 \]

Current is controlled by charge in electron.

7. Balance Formula

The reaction

\[ A_{1i} - A_{2i} \rightarrow A_{1f} - A_{2f} \]

is equivalent of the same energy emission to

\[ A_{1i} + A_{2f} (x, -t) \rightarrow A_{1f} + A_{2i} (x, -t) \]

by the 4-d fourier form. This means we can shift electron to the other side, with the same emission of EM energy.
8. Muon

The core of muon is

$$\mu^- : e_\mu \ast (e_r^- - e_l^+ - e_l^-)$$

From the equation 15.1, $\mu$ is approximately with mass $3m_e/e_\sigma = 3 \times 64m_e$ [3.2][1] (The data in bracket is experimental by the referenced lab), spin $S_e$ (electron spin), MDM $\mu_Bk_e/k_\mu$.

The main channel of decay

$$\mu_r^- \rightarrow e_r^- - \nu_r, \quad e_l^- \rightarrow -e_l^- + \nu_l$$

with balance formula

$$e_\mu \ast e_r^- + \delta^{1/2}(x + v_2t) \ast \nu_r$$

$$\rightarrow \delta^{1/2}(x - v_1t) \ast e_r^- + e_\mu(-t) \ast \nu_r$$

Reference to the discussion of the section 6 to find the main EM emission is

$$\varepsilon x m_e k_\mu = -1/2 \times 1.3 \times 10^{-6} s$$ [2.1970 $\times 10^{-6} s$][1]

9. Pion

The core of pion is

$$\pi^+_l : e_x(\varphi) \ast (e_r^+ \pm e_l^+) + e_x(-\varphi) \ast e_l^-$$

It’s approximately with mass $3 \times 64m_e$ [4.2][1], spin $S_e$ and MDM $\mu_Bk_e/k_{\pi^l}$.

Decay Channels:

$$\pi^+_l \rightarrow e_l^+ + \nu_r, \quad e_l^+ \rightarrow -e_l^+ + \nu_l$$

The mean life approximately is

$$-\varepsilon_x/2 = 1/2.2 \times 10^{-8} s$$ [(2.603 $\times 10^{-8} s$)][1]

The precise result is calculated with successive decays.

10. Pion Neutral

The core of pion neutral is like a atom

$$\pi^0 : ((e_r^+ + e_l^+), (e_r^- + e_l^-))$$

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

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

The loss of energy is

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

The following particle is similar to $\pi^0$

$$(e_x(-\varphi) \ast (ne_r^+ - n'e_l^-) + e_x \ast (e_r^+ + e_l^+),$$

$$(e_x(-\varphi) \ast (-ne_r^- + n'e_l^+) + e_x \ast (e_r^- + e_l^-))$$
11. Tauon

The core of tauon maybe
\[ \tau^- : e_r(-\varphi) * (n e_r^+ - n e_l^-) + e_r * (e_r^- - e_l^- - e_l^+) \]

Its mass approximately $53 \times 64 m_e$ [54][1] ($n = 5$), spin $S_e$ and MDM $\mu_B m_e/k_\tau$. It has decay mode with a couple of neutrinos counteracted
\[ e_r^- - e_l^- - e_l^+ \rightarrow e_r^- - \gamma_r \]
\[ e_r * e_r^- + \delta^{1/2}(x + v_2 t) * \gamma_l \rightarrow \delta^{1/2}(x - v_1 t) * e_r^- + e_r(-t) * \gamma_l \]

The main EM emission is
\[ \varepsilon e m_e \frac{k_e}{k_\tau} = -\frac{1}{5.5 \times 10^{-13}s} \quad [2.91 \times 10^{-13}s; BR. \quad 0.17][1] \]

Perhaps, it's a mixture with distinct coefficients $n$. The following particle is similar to $\tau$
\[ e_r(-\varphi) * (-n e_r^+ - e_l^- - e_l^- + e_r^-) + e_r * (n e_l^- - e_r^- - e_l^- - e_l^+) \]

12. Proton

The core of proton may be like
\[ p^- : e_p * (-4 e_r^+ - 3 e_r^- - 2 e_l^-) \]

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 $S_e$. The proton thus designed is eternal.

13. Neutron

Neutron is the atom of a proton and a electron and a neutrino,
\[ n = (p^+_r, -\nu_l, e^-_l) \]

Neutrino circles around proton with
\[ m_\nu \omega r^2 = 1 \]

The interaction is between their (proton and neutrino) magnetic fields of $A_2$ (gross current)
\[ m_\nu \omega^2 r = \frac{1}{4\pi} \cdot 3 \cdot 2 \cdot e^2_\nu k_e/(m_p r^2) \]
\[ m_\nu = \frac{e^2_\nu}{\sigma m_e}/2 \]

The EM energy emitted by neutrino is approximately
\[ \frac{1}{2} \cdot \frac{(6 \pi^3 e^2_\nu/\sigma)^2}{m^2_p (m^2_p c^2_\sigma)} = \frac{1}{673s} \]
14. Mesons

We can define kinds of energy decreases of decay

<table>
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<tr>
<th>interaction</th>
<th>EM side</th>
<th>EM weak side</th>
<th>weak side</th>
<th>strong</th>
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<td>emission unit</td>
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<td>k_x</td>
<td>-ε_x -ε_em/</td>
<td>k_x</td>
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We analyze the mesons [1] as the following

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<th>ratio</th>
<th>construction</th>
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<td>1.3keV</td>
<td>L</td>
<td>-</td>
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<tr>
<td>K^±</td>
<td>493</td>
<td>1.24 × 10^{-8}s</td>
<td>W</td>
<td>0.88</td>
</tr>
<tr>
<td>K^0</td>
<td>-</td>
<td>10^{-10}s</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>K^0_L</td>
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<td>-</td>
<td>-</td>
</tr>
<tr>
<td>D^0</td>
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<td>4100 × 10^{-16}s</td>
<td>LS</td>
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</tr>
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<td>J/φ</td>
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<td>S</td>
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15. Mechanical Quantification

The mechanic feature of the electromagnet fields is

\[ T_{ij} = F^{k*}_i F_{kj} - g_{ij} F^{\mu\nu} F_{\mu\nu} / 4 \]

T is stress-energy tensor, 

\[ T_{ij} = \sum mu_i u_j, \quad u = dx/ds \]

\[ T_{00} \] is quantum expression of the energy, by Lorentz transform it’s easy to get the quantum expression of momentum:

\[ A^{\nu*} \partial A_\nu + cc. \propto \sum mu \]

The observed mass in mass-center frame is

\[ M = \int dVT_{00} \]

(15.1)

M = ε

It’s obtained by moving the frame and then checking the energy.

The physicals have operators as the following

\[ < \partial_\nu A^\nu | \partial_\mu A_\mu > \text{ mechanical energy (it’s conserved)} \]

\[ < \nabla A^\nu | \nabla A_\nu > \text{ EM energy or analytic kinetic energy} \]

\[ < \partial A^\nu | \partial' A_\nu > \text{ analytic static mass} \]

\[ < A^\nu | J_\nu > \text{ interaction potential} \]

Use the equation 2.1 and its mechanical explanations, the partial field \( A_n \) of \( n \) independent particles decaying to stable state

\[ F = < A_n | \partial \cdot \partial' A_{\nu n} > = n\Gamma e^{-\Gamma t} = < A_n | iA^{\nu*}_n \partial_{\mu} A_{\nu n} / 2 + cc. > \]
For some number \( n \) and charge \( Q \)

\[
(15.2) \quad 1 = \int_0^\infty dt < A_1^\nu | \partial \cdot \partial' | A_{\nu 1} > = \frac{Q}{\sigma} \int_0^\infty dt < A_1^\nu | i A_1^{\nu *} \partial_\mu A_{\nu 1} / 2 + \text{cc.} >, Q = 1
\]

\[
1 = \int_0^\infty dt < A_n^\nu | \partial \cdot \partial' | A_{\nu n} > = \int_0^\infty dt < A_n^\nu | i A_n^{\nu *} \partial_\mu A_{\nu n} / 2 + \text{cc.} >, \sigma = 1
\]

then

\[
1 = \left( \int_0^\infty dt < A_n^\nu | \partial \cdot \partial' | A_{\nu n} > \right)^3 = \left( \int_0^\infty dt < A_1^\nu | i A_1^{\nu *} \partial_\mu A_{\nu 1} / 2 + \text{cc.} > \right)^2
\]

\[
1 = n^3 \left( \int_0^\infty dt < A_n^\nu | \partial \cdot \partial' | A_{\nu n} > \right)^3 = n^2 \left( \int_0^\infty dt < A_n^\nu | i A_n^{\nu *} \partial_\mu A_{\nu n} / 2 + \text{cc.} > \right)^2
\]

\[
\left( \int_0^\infty dt < A_1^\nu | \partial \cdot \partial' | A_{\nu 1} > \right)^3 = \left( \frac{Q}{\sigma} \int_0^\infty dt < A_1^\nu | i A_1^{\nu *} \partial_\mu A_{\nu 1} / 2 + \text{cc.} > \right)^2
\]

\[
\frac{Q}{\sigma} = n^{-1/2}
\]

Substitute it into the equation 15.2 to find

\[
n = 1
\]

hence

\[
(15.3) \quad 1 = \int_0^\infty dt < A_1^\nu | \partial \cdot \partial' | A_{\nu} >
\]

It’s the normalization of one decaying particle, and it leads to the result between decay life and EM emission (also an interaction potential):

\[
C = 1
\]

The distribution shape of decay can be explain as

\[
e^{-\Gamma t/2} e_x * \sum_i e_i = E_x * \sum_i e_i * e^{-\Gamma t/2 - i k_x t}, 0 < t < \Delta
\]

is the real wave of the particle \( x \) near the initial time. Expand it in that time span

\[
\approx E_x * \sum_i e_i \cdot \int_{-\infty}^{\infty} dk \frac{Ce^{-ikt}}{k - k_x - i\Gamma/2}
\]

With calculation, we find the emission of each branch wave is the same.

16. Great Unification

The General Theory of Relativity is

\[
(16.1) \quad R_{ij} - \frac{1}{2} R g_{ij} = 8\pi G T_{ij}/c^4
\]

Firstly we redefine the unit second as \( S \) to simplify the equation 16.1

\[
R_{ij} - \frac{1}{2} R g_{ij} = T_{ij}
\]

Then

\[
R_{ij} - \frac{1}{2} R g_{ij} = F_{ik}^* F_{kj} - g_{ij} F_{\mu\nu}^* F^{\mu\nu}/4
\]

We observe that the co-variant curvature is

\[
R_{ij} = F_{ik}^* F_{kj}^* + g_{ij} F_{\mu\nu}^* F^{\mu\nu}/8
\]
17. 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 hypothesis: the current of matter in a system can be devised to analysis the e-charge current.

My description of particles is compatible with QED elementarily, and only contributes to it with theory of consonance state in fact. But my theory isn’t compatible to the theory of quarks. In fact, the electron function is a good promotion for the experimental models of proton and electron 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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