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 of magnetic permeability \( \mu \) is

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

We can define the unit of \( Q \) (charge) as

\[
\epsilon c = \mu c = 1
\]

then

\[
[Q] = \sqrt{\hbar}
\]

\[
[H] = [Q]/[L]^2 = [cD] = [E]
\]

Then

\[
\sqrt{\hbar} \cdot C = (1.0546 \times 10^{-34})^{1/2}
\]

\( C \) 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

\[
\text{Unitive Electrical Charge} : \sigma = \sqrt{\hbar}
\]

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

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

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

\[
(2.1) \quad \partial \cdot \partial' A = iA^{\nu*} \cdot \partial A_\nu/2 + cc. = -J
\]

\[
\partial_\nu \cdot A^\nu = 0
\]

with definition

\[
(A^i) := (V, A), (J^i) = (\rho, J), (J_i) = (\rho, J)
\]

\[
\partial := (\partial_i) := (\partial_t, \partial_{x_1}, \partial_{x_2}, \partial_{x_3})
\]

\[
\partial' := (\partial^i) := (-\partial_t, \partial_{x_1}, \partial_{x_2}, \partial_{x_3})
\]

It’s deduced by using momentum to express e-current in a electron: the mass and charge have the same movement in 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

\[
(2.2) \quad \varepsilon := < \nabla A^\nu, \nabla A_\nu > = < E, E > /2 + < H, H > /2
\]
\begin{equation}
\varepsilon|_\infty = -\langle A^\nu, J_\nu \rangle|_\infty = \langle \rho, V \rangle|_\infty
\end{equation}

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

\[ \hat{P}'B = \hat{P}B \]

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

\[ \hat{P}' \left( \sum_{k \leq n} B_k + B_{n+1} \right) = \hat{P} \sum_{k \leq n} B_k \]

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

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

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

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

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.

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

\[ j_1(0) = 0 \]

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

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

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

and

\[ F^n(x) F^* n'(x) e^{-ict} \star \delta(t - r) / (4 \pi r) = F^n(x) F^* n'(x) e^{-ict} \]

\[ < F^n(x), F^n(x) >= 1 \]
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,
\[ V = NR_1(k_e r)Y_{1,-1}e^{-ik_e t} \]

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 \( e \):
\[
\begin{align*}
e^+_r & : NR_1(k_e r)Y_{1,1} e^{-ik_e t} \\
e^+_l & : NR_1(k_e r)Y_{1,-1} e^{-ik_e t} \\
e^-_r & : NR_1(-k_e r)Y_{1,-1} e^{ik_e t} \\
e^-_l & : NR_1(-k_e r)Y_{1,1} e^{ik_e t}
\end{align*}
\]
Define the symbols:
\[
\begin{align*}
(-e^-_r) & := -e^+_r(-t), (-e^+_r) := -e^-_r(-t) \\
(-e^-_l) & := -e^+_l(-t), (-e^+_l) := -e^-_l(-t)
\end{align*}
\]
r, l is the direction of the spin.

Normalize the electron function with charge and mass, using the equation 2.1
\[
\begin{align*}
< e^\mu | i \partial_t | e^\mu & >= Q_e \\
< \nabla e^\mu | \nabla e^\mu & >= m_e
\end{align*}
\]
Then
\[
\begin{align*}
k_{se} & = m_e/Q_e \\
< e^\mu | e^\mu & >= Q_e
\end{align*}
\]
The magnetic dipole moment of electron is calculated as the first rank of approximation
\[ -r \times \partial \cdot \partial' A/4 + cc. \]
\[ \mu_z = <A_i| - i\partial_q|A_i>/4 + cc. = Qe/2k_e \]

By the discussion in the section 2 the spin is
\[ S_z = \mu_z k_e/e = 1/2 \]

The correction in RRS of the equation 2.1 is
\[ (5.1) \]
\[ An = An_{-1}i\partial(A_i - A_i^*)/2 \ast u \]
\[ = (A_i^*(i\partial_iA_i))((i\partial_i(A_i - A_i^*)/2)^{n-3}((i\partial_i(A_i - A_i^*)/2) \]
\[ u = \delta(t - r)/(4\pi r) \]

The convolution is made in 4-d space. Calculate with the properties of RRS start state \[ A_{r,l}^\pm \] for \[ e_{r,l}^\pm \]
\[ A^+(k_e, \varphi) = A(-k_e, -\varphi) \]
\[ A^-(k_e, \varphi) = A^+(-k_e, \varphi) \]
\[ A_{l}(k_e, \varphi) = A_e(k_e, -\varphi) \]
\[ \partial_t A(k_e, \varphi) = -ik_e A(k_e, \varphi) \]

Generally
\[ \partial_x \cdot \partial_x - \partial_t^2 = \partial_x' \cdot \partial_x' \]
\[ (x', t') := (x, t - r) \]

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
\[ e \ast u = e \]
\[ <e^\nu|\partial \cdot \partial'|e_\nu>=0 \]
\[ \partial_\nu \cdot J_\nu^e = 0 \]
\[ \partial_\nu \cdot e^\nu = 0 \]

These are Lorentz gauge and current constraint.

We have with the discussion of the section 7:
\[ <\nabla(e^+_r)^\nu, \nabla(-e^+_r)^\nu>=0 \]
\[ <\nabla(e^+_r)^\nu, \nabla(-e^-_r)^\nu>=0 \]
\[ <\nabla(e^-_r)^\nu, \nabla(-e^-_l)^\nu>=0 \]

The function of \[ e_{r,l}^+ \] is decoupled with \[ e_{r,l}^+ \]
\[ 2 <\nabla(e^+_r)^\nu, \nabla(e^+_l)^\nu>=0 \]

The increment of field energy \[ \varepsilon \] on the coupling of \[ e_{r,l}^+, e_{r,l}^- \] mainly between \[ A_2 \] is
\[ \varepsilon_e = 2 <\nabla(e^+_r)^\nu, \nabla(e^-_r)^\nu> \approx -2e^3/m_e = -\frac{1}{1.66 \times 10^{-16} s} \]
Use the condition 2.2. This value of increments on the coupling of electrons are
\[
\begin{array}{cccccccc}
\varepsilon_x & e^+_r & e^-_r & e^+_l & e^-_l \\
\varepsilon^+_r & + & - & 0 & 0 \\
\varepsilon^-_r & - & + & 0 & 0 \\
e^+_l & 0 & 0 & + & - \\
e^-_l & 0 & 0 & - & + \\
\end{array}
\]

The increment of field energy \( \varepsilon \) on the coupling of \( e^+_r, e^-_l \) mainly between \( A_4 \) is
\[
\varepsilon_x = 2 < \nabla(e^+_r)^\nu, \nabla(e^-_l) > \approx -\frac{1}{2} \frac{e^7}{\sigma} m_e = -\frac{1}{1.09 \times 10^{-8}s}
\]
Other parts are counteracted, including the degree 8. This value of increments on the coupling of electrons are
\[
\begin{array}{cccccccc}
\varepsilon_x & e^+_r & e^-_r & e^+_l & e^-_l \\
\varepsilon^+_r & + & 0 & 0 & - \\
\varepsilon^-_r & 0 & + & - & 0 \\
e^+_l & 0 & - & + & 0 \\
e^-_l & - & 0 & 0 & + \\
\end{array}
\]

6. Propagation and Movement

The propagation:
\[
A := f \ast \sum_i e_i,
\]
\[
f \ast e := \int d^3y f(y) e(x - y)
\]
The following are stable propagation:

\begin{itemize}
  \item particle \quad electron \quad photon \quad neutrino
  \item notation \quad e^+_r \quad \gamma_r \quad \nu_r
  \item structure \quad e^+_r \quad (e^+_r + e^-_r) \quad (e^+_r + e^-_l)
\end{itemize}

By the condition of 2.2, 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
\[
A = \sum c e_x \ast n_c e_c
\]
(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) \[
\partial \cdot \partial^i A_0 = A^\nu i \partial_\nu A_\nu/2 + cc. = Q_x + Q_c, t = 0
\]
The magnetic part is irrelevant while existing (reference to the condition 2.3). For the light decay the self-effect
\[
Q_{sc} := (e_x \ast n_c e_c)^\mu \ast i \partial_\mu (e_x \ast n_c e_c)_{\mu}/2 + cc. = \partial \cdot \partial^i A_0/2 + cc.
\]
\( Q_s = \sum_c Q_{sc} \)

the crossing effects

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

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

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

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

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 function of space, so that

the interaction including \( 2 \langle Q_s, Q_c \rangle \) 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)

\[
< A^\nu | i\partial_t | A_\nu > = Q_x
\]

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

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

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

\[
\mu_l^- : e_\mu * (e_r^- - e_r^+ - e_l^-)
\]

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 \( \mu_B k_e/k_\mu \).

The main channel of decay

\[ \mu_l^- \rightarrow e_r^- - \nu_r, \quad e_r^- \rightarrow -e_r^- + \nu_l \]

with balance formula

\[
e_\mu * e_r^- + \delta^{1/2}(x + v_2 t) * \nu_r
\]

\[ \rightarrow \delta^{1/2} (x - v_1 t) * e_r^- + e_\mu (-t) * \nu_r \]
Reference to the discussion of the section 6 to find the main EM emission is
\[ \frac{\varepsilon_x m_e}{k_{\mu}} = -\frac{1}{2.18 \times 10^{-6}s} \quad [2.1970 \times 10^{-6}s][1] \]

9. Pion

The core of pion is
\[ \pi^+_l : e^x (\phi) * (e^+_r \pm e^+_l) + e^x (-\phi) * e^-_l \]
It’s approximately with mass \(3 \times 64m_e\) [4.2][1], spin \(S_e\) and MDM \(\mu_B k_e / k_{\pi^+}\).

Decay Channels:
\[ \pi^+_l \rightarrow e^+_l + \nu_r, \quad e^-_l \rightarrow -e^+_l + \nu_l \]
The mean life approximately is
\[ -\varepsilon_x / 2 = \frac{1}{2.2 \times 10^{-8}s} \quad [(2.603 \times 10^{-8}s)][1] \]

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
\[ -2\varepsilon_e = \frac{1}{8.3 \times 10^{-17}s} \quad [8.4 \times 10^{-17}s][1] \]
The following particle is similar to \(\pi^0\)
\[ (e^x (-\phi) * (ne^+_r - ne^-_l) + e^x * (e^+_r + e^+_l)), \]
\[ e^x (-\phi) * (-ne^-_r + ne^+_l) + e^x * (e^-_r + e^-_l)) \]

11. Tauon

The core of tauon maybe
\[ \tau^-_r : e^-_r (-\phi) * (ne^+_r - ne^-_l) + e^-_r * (e^-_r - e^-_l - e^+_l) \]
Its mass approximately \(53 \times 64m_e\) [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
\[ e^-_r - e^-_l - e^+_l \rightarrow e^-_r - \gamma_r \]
\[ e^-_r - \delta^{1/2}(x + v_2 t) * \gamma_l \rightarrow \delta^{1/2}(x - v_1 t) * e^-_r + e^-_r (-t) * \gamma_l \]
The main EM emission is
\[ \frac{\varepsilon_x m_e}{k_{\tau}} = -\frac{1}{5.5 \times 10^{-13}s} \quad [2.91 \times 10^{-13}s; BR. 0.17][1] \]
Perhaps, it’s a mixture with distinct coefficients \(n\). The following particle is similar to \(\tau\)
\[ e^x (-\phi) * (-ne^+_r - e^+_l - e^-_l + e^+_l) + e^x * (ne^-_l - e^-_r - e^+_r - e^-_l) \]
12. Proton

The core of proton may be like

\[ p_r^- : e_p \ast (-4e_r^+ - 3e_r^- - 2e_l^-) \]

The mass is \( 29 \times 64m_e \) [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 an electron and a neutrino,

\[ n = (p_r^+, -\nu_l, e_l^-) \]

Neutrino circles around proton with

\[ m_\nu r^2 = 1 \]

The interaction is between their (proton and neutrino) magnetic fields of \( A_2 \) (gross current)

\[ m_\nu \omega^2 r = \frac{1}{4\pi} \cdot 3 \cdot 2 \cdot e_e^2 k_e / (m_{pr^2}) \]

\[ m_\nu = e_e^7 \sigma_m e / 2 \]

The EM energy emitted by neutrino is approximately

\[ \frac{1}{2} \cdot \left( \frac{6}{4\pi} \right)^2 e_\sigma^2 \omega r^2 \frac{m_e^3}{(m_{pr^2}e_e^2)} = \frac{1}{673}s \]

14. Mesons

We can define kinds of energy decreases of decay

<table>
<thead>
<tr>
<th>interaction</th>
<th>EM side</th>
<th>weak side</th>
<th>strong</th>
</tr>
</thead>
<tbody>
<tr>
<td>abbreviation</td>
<td>( L )</td>
<td>( LS )</td>
<td>( W )</td>
</tr>
<tr>
<td>emission unit</td>
<td>( -e_e )</td>
<td>( -\varepsilon m_e /</td>
<td>k_x</td>
</tr>
</tbody>
</table>

We analyze the mesons [1] as the following

<table>
<thead>
<tr>
<th>name</th>
<th>mass(( MeV ))</th>
<th>emission</th>
<th>type</th>
<th>ratio</th>
<th>construction</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \eta )</td>
<td>547</td>
<td>1.3keV</td>
<td>( L )</td>
<td>–</td>
<td>( \pi^0 ) – class, perhaps</td>
</tr>
<tr>
<td>( K^\pm )</td>
<td>493</td>
<td>( 1.24 \times 10^{-8}s )</td>
<td>( W )</td>
<td>0.88</td>
<td>( e_x(\varphi) \ast (ne_l^+ - e_l^- + e_l^+) )</td>
</tr>
<tr>
<td>( K_0 )</td>
<td>–</td>
<td>( 5 \times 10^{-8}s )</td>
<td>–</td>
<td>–</td>
<td>unclear</td>
</tr>
<tr>
<td>( K_L^0 )</td>
<td>–</td>
<td>( 5 \times 10^{-8}s )</td>
<td>–</td>
<td>–</td>
<td>unclear</td>
</tr>
<tr>
<td>( D^0 )</td>
<td>1865</td>
<td>( 4100 \times 10^{-16}s )</td>
<td>( LS )</td>
<td>1.5</td>
<td>( (n'e_l^+ + n'e_l^- - e_l^+ - e_l^-) )</td>
</tr>
<tr>
<td>( B^0 )</td>
<td>5279</td>
<td>( 1.52 \times 10^{-12}s )</td>
<td>( LS )</td>
<td>1</td>
<td>( (n'e_l^+ - n'e_l^- - e_l^+ - e_l^-) )</td>
</tr>
<tr>
<td>( D_5^+ )</td>
<td>1968</td>
<td>( 5000 \times 10^{-16}s )</td>
<td>( LS )</td>
<td>1.3</td>
<td>( \tau - class )</td>
</tr>
<tr>
<td>( D_5^- )</td>
<td>1869</td>
<td>( 10400 \times 10^{-16}s )</td>
<td>( LS )</td>
<td>0.6</td>
<td>( \tau - class )</td>
</tr>
<tr>
<td>( B_5^+ )</td>
<td>5279</td>
<td>( 1.6 \times 10^{-12}s )</td>
<td>( LS )</td>
<td>1</td>
<td>( \tau - class )</td>
</tr>
<tr>
<td>( \Upsilon )</td>
<td>9460</td>
<td>54keV</td>
<td>–</td>
<td>–</td>
<td>unclear</td>
</tr>
<tr>
<td>( J/\varphi )</td>
<td>3096</td>
<td>93keV</td>
<td>–</td>
<td>–</td>
<td>unclear</td>
</tr>
<tr>
<td>others</td>
<td>–</td>
<td>–</td>
<td>( S )</td>
<td>–</td>
<td>–</td>
</tr>
</tbody>
</table>
15. Mechanical Quantification

The mechanical 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,

\[ T_{ij} = \sum m u_i u_j, \quad u = \frac{dx}{ds} \]

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

\[ A^\nu \partial A_\nu \propto \sum m u \]

The observed mass in mass-center frame is

\[ M = \int dV T_{00} \]

(15.1)

\[ M = \varepsilon \]

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

The physicals have operators as the following

\[ - < A^\nu | \partial^2 | A_\nu > \] mechanical energy (it’s conserved) \( E \)

\[ - < A^\nu | \nabla^2 | A_\nu > \] EM energy or analytic kinetic energy \( \varepsilon \)

\[ - < A^\nu | \partial^2 - \nabla^2 | A_\nu > \] analytic static mass \( m \)

\[ < A^\nu | J_\nu > \] interaction potential \( F, \Gamma \)

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

\[ F = \langle A_\nu^\nu | \partial \cdot \partial' | A_{\nu n} > = n \Gamma e^{-\Gamma t} = \langle A^\nu_n | i A^\nu_n^{*} \partial_\mu A_{\nu n} / 2 + cc. > \]

For some number \( n \) and charge \( Q \)

(15.2)

\[ 1 = \int_0^\infty dt < A_\nu^\nu | \partial \cdot \partial' | A_{\nu n} > = \frac{Q}{\sigma} \int_0^\infty dt < A^\mu_1 | i A^{\nu*}_1 A_{\mu 1} / 2 + cc. >, Q = 1 \]

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

then

\[ 1 = (\int_0^\infty dt < A^\nu_1 | \partial \cdot \partial' | A_{\nu 1} >)^3 = (\int_0^\infty dt < A^\mu_n | i A^{\nu*}_n \partial_\mu A_{\nu n} / 2 + cc. >)^2 \]

\[ 1 = n^3 (\int_0^\infty dt < A^\nu_1 | \partial \cdot \partial' | A_{\nu 1} >)^3 = n^2 (\int_0^\infty dt < A^\mu_n | i A^{\nu*}_n \partial_\mu A_{\nu n} / 2 + cc. >)^2 \]

\[ (\int_0^\infty dt < A^\nu_1 | \partial \cdot \partial' | A_{\nu 1} >)^3 = (\frac{Q}{\sigma} \int_0^\infty dt < A^\nu_1 | i A^{\nu*}_1 \partial_\mu A_{\nu 1} / 2 + cc. >)^2 \]

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

Substitute it into the equation 15.2 to find

\[ n = 1 \]

hence

(15.3)

\[ 1 = \int_0^\infty dt < A^\nu_1 | \partial \cdot \partial' | A_{\nu 1} > \]
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

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

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

\[ (16.1) \]

\[ R_{ij} - \frac{1}{2} R g_{ij} = 8\pi GT_{ij} / c^4 \]

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.

Except electron function my description of particles in fact is compatible with
QED elementarily, but my theory isn’t compatible to the theory of quarks. 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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