THEORY OF ELECTRON

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Abstract. The solution with no singularity of wave equation for E-M fields is solved not to Bessel function, which's geometrical size is little enough to explain all effects in matter's structure: strong, weak effect or even other new ones. The mathematic calculation leaded by quantum theory reveals the weak or strong decay and static properties of elementary particles, all coincide with experimental data, and a covariant equation comprising bent space is proposed to explain mass.

Contents

1. Unit Dimension of *sch*

A rebuilding of units and physical dimensions is needed. Time s is fundamental. The velocity of light is set to 1

$$Velocity : c = 1$$

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Key words and phrases. Maxwell equations, Quantization of charge, EDMN, Strong effect, Weak effect, Charge conservation, Mass of particle.

Hence the dimension of length is

$$L : c(s)$$

The $\hbar$ is set to 1

$$Energy : \hbar(s^{-1})$$

In Maxwell equations the following is set

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

One can have

$$\epsilon : \frac{Q^2}{\varepsilon L};$$

$$\mu : \frac{\varepsilon L}{c^2 Q^2}$$

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

It's very strange that the charge is analyzed as space and mass. Charge Q is then defined as Q/σ here, without unit.

$$\sigma = 1.03 \times 10^{-17} C = 64e, e_{/\sigma} = e/\sigma = 1/64 = 1.56 \times 10^{-2}$$

$$H : Q/(LT) : \sqrt{\hbar}/c(s^{-2})$$

$$E : \varepsilon/(LQ) : \sqrt{\hbar}/c(s^{-2})$$

If $\hbar, c$ is taken as a number instead of unit, then all physical units is described as the powers of the second: s^n.

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 to set the unit electron charge and mass $Q_e = 1, k_e = 1/S$.

2. Quantization

All discussion base on a explanation of quantization, or *real* probability explanation for quantum theory, which bases on a Transfer Probability Matrix (TPM)

$$P_i(x)M = P_f(x)$$

As a fact, that a particle appears in a point at rate 1 is independent with appearing at anther point at rate 1. There still another pairs of independent states

$$S_1 = e^{ipx}, S_2 = e^{ip'x}$$

because

$$< s_1, s_2 >= \int dV s_1 s_2^* = N\delta(p - p')$$

In fact in the TPM formulation, it's been accepted for granted that the Hermitian inner-product is the measure of the dependence of two states, and it is also implied by the formula

$$P_1 M P_2^*$$

Depending on this view point one can constructs a wave

$$e^{ipx}$$

and gifts it with the momentum explanation p, Then all quantum theory is set up.

3. Self-consistent Electrical-magnetic Fields

The Maxwell equations are

$$\frac{\partial H}{\partial t} + \nabla \times E = 0$$

$$\frac{\partial E}{\partial t} - \nabla \times H + \mathbf{j} = 0$$

it's discussed that plat and straight space.
Try equation the free E-M field

$$A_{i,j}^{;j} - A_{j,i}^{;j} = -iA^* \cdot A_{,i}, Q = 1 \tag{3.1}$$

The equation 3.1 have symmetries

$$CPT, CcT$$

The transfer

$$k_1 e^{ip_1 x} \to k_2 e^{ip_2 x}, \mathbf{p_1^2} = k_1^2, \mathbf{p_2^2} = k_2^2$$

is considered

$$A = C_1(t) k_1 e^{ip_1 x} + C_2(t) k_2 e^{-ip_2 x}$$

It's substituted to the equation 3.1 and integrated in space

$$(C_1 C_1^*)_t k_1 - (C_2 C_2^*)_t k_2 = -(C_1 C_1^*) k_1^2 - C_2 C_2^* k_2^2$$

$$C_1 C_2^* =^{\cdot} e^{-(k_1 - k_2)t}$$

This means the decay of exponent time.

4. Stable Particle

All particles are elementarily E-M fields is presumed. It's trying to find stable solution of the Maxwell equations *in complex domain*. One can write down the solution initially and correct it by re-substitution. Here is the initial state

$$V = V_1 e^{ikt}, A_1 = V$$

The static fields E_0, H_0

$$\nabla \cdot E_0 = -A_1^* \cdot \partial_t A_1 = \rho_0 \tag{4.1}$$

$$\nabla \times H_0 = -iA_1^* \cdot \nabla A_1 = J_0$$

In the first round of substitution

$$J_1 = -i(A_0^* \cdot \partial A_1) - i(\partial A_0^* \cdot A_1)$$

5. Radium Function

Firstly

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

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

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

Its solution is

$$f = R\Theta\Phi = R_l Y_{lm}$$
$$\Theta = P_l^m(\cos\theta), \Phi = \cos(\alpha + m\phi)$$
$$R_l = N\eta_l(kr), \eta_l(r) = r^l \int_0^\infty \frac{(1-\lambda)^l}{(1+\lambda)^{l+2}}\cos(\lambda r)d\lambda$$
$$\int_0^\infty dr \cdot r^2 R^2 = 1$$

R is solved like

$$(r^2 R_r)_r = -k^2 r^2 R + l(l+1)R, l \geq 0$$
$$R \to rR'$$
$$(r^2 R')_{rr} = -k^2 r^2 R' + l(l+1)R'$$
$$R' \to r^{l-1}R'$$
$$rR'_r r + 2(l+1)R'_r + k^2 rR' = 0$$
$$r \to r/k$$
$$(s^2 F)' + 2(l+1)F + F' = 0, F = F(R')$$

$F()$ is the Fourier transform

$$R' = \int_0^\infty \frac{(1-\lambda)^l}{(1+\lambda)^{l+2}}\cos(\lambda r)d\lambda$$

The function R' has zero derivative at $r = 0$ and is zero as $r \to \infty$.

6. Solution

The derivatives of the function of electron has a strange breaking point in coordinate origin hence without normal convenience of Fourier transform. The following are some proximation of the first rank. The solution of $l = 1, m = 1, Q = e_{/\sigma}$ is calculated or tested for electron.

$$A_1 = NR_1(kr)Y_{1,1},$$

The curve of R_1 is like the one in the figure 1.

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

$$\mu_z = < A| - i\partial_\phi |A > /2$$
$$= 1/2, Q_e = 1, k_e = 1$$
$$\frac{Q}{2k} = \mu_B$$

The power of unit of charge is not equal, but it's valid for unit $Q = e$. In general calculation, we always set charge of electron is 1, and then change the unit of charge to normal.

The spin is calculated. After being balance charge and mass it's 1/2

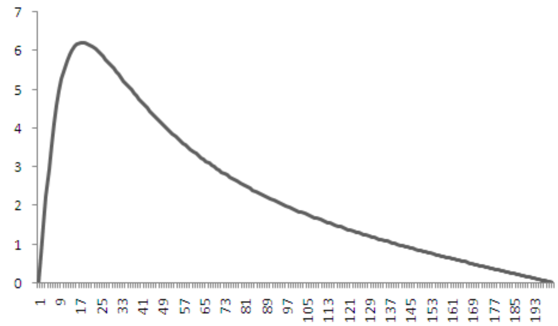

Figure 1. the shape of radium function R_1 by DFT

7. Electrons and Their Symmetries

Some states of electrical field A are defined as the core of the electron

$$e_r^+ : NR_1(kr)Y_{1,1}e^{ikt},$$

$$e_r^- : NR_1(kr)Y_{1,1}e^{-ikt}, (CPT)$$

$$e_l^+ = NR_{-z}(e_r^+) : R_1(kr)Y_{1,-1}e^{ikt}$$

$$e_l^- = NR_{-z}(e_l^-) : R_1(kr)Y_{1,-1}e^{-ikt}$$

$$R_{-z} : Rotation : z \to -z, x \to x, y \to -y$$

We use these symbols e-s to express the complete field (E, M)

$$< R_1(kr)Y|R_1(kr)Y >= 1$$

By charge normalization

$$\rho = A^* \cdot A_t, Q_e = 1$$

we get

$$N = \sqrt{1/(ke_{/\sigma})}$$

On the physic F, $\partial \cdot A = 0$

$$< \partial A|\partial A > /2 =< \partial A|\partial \cdot \partial A > /2 = k_e$$

if

$$\partial A^* A < C/r^{2+\alpha}, \alpha > 0$$

1)Energy of static E-field crossing

$$\varepsilon_e = -k_e \int dV DV' \rho(\mathbf{r})\rho(\mathbf{r'})/|4\pi(\mathbf{r} - \mathbf{r'})|$$

$$\doteq -e_{/\sigma}k_e \int dV \rho(\mathbf{r})/r = -\frac{1}{4.876 \times 10^{-16}s}$$

2)Energy of the static M-field crossing

$$\varepsilon_m = \varepsilon_e$$

because

$$\int dV_1 dV_2 \cdot \qquad A(\mathbf{r_1}) \cdot \partial_1^\mu A^*(\mathbf{r_1}) A^*(\mathbf{r_2} - \mathbf{r_1}) \cdot \partial_{\mu 1} A(\mathbf{r_2} - \mathbf{r_1})/r_2^2$$

$$= A(\mathbf{r_1})A^*(\mathbf{r_2}-\mathbf{r_1})\cdot(\partial_{\mu 1}\partial_1^{\mu}(A^*(\mathbf{r_1})A(\mathbf{r_2}-\mathbf{r_1})) - A^*(\mathbf{r_1})\partial_{\mu 1}\partial_1^{\mu}A(\mathbf{r_2}-\mathbf{r_1})$$
$$-A(\mathbf{r_2}-\mathbf{r_1})\partial_{\mu 1}\partial_1^{\mu}A^*(\mathbf{r_1}))/(2r_2^2)$$
$$= A(\mathbf{r_1})A^*(\mathbf{r})\cdot\partial_{\mu 1}\partial_1^{\mu}(A^*(\mathbf{r_1})A(\mathbf{r}))/(2(\mathbf{r}-\mathbf{r_1})^2) = 0$$

The value of a crossing term generated by static fields between electrons are

$n(\cdot 2\varepsilon_e)$	e_r^+	e_r^-	e_l^+	e_l^-
e_r^+	$+$	$-$	0	0
e_r^-	$-$	$+$	0	0
e_l^+	0	0	$+$	$-$
e_l^-	0	0	$-$	$+$

As two electrons fold their crossing term generated by dynamic correction (of electron function) is calculated like

$$E_{2,t} = -i\partial^b(A_0^a\cdot A_1^{*a})\cdot A_1^b, Q_e = 1$$

The second level correction an increment is E_2

$$\varepsilon_x \doteq -k_e\int dV\cdot A_1^*\cdot A_{1,t}\cdot A_1\cdot A_1^*, Q_e = 1$$
$$= -\frac{1}{4.50\times 10^{-8}s}$$

The value of a crossing term generated by this correction between electrons are

$n(\cdot 2\varepsilon_x)$	e_r^+	e_r^-	e_l^+	e_l^-
e_r^+	$-$	0	0	$-$
e_r^-	0	$-$	$-$	0
e_l^+	0	$-$	$-$	0
e_l^-	$-$	0	0	$-$

The first correction would affect the static energy ε_e, it's

$$\varepsilon_{ex} = -\frac{2k_eQ_e\varepsilon_x}{\varepsilon_e} = -\frac{1}{4.46\times 10^{-6}s}$$

This effect also exists between two electrons in stable particle.

8. Mechanic Feature

As two electrons meet and effect each other, their phases of the vibrations are also key, but the effect of phase is not observed. Considering two electrons with the same phase start from the same place and meet at the other one, the relative theory give a result that their phase are the same as they meet. If one defines unitary and orthogonal frame field P_i

$$DP_i = 0, P_i(O)\cdot P_j(O) = 0, |P_i| = 1$$

And the frame

$$g_{,i}^i dx_i = P_i$$

and the free and orthogonal harmonic waves

$$e^{i\sum_i p_i g^i}$$

In fact *under this base P_i all differential is good as covariant and can be operated like in straight and flat space.* More over we have the covariant spectrum indexed by p.

One can guess that all the electrons in this cosmos are generated in the same place and the same time.

If the equation that connects space and E-M fields is written down for cosmos of electrons, it's the following:

$$R_{ij} - \frac{1}{2}Rg_{ij} = 8\pi GT_{ij} \tag{8.1}$$

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

All tensors are expressed in base P_i. This equation give mass because the space is decided by E-M fields instantly.

The Einstein's Theory of space and gravity is compatible with this theory and explains the energy of space and the looking mass k (generated by moving coordinate system) of particle.

In the group of electrons the fields is expressed by probabilities

$$F \to F = \sum_i P_i \partial e_i, \partial \cdot A = 0$$

The fields is express by F in linear form because F describes the quanta of energy.

$$F = f * \sum_i \partial e_i$$

It's called *propagation*. It meets the equation 3.1. The initial equation is

$$\partial^\mu \partial_\mu F = 0$$

It's solved as

$$-\partial^\mu \partial_\mu f = k_e^2 f + f_t k_e Q/(nQ_e)$$

Q is the gross charge, n is the number of electrons. This is the base of the mechanical analysis of system of electrons

$$-\partial^\mu \partial_\mu f = k_e^2 f$$

When the mechanical physical is discussed, the field F must be normalized. To say it in details It's

$$< F|F > /4 =< CA| - i\partial_t|CA > /2,$$

C is normalization factor.

We can use mechanical quantization to this mechanical wave

$$\hat{p} = -i\partial$$

The spin of electron is calculated as

$$\varepsilon =< \partial A|\partial A > /2 = k_e, Q_e = 1, \partial \cdot A = 0$$

$$< \partial A|\partial_t|\partial A >= 2k_e^2, Q_e = 1, \partial \cdot A = 0$$

Its spin is

$$C^2 < \partial A| - i\partial_\phi|\partial A > /2 = 1/2$$

9. Propagation and Movement

Define symbols

$$e_{xr} := N \cdot R_1(k_x r) Y(1,1) e^{iK_x t}, K_x^2 = k_x^2 + k_e^2$$

$$e_{xx} := (e_{xl} + e_{xr})/\sqrt{2}$$

The following are also (stable) classical propagations.

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

We have results by mathematic

$$\varsigma_{k,l,m}(x) := R_l(kr) Y_{l,m},$$

meets

Theorem 9.1. *C_A is a global area with its center in A and its diameter is r_A*

$$\lim_{r_o = r_y \to 0} \int_{I - \sum C_i} dV \varsigma_{k,l,m}(x) \varsigma^*_{k,l,m}(x - y) = 0, y \neq O$$

$$\int dV \varsigma_{k,l,m}(x) \varsigma_{k',l',m'}(x) = 0, k \neq k' \text{ or } l \neq l' \text{ or } m \neq m'$$

Proof. Use the limit

$$\lim_{k' \to k} \lim_{r_o = r_y \to 0} (\int_{I - \sum C_i} dV \varsigma_{k,l,m}(x) - \varsigma_{k',l,m}(x - y))$$

□

Theorem 9.2. *if $e^{i\mathbf{pr}}, \varsigma_{k,l,m}$ is normalized to 1,*

$$e^{i\mathbf{pr}} * \varsigma_{k,l,m} = e^{i\mathbf{pr}}$$

Proof.

$$e^{i\mathbf{pr}} * \varsigma_{k,l,m} = f(p) e^{i\mathbf{pr}}$$

$$\nabla_p (e^{i\mathbf{pr}} * \varsigma_{k,l,m}) = i\mathbf{r} e^{i\mathbf{pr}} * \varsigma_{k,l,m} = i f(p) \mathbf{r} e^{i\mathbf{pr}}$$

$$\nabla_p (e^{i\mathbf{pr}} * \varsigma_{k,l,m}) = i f(p) \mathbf{r} e^{i\mathbf{pr}} + (\nabla_p f(p)) e^{i\mathbf{pr}}$$

□

The figure 2 is the shape of distribution of momenta of electron function e_x.

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

$$e^{i\mathbf{pr} - ikt} * \delta(\mathbf{r}) * e^+$$

For a coupling electrons system x

$$f * \sum_i \partial e_i$$

the mechanic function f meets

$$\partial^\mu \cdot \partial_\mu f = -k_e^2 f$$

hence

$$f = R_1(k_x r) Y e^{iK_x t}, K_x^2 = k_x^2 + k_e^2$$

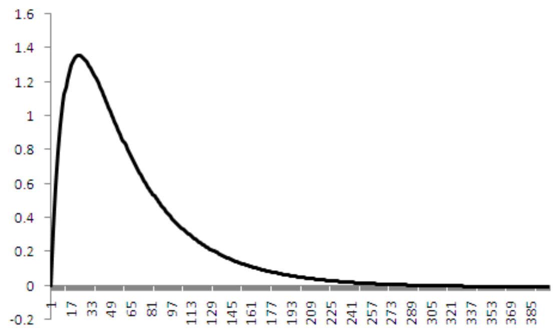

FIGURE 2. the shape of distribution of momenta of electron fields in one direction, calculated through spherical Bessel functions

The static MDM (magnetic dipole moment) for wave $f * e$

$$J = \int dx \cdot f * \partial e \cdot (f * (-i\partial)e)$$

$$\doteq \frac{1}{K} \cdot f * \partial e \cdot (f * (-i\partial)e)$$

$$\mu = \frac{1}{2Kk_e} < f * e| - i\partial_\phi f * e > + < f * ef * | - i\partial_\phi e >$$

10. Antiparticle and Radiation

The radiation of photon is derive from this reaction

$$e^{ip_1x} * e_r^+ + e^{ip_2x} * e_r^- \to e^{ip_3x} * \gamma_r$$

The emission (of E-M fields), that's the reason to react forward but is not the all energy variation related, is

$$4\varepsilon_e = \frac{1}{1.219 \times 10^{-16}s}$$

this energy marks the intension of electromagnet effect.

The wave of photon

$$e^{i\mathbf{pr}+ikt} * (e_r^+ + e_r^-)$$

has a mechanic field that describes a movement of a mass

$$k_e - k_e = 0$$

The equivalent reaction is like

$$e^{ip_1x} * e_r^+ \to e^{-ip_2x} * \overline{e_r^-} + e^{ip_3x} * \gamma_r$$

$\overline{e_l^+}$ is just the equivalent for the equilibrium after the particle e_r^- is shifted to the other side of the reaction. In fact the shift is a transform of conjugation

$$\overline{e_r^-} = (e_r^-)^* \approx -e_l^+$$

The normal matter is called positive matter and this kind above is called antiparticle conventionally. (this term is different from the one derived by CPT)

Antimatter happens by reversing the world's line, with the same map of the event.

The radiation of neutrino depends the reaction

$$e_r^+ + e_l^- \to \nu_r$$

This reaction is with emission of an energy

$$2\varepsilon_x = \frac{1}{2.25 \times 10^{-8} s}$$

this energy marks the intension of weak effect (of this kind). As a testifying one can have

$$4\varepsilon_e : 2\varepsilon_x = 8.46 \times 10^7$$

This is the difference of the intension between electromagnetic effect and weak effect.

The antiparticle meets

$$F(A^*) = 0$$

F is the formula 3.1. The mixing of antiparticle field A and particle field B have the law

$$F(A^* + P) = 0 \tag{10.1}$$

A is

$$A_1 \to^{it} A_2$$

Get the conjugation

$$A_2^* \to^{it} A_1^*$$

Another explanation is

$$\sum e^{ipr} e^{ikt}, A_i \to A_f$$

It has conjugation

$$\sum e^{-ipr} e^{ik(-t)}, A_f^* \to A_i^*$$

The formula 10.1 is reasonable expansion of the law for real number fields to that of complex fields $A + P$.

11. Conservation Law and Balance Formula

No matter in E-M fields (the elementary) 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 anti-matter is shifted to the other side of the reaction formula. Balance formula is suitable for the analysis of the energy transition of E-M fields in the reaction. The *invariance of electron itself* in reaction is also a conservation law according to its balance formula.

12. Muon

For convenience the electron function such as e_r^+ etc. are discribed by F.

$$f_i * e = f_i * \partial A$$

μ^+ is composed of

$$\mu_r^+ : e_{\mu x} * (e_r^+ - \nu_l)$$

μ is with mass $3k_e/e_{/\sigma} = 3 \times 64 k_e$, spin 1/2, MDM $\mu_B k_e/k_\mu$.

The main channel of decay

$$\mu_r^+ \to -e_r^+ + \nu_r - \nu_l$$

is with balance formula

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

From the theorem 9.2 we can find the only gap of crossing energy between the two sides is in the first static energy correction

$$2\varepsilon_{ex} = \frac{1}{2.23 \times 10^{-6} s} \quad [2.1970 \times 10^{-6} s][1]$$

The data in square bracket is experimental data of the full width.

13. Pion Positive

Pion positive is

$$\pi_r^+ : e_{\pi y} * (-\nu_l + e_r^+) + e_{\pi x} * (\nu_r)$$

It's with mass $3 - 5 \times 64k_e$, spin 1/2 and MDM $\mu_B k_e / k_{\pi^+}$.

Decay Channels:

$$\pi^+ \to \mu_r^+ + \nu_r$$

It's with balance formula

$$e_{\pi x} * \nu_r + e^{-ip_1 x} * e_{\mu x}^* * \nu_l + e_{\pi y} * e_r^+ \to e_{\pi y}^* * \nu_l + e^{ip_2 x} * \nu_r + e^{ip_1 x} * e_{\mu x} * e_r^+$$

Wave e^{ipx} is subjected by $\delta(x)$. The emission of energy is weak interaction in strong interaction term

$$2\varepsilon_x = \frac{1}{2.25 \times 10^{-8} s} \quad [(2.603 \times 10^{-8} s][1]$$

The referenced data is the full width.

14. Pion Neutral

Pion neutral is atom-like particle

$$\pi^0 : f^+ * \nu_r + f^- * \nu_l, < f^+, f^- >= 0$$

It has mass $4k_e$, zero spin and MDM. Its decay modes are

1)

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

The loss of energy is from static field

$$8\varepsilon_e = \frac{1}{6.1 \times 10^{-17} s} \quad [8.4 \times 10^{-17} s][1]$$

15. tau

τ maybe that

$$\tau^- : 5e_r^+ - 5e_l^- + e_r^-$$

has decay mode

$$\tau^- \to -\mu_r^- + \nu_l - \nu_r$$

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

The loss of energy is the difference of the static fields

$$e_{\tau x} * 5e_r^+ + e_{\tau x} * e_r^- \leftrightarrow e_{\tau x}^* * 5e_r^+ + e^{ip_3 x} * \nu_l$$

$$e_{\tau x} * (5e_r^+ + e_r^-) \leftrightarrow (5e_r^+ + e_r^-)$$

Calculating the difference between $X = \tau$ and $X = \delta$ we can find the emission of static E-M fields

$$\Gamma_1 \doteq \frac{5\varepsilon_e}{k_\tau / k_e}$$

$$= \frac{1}{1.7 \times 10^{-13} s} \quad [2.9 \times 10^{-13} s, BR.0.17][1]$$

From the shape of momentum distribution I can find many experimental data has a shift of initial velocity, I judge many resonance states is evaluated with larger mass than the real. With zero initial velocity the momentum distribution is like the figure 2.

16. Proton

Proton may be like

$$p^+ : e_{px} * (-4e_r^+ + e_l^- - e_l^+ + 3e_r^-)$$

The mass is $27 \times 64 k_e$ 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 because even if decay to the fine small the emission is negative.

17. Magic Numbers

We define an unit: Mass-number Unite

$$m := m_e \sigma / e$$

And we presume the Mass-number (in fact being theoretical electron number) in a particle for the four kinds of electrons are

$$e_r^+ : i, e_r^- : j, e_l^+ : k, e_l^- : l$$

The the designation of a particle is an equation

$$\begin{cases} i^2 + j^2 + k^2 + l^2 = M_{/m} \\ i - j + k - l = Q \\ \pm i \pm j \pm k \pm l = 2S \end{cases}$$

According to Lagrange's four Square theorem, Any integer can be sum of some four square of integers. But after adding the constraints of charge number or spin number the conditions are not so simple as the Lagrange's theorem.

If consider more complicated design like

$$e_r^+ : i' e_r^+ + \bar{i} \overline{e_r^-}, i' - \bar{i} = i$$

The equations for charge, mass and spin are

$$\begin{cases} (i' - \bar{i})^2 + (j' - \bar{j})^2 + (k' - \bar{k})^2 + (l' - \bar{l})^2 = M_{/m} \\ (i' + \bar{i}) - (j' + \bar{j}) + (k' + \bar{k}) - (l' + \bar{l}) = Q \\ (i' - \bar{i}) + (j' - \bar{j}) - (k' - \bar{k}) - (l' - \bar{l}) = 2S \end{cases}$$

18. Collision and Coupling

The key part is to calculate the coupling that's calculated by the cross part in space-time domain for the two beams.

19. Conclusion

The relative theory is applied to electromagnetic wave to give the looking mass of the fields which expresses mass, for example the solved electron function in this article. In my view point the sum-up of the grains of electromagnetic field is a mechanic movement with weaker electromagnetic effect. Fortunately this model will explain all the effects in the known world: strong, weak and electromagnetic effects, and even subclassify them further if not add new ones. In this model the only field is electromagnetic field except space, this is philosophical with the point of that unified world from unique source. The main logics to solve the electron and all depend on a simple fact: the gross momentum in a system is time-invariant, and we can devise the E-M momentum to analysis current.

The energy of matter should happen in this process, the hot matter distilled to protons as got cold with their wave functions dependent each others. the harmony between bent space and electromagnetic fields explain them all.

I found these presumptions on some days of 1994-1995 and soon I grossly testify this theory. year. At that time a few people studied in HUST China knew of it. But in the following teen years I nearly forgot of it except now and several years ago a round of submission of it.

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