

Deep Insight on Matter World by Dairy Recognition with least math words with translation.
<http://777true.net/anyone-can-insight-deepest-matter-world-by-least-Logic&Math-with-easy-translation.pdf>

Author try to show you *supreme insight on matter world(universe)* by ordinal recognition (logic) in dairy life with minimum math knowledge in a page, and with minimum classical dynamic knowledge in a page. Now is unprecedented time of universal deceit (Gorge Orwell), it might supply you some help to fight against "injustice, lie, and hatred".

"minimum math for introduction"

2022/10/10, 12

function $y=f(x)$ is one to one mapping between variables $x \rightarrow y$, *vector* \mathbf{v} is discrete function $\mathbf{v}=\langle v_1, v_2, \dots, v_k, \dots \rangle$. suffix k is x , while $v=y$, both describes "state" as a whole view measurable. *operator* $\mathbf{A}f(x)=g(x)$ acts one to one mapping between function $f(x) \rightarrow g(x)$. it acts state to change. $\mathbf{H} \phi_k = h_k \phi_k$, $\langle k=0, 1, 2, \dots \rangle$, it acts state ϕ_k to yields observed physical quantity h_k . \mathbf{H} is a gauge with scales.

(1) Our recognition on the world is observing (measuring) something by un-conscious our gauge, gauges are various, while observed something is unique and only (\equiv invariant truth).
(2) The most precise recognition without ambiguity overlapping is classified by orthogonal vectors without overlapping, it is common concept both in *AI* and *QM* (Quantum Mechanics). So called Hermite operator $=\mathbf{H}$ with such orthogonal vectors $=\phi_k$ are one-body as pure math result. After all, the operators become **physical variable** in QM such energy & momentum.

(3) Gauge (coordinate) is various (but with conversion rule, such of *meter and feet*), while observed essence of physics must be invariant by the transform (conversion). Constant transform in all space yields fundamental physics frame of special theory of relativity. While space dependent non uniform transform math yields dynamics supreme of all the **interaction** (electromagnetic, weak, strong to gravity) in this universe (**Gauge Invariance**).
*math expression of **Principle Equivalence** between gravity and accelerated coordinate.

(4) A typical gauge is time-space coordinate (t, x) , while observed world must be not empty, or not dead, then we can find something change between $x, x + \Delta x(t, t + \Delta t)$ in QM state. Then so called differential operator $(d/dx; d/dt)$ must be Hermite operator (momentum & energy). The relation x, t and $(d/dx; d/dt)$ is to build so called "**Canonical Quantization=CQ**" the pragmatism QM algorithm <the calculation rule> yields from Schrödinger equation to elementary particle reaction process.

* $[(d/dx)x - x(d/dx)]f(x) \equiv [(d/dx)xf(x) - x(d/dx)f(x)] = [f(x) + x(d/dx)f(x) - x(d/dx)f(x)] = f(x) \rightarrow [(d/dx)x - x(d/dx)] = 1$.
This pure math result is commutation relation (QM operator algorithm: $[qp - pq] = 1$) the origin of CQ.

(5) The supreme science is Logic that discloses way of our recognition on truth (observable realization). Math with natural numbers set is collective of *anything proposition without contradiction (=theorem)*. Thereby a calculation result are the same by anyone, if it is correct.

(6) While politic results in the world are not agreeable by anyone, what is wrong ???

It maybe strong deficit of decisive force to unify the world !!!

① The Minimum Mathematics <One to One Mapping between two Sets=function,operator>

① **Set** is collective of many elements member defined clearly belonging the set.

*natural number set= $\{0, \pm 1, \pm 2, \pm 3, \dots, \pm \infty\}$,

*rational number set= $\{1/1, 1/2, 1/3, \dots, 1/\infty; 2/1, 2/2, 2/3, \dots; 3/1, 3/2, 3/3, 3/4, 3/5, \dots; \dots\}$,

☞ : To tell the truth, $\pm \infty$ is not **observed clearly**, \rightarrow **Gödel Incompleteness Theorem**.

Thereby, rational number? $0=1/\infty$ is also unclear, it causes **miracle of zero** the real number ??.

***real number set**={for an example, those are lengths on gauge, but out of scale lines }

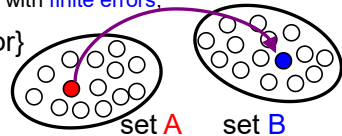
In the actuality, digital counting is nothing error, while analog measuring is always with **finite errors**.

② One to One Mapping between two Sets={function,operator}

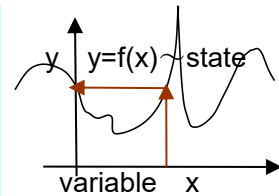
(1) **function**: $z=f(x,y)$, (x,y) is a set of two variable $\{x,y\}$,

then function determine z uniquely by determined x,y ,

vector $v=(v_1, v_2, \dots, v_k, \dots)$ is discrete function $v_k(x=k, \text{dimension suffix})$.



A goods price is a state, a nation's economy **state** needs many statistics number(vector), in describing shape of atom, it needs function of electron density state $\rho(x)$ at position x , a screen needs position & time (t, x) color density functions set of $\{R(x,t), B(x,t), G(x,t)\}$ **a state is described by function**. a function(vector) give a whole view(state) in an extent x -space.



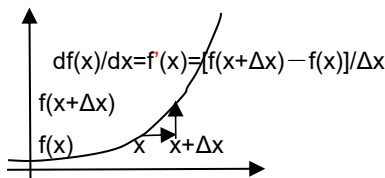
(2) **operator A**: $g_1 = Af_1, g_2 = Af_2, g_3 = Af_3, \dots$,

Those transform original function(vector) to another function uniquely.

$\{f_1 \rightarrow g_1, f_2 \rightarrow g_2, f_3 \rightarrow g_3, \dots\}$, it is also one to one mapping between set.

☞ : $x(t)$ is position function of time t , $v(t) = (d/dt)x(t)$ is velocity by **differential operator**.

$\int dt, v(t) = x(t)$ is position function by **integral operator** on velocity function.



$(d/dx)f(x) = f'(x)$ is **change rate** as for variable x change.
 a straight line increasing is constant change rate.
 $\int dx f(x) = F(x) \rightarrow (d/dx)F(x) = f(x)$.
 integral and differential are reversal with each other.

(3) **Self Adjoint(Hermite) Operator H** the Measuring Gauge in "quantum mechanics".

$H \phi_k = h_k \phi_k, \langle k=0, 1, 2, 3, \dots, \infty \rangle$

eigen value= h_k (real number) \times eigen function ϕ_k

= operator **H acts on eigen function** ϕ_k .

"The eigen equation means that measuring operator

H acts on quantum state = ϕ_k to yield

measured value h_k which is a scale of gauge.

ϕ_k This is a quantum mechanical state list,
 **the most precise description of matter**
 ϕ_2 **state**, that is, no overlapping of ambiguity,
 ϕ_1 and every each is strictly classified by
 ϕ_0 $\{\phi_k : k=0, 1, 2, 3, \dots, \infty\}$,

☞ : such function set $\{\phi_k\}$ **without overlapping** is called **orthogonal vector** in infinitive dimension.

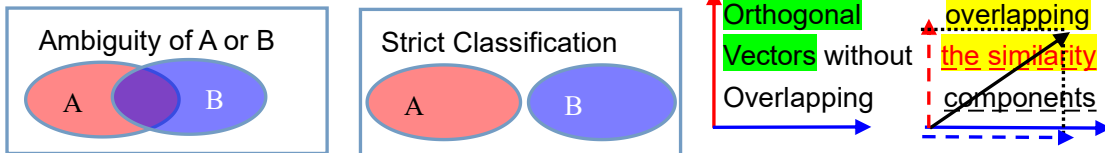
Eigen equation is pure mathematical conclusion, while, in order to build concrete quantum physics, it needs **canonical quantization** ③.

②matter world is understandable by Quantum Observation Logic(QOL),

A recognition is action to discriminate something from others definitely.

Such classified something have mathematical expression.

①(1)The most precise recognition without ambiguity overlapping,



QOT revealed **the most strict description** and is expressed by orthogonal vector described by **orthogonal function space** $\{\phi_k\}$, then **Observation** corresponds to self adjoint(Hermite)operator.

$$H \phi_k = h_k \phi_k, \langle k=0, 1, 2, 3, \dots, \infty \rangle \dots \dots \textcircled{1} \textcircled{2} \textcircled{3}.$$

(2)Multidimensional Vector Representation:State Expression in QM(quantum mechanics).

As was mentioned in **①②③**, the most strict matter science QM is described orthogonal vectors of $\{v_k:k=0, 1, 2, 3, \dots, \infty\}$ in infinitive dimensional vector space(function space).

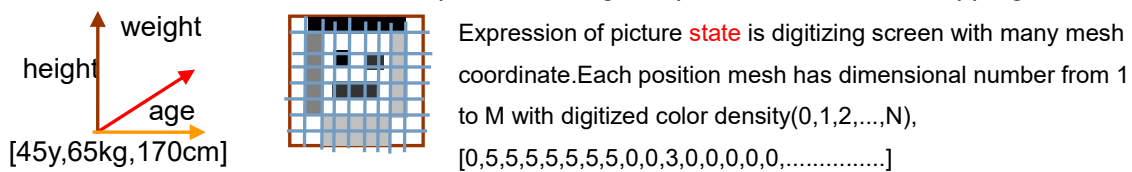
Note it also present **Quantum Physical Variables as an Hermite Operator..①②③**. .

Those operator act as measuring physical variable(observable) on state ϕ .

In order to build concrete quantum physics,it needs **canonical quantization③** with established **classical dynamics concepts**(time,space coordinate,momentum,energy).

②multidimensional vector representation:Pattern Recognition in AI(Artificial Intelligence).

In order to describe someone,list up *the featuring components without overlapping*.



Pattern Recognition is done by measuring vector's **similarity distance** between them.

It is calculated by well known vector algebra<inner product with same length($\mathbf{a} \cdot \mathbf{b}$)>.

$$|\mathbf{a}-\mathbf{b}|=(\mathbf{a} \cdot \mathbf{b}) \equiv a_k b_k \equiv a_1 b_1 + a_2 b_2 + \dots + a_k b_k + \dots, |\mathbf{a}| \equiv \sqrt{(a_k \cdot a_k)} \dots \dots \text{vector length.}$$

☞:Each pictures are adjusted to maximize similarity value by shifting,rotating,and zooming.

☞:Language recognition is also possible by so called **deep learning** to derive a **concept**(standard vectors).

A concept is also a **state** in multidimensional vector space.

*language is series of characters(finite dimension of alphabet,etc),it can be represented by long vector

Summary of ①②

(1)The most precise states on some quantity(h) is list up by no overlapping vectors(ϕ_k)



(2)Such states are measured(observed) by a Hermite operator= H the gauge

(3) H and states(orthogonal vectors)are one body $H \cdot \phi_k = h_k \phi_k$.eigen equation.

③Quantization the Origin<quantization is making classical dynamics into QM>.

In ①②, measurement and the **result expression** was revealed as most strict observation, In ③, the observed something must be not empty in space=x, or dead in time=t, x,t measurement by gauge must yield actually observable something, state in an time and space must be detected **the change with t,x change**., then **differential operator(d/dt ; d/dx)** must be Hermite operator as momentum, energy, This fact is to build QM as vivid dynamics.

In the beginning was established classical dynamics, with it and quantization algorithm at here builds Quantum Mechanics the most precise dynamics. After all, the conclusion is, 4dimensional coordinate $x_\mu=(x_0=ict, x_1, x_2, x_3)$; and momentum $p_\mu=(p_0=iE/c, p_1, p_2, p_3) \rightarrow p_\mu \rightarrow -i\hbar\partial_\mu=(-i\hbar\partial_0, -i\hbar\partial_1, -i\hbar\partial_2, -i\hbar\partial_3)$. These must exist as Hermite operator the observable.

(t, ,x) in order to actually these variable are measurable,
 **canonical conjugate pair variable.**
 (d/dt ; d/dx) also the differential operator must be measurable(physical variable).

Canonical Quantization Algorithm revealing most precise matter world.

①Classical Dynamics(=CD).

The fundamental **concepts in CD**<time,space;energy momentum,..> and **QOT** is heritaged to build quantum physics general.

(1)**All that of any dynamics**(from electromagnetic to quantum gravity the supreme unified dynamics)is **determined only by a Lagrangean function= $\mathcal{L}(q_k(t);q'_k(t))$!**

$\mathcal{L}=T-V= \mathcal{L}(q_k; \dot{q}_k) \rightarrow 0 = \delta \int dt \mathcal{L}(q_k; \dot{q}_k) = 0 \rightarrow 0 = \partial_{q_k} \mathcal{L} - (d/dt)(\partial_{\dot{q}_k} \mathcal{L}) \dots \dots$ Euler dynamical Eqn..

* $q_k(t)$ is space coordinate of time function. $\dot{q}_k(t)=(d/dt)q_k(t)$ is velocity by time differential,

T=momentum energy, V=such gravity potential of negative energy.

The Meaning of Variation Principle on Lagrangean !
a dynamical trajectory $q_k(t)$ has many path possibility, while actually realized one is minimum cost, that is, a Lagrangean is a purse, consumer acts to pay minimum cost in economy action

(2)**Canonical Formulation in classical dynamics.**

$H(q(t), p(t)) = p_k(t) \dot{q}_k(t) - \mathcal{L}(q_k(t); \dot{q}_k(t)) \dots \dots \dots$ **Hamiltonian the System Energy.**

$\rightarrow 0 = \delta \int dt \{ [p_i(dq_i/dt)] - H(q,p) \} \rightarrow \{ dq_k/dt = \partial_{p_k} H(q_k, p_k); dp_k/dt = - \partial_{q_k} H(q_k, p_k) \}, \dots$ canonical(dynamic) equation.

(3)An important heritage of CD is revealing **invariant physical quantity.**

Following J with (*time \times energy dimension=action*) is time invariant even any dynamical trajectory variate in a cycle motion, but an fixed point. This becomes serious in QM.

* $J_k = \oint dq_k p_k = \text{constant} = \underline{\text{adiabatic invariance}} \leftarrow dJ_k/dt = \oint dq_k \cdot (dp_k/dt) = - \oint dq_k \cdot \partial_{q_k} H(q,p) = 0$

② **An Entirely Nothing Spatially Change(with space coordinate x) World is Empty One**

<<momentum become Hermite operator(quantum physical variable) “ $p=-i\hbar\partial/\partial x=-i\hbar\partial_x$ ” as space variable x’s pair(**canonical conjugate origin**)>>.

This simple, but strong fact is to become great role in building QM>>.

An observation with gauge(coordinate x) is rather our side?, while observed something is not our side, but matter world. In accomplishing measurement with gauge x(space coordinate), matter world(of **quantum state** ψ) must **spatially change** with that of x to be observed, it is to **detect something change** by differential by x space variable $[\psi(x+\Delta x)-\psi(x)]/\Delta x=\partial_x\psi(x)\equiv\partial\psi(x)/\partial x\neq 0$. An entirely nothing spatially change(with space coordinate x) world is empty world.

$\alpha \partial_x$ **must be** observable gauge(Hermite operator) as style of $H\psi=h\psi$, where h is real number of observed physical quantity. $(-i\alpha \partial_x)\psi=g\psi$... α =something natural constant, while “g” is a measured physical quantity. Then there is unique eigen function $\psi=\exp(-igx/\alpha)$... by math result $\psi=\exp(ift/\beta)$; Similarly, $(i\beta \partial_t)\psi=f\psi\neq 0$., If zero, **the world is entirely dead without motion in time.**

On “ α, β ” and **adiabatic invariance theorem** on **action dimension** in classical dynamics.

$J_k=\oint dq_k p_k = \text{constant} = \text{adiabatic invariance} \leftarrow dJ_k/dt = \oint dq_k (dp_k/dt) = -\oint dq_k \partial_{q_k} H(q,p) = 0$

ψ : physical variable of action dimension J are adiabatic invariant in a cycle trajectory.

$\oint dq_k \partial_{q_k} H(q,p) = 0$ is that cycle trajectory is **arbitrary**, but except **one fixed returning position** $q_k=q_{k0}$.

In fact, $\alpha, \beta = \hbar$ Plank constant with action dimension. Then g, f = momentum and energy.

***math details.**

$\mathbf{x}=(ict, \mathbf{x}), \mathbf{p}=(iE/c, \mathbf{p}) \rightarrow$ inner product of vectors $(\mathbf{x} \cdot \mathbf{p}) = (-Et + \mathbf{p}x) \rightarrow \psi = \exp(i(-Et + \mathbf{p}x)/\hbar)$

$\rho\psi = (-i\hbar\partial/\partial x)\exp(i(-Et + \mathbf{p}x)/\hbar);; \mathbf{E}\psi = (i\hbar\partial/\partial t)\exp(i(-Et + \mathbf{p}x)/\hbar)$ eigen equation on H operator.

③ **Deriving Canonical Quantization Algebra .**

commutation relation in canonical variables <quantum algebra>.

In a successional action by two operator on a function, $\mathbf{AB}\psi \neq \mathbf{BA}\psi$, not commutable in general. Following algebra become serious in calculation on elementary particle reaction process(quantum field theory).

quantum algebra:
 $[q_j, p_k] = q_j p_k - p_k q_j = i\hbar \delta_{jk} \dots \dots [q_j, q_k] = [p_j, p_k] = 0. \quad \delta_{kk} = 1; \delta_{jk} = 0, j \neq k$

Rellich-Dimier theorem states, above { q_j, p_k } are become following type by UNITARY transform.

ψ : $[x, -i\hbar(\partial/\partial x)] = i\hbar 1$.. a mathematical theorem, but not such a principle.

④ **Deriving Schrödinger Equation in General.**

In today, Schrödinger Equation is decisive in matter technology, it derived by experimental in the history. Hereupon, **Especially as for time=t, there are two canonical conjugate pair.**

In proof, **4dimensional form** must be employed.

$[ict, iH/c] = -[t, H] = i\hbar \dots \dots$ **Hamiltonian** the energy operator.

$[ict, -i\hbar \partial_{ict}] = -[t, i\hbar \partial_t] = i\hbar \dots \dots$ **time derivative** the energy operator.

That is, $H\psi = i\hbar \partial_t \psi \dots \dots$ Schrödinger Equation the general.

⑤ **General Gauge Filed Quantization by Path-Integral<Faddeev-Popov>.**

In order to derive complete Quantum Gravity Lagrangean the supreme unified field dynamics, classical gauge field(not quantized) must be quantized. Faddeev-Popov succeeded the completion by employing so called gauge fixing by so called Path Integral<Feymann>. Then note it was derived from Schrödinger Equation which is derived from canonical quantization.

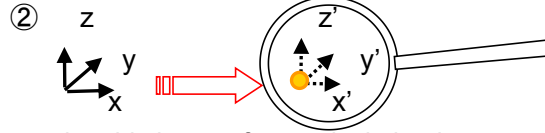
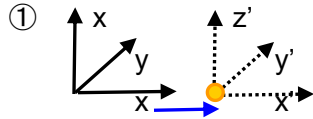
That is, a General Gauge Filed Quantization by Path-Integral is also due to **primitive canonical quantization.**

④ Dynamics the Origin

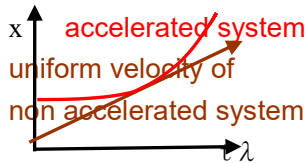
Deriving Forces of all the interactions in this universe, it is **gravity** at last !!.

uniform motion of inertia coordinates

non uniform motion of accelerated coordinates



☞ : left coordinate is stop still, while left is moving, this is transform calculation between those.



In non accelerated system, LT form is global with constant, while **accelerated system**, LT form is local with time space coordinate(t,x) dependent function.

Even a curved line become tiny straight line in very local point

At that local point(t,x), velocity is constant to establish Lorentz Transform.

Global LT(in special theory of relativity), transformation calculation is with constant.

While Local LT(LLT), transformation calculation is with (t,x) dependent function.

Observation with gauge or coordinate(t,x) are one-body, what is the essence of measuring?.

Physical law must be invariant in any coordinate(gauge)conversion(meter, inch,...).

To find something invariant in gauge conversion calculation is nothing, but physics!!!

This is awfully simple principle, but to derive all the physical interactions at last !!.

*Thereby the work is pure math calculation which is entirely the same by anyone. Thereby don't care the math calculation, but **the meaning, the logic of causality chain.**

① uniform motion of inertia coordinates

(a) Being invariant physical quantities are revealed in coordinate conversion calculation in special theory of relativity of **uniform motion** (free particle in no acceleration by force !). This concept with help of quantization ③ build fundamental frame of quantum physics

(b) Especially as for the electromagnetic constant ϵ_0 (permeability) and μ_0 (permutivity) of **vacuum space** must be invariant any coordinate, $\mathbf{D}=\epsilon\mathbf{E}$, $\mathbf{B}=\mu\mathbf{H}$, thus **velocity of light** in vacuum space must be invariant $c_0=1/\sqrt{\epsilon_0\mu_0}$. Thus (b) is to rule coordinate transformation <Lorentz transformation(LT) in **non accelerated coordinate without force**>

☞ : By observing vacuum space physical property, we could not detect any coordinate motion.

(c) That is, **the physical law** must be invariant by coordinate transformation

Thus (b)-(c) is to yield so called **4 dimensional vector norm invariance**.

$$x_\mu=(ict, \mathbf{x}), \rightarrow x_\mu x_\mu = ds^2; ; p_\mu=(iE/c, \mathbf{p}), \rightarrow p_\mu p_\mu = -m^2 c^2$$

* $i=\sqrt{-1}$, p, E are momentum and energy, m is particle mass .c=velocity of light. μ is coordinate dimension number(0(time), 1, 2, 3, ..., 11(space)). $\mu\mu$ is sum over 0 to 3, or 11

(d) **Quantization** on (c) is to yields LT invariant quantum dynamic equation.

*classical physical variable such momentum= p_μ is to become Hermite operator acting state ϕ .

$$(p_\mu p_\mu) = -(m^2 c^2) \rightarrow p_\mu = -i\hbar \partial_\mu \rightarrow (-\hbar^2 \partial_\mu^2) \phi = (-m^2 c^2) \phi$$

$\rightarrow \square \phi = (m^2 c^2 / \hbar^2) \dots \dots$ Dalambert Eqn with mass= m .

* $\partial_\mu = \partial / \partial x_\mu = (d/dx)$ is same differential operator in many variables. $\hbar =$ plank constant.

(e) **Quantum Matter Equation** (P.A.M. Dirac).

LT invariance yields Quantum Matter (**electron, quark of mass m**) Equation without force.

it revealed being of **spin** (a physical quantity) and being of **negative-matter particle**.

This equation revealed being of **ant-matter world** of indicating $0 = +E - E$.

Then those are attractive to be annihilated (pair annihilation generating photon (γ ray)).

$$0 = (p_\mu p_\mu + m^2 c^2) = (i \gamma_\lambda p_\lambda + mc) (-i \gamma_\mu p_\mu + mc) = \gamma_\lambda \gamma_\mu p_\lambda p_\mu + m^2 c^2$$

$\gamma_\lambda \gamma_\mu + \gamma_\mu \gamma_\lambda = 2 \delta_{\lambda\mu}$. Dirac algebra $\rightarrow (\hbar \gamma_\mu \partial_\mu + mc) \phi = 0$. Dirac spinor particle Eqn.

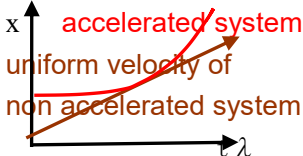
(f) Free spinor particle Lagrangean the all information container.

At the last stage, this Lagrangean $\langle \textcircled{3} \textcircled{1} (1) \rangle$ is to be build as **the full information container on the matter world**.

$$\mathcal{L} = (ic)^{-1} \{ -c \bar{\phi} (\hbar \gamma_\mu \partial_\mu + mc) \phi \}$$

② non uniform motion of accelerated coordinates.

(a) Localized Lorentz transformation (LLT) in **accelerated coordinate with dravity force**.

 In non accelerated system, LT form is global with constant, While **accelerated system**, LT form is local with time space coordinate (t,x) function.

Even a curved line become tiny straight line in very local point

At that local point (t,x), velocity is constant to establish Lorentz Transform.

Global LT (in special theory of relativity), transformation calculation is with constant.

While Local LT (LLT), transformation calculation is with (t,x) dependent function.

(b) The Outline \langle transform invariance yields A^a_μ . gauge field of force with matter $\phi \rangle$.

As was mentioned in **③ Quantization the Origin ②**, once again differential operator ∂_x becomes main cast in this stage. It is important gauge revealing momentum and energy of matter. Note in this accelerated space, each time space point (t,x) is no more the same constant gauge, but different one (**curved space**). So called parallel shift must be redefined at each point. Thus differential operator is modified $\partial_\mu \phi \rightarrow \partial_\mu \phi - A^{rs}_\mu(x) \mathbf{G}_{rs} \phi(x)$.

This is to reveal being of **general gauge field** $A^{rs}_\mu(x)$, one of which is electromagnetic wave.

$A^{rs}_\mu(x)$ **reacts with matter particle** ϕ (electron, quark). Thus we could derived Dirac (matter, spinor) eqn with interaction with $A^{rs}_\mu(x)$.

$$(\hbar \gamma_\mu \partial_\mu + mc) \psi = 0 \rightarrow (\hbar \gamma_\mu (\partial_\mu - A^{rs}_\mu(x) \mathbf{G}_{rs}) + mc) \psi = 0 \dots \dots \text{quantum matter equation with interaction}$$

* ∂_μ is momentum, while $A^a_\mu(x)$ is a local force changing momentum.

(c) **Local Lorentz Transformation(LLT) and Covariant Derivative $D_\mu \phi$** .

Following a coarse viewing on math causality chain, **what is origin, what is the result.**

4 dimensional length $dx_\nu dx_\nu$ must be invariant by LLT with $\epsilon_{\mu\nu}(x)$ (small parameter).

* $dx'_\mu = (\delta_{\mu\nu} + \epsilon_{\mu\nu}(x)) dx_\nu \rightarrow dx'_\mu dx'_\mu \equiv dx_\nu dx_\nu \rightarrow \epsilon_{\mu\nu}(x) = -\epsilon_{\nu\mu}(x)$: LLT on coordinate gauge
 “above is invariant” ,,,, vector inner product.

* $\delta \phi_A(x) \equiv \epsilon^{rs}(x) \mathbf{G}_{A^{rs}}^B \phi_B(x)$. \rightarrow physics must be invariant by LLT on internal gauge $\phi_A(x)$.
 That is,, quantum state=function ϕ is also a gauge allowing various expressions.

*parallel shift for covariant derivative.

$$\begin{aligned} \phi_A(x + \Delta x) // &\equiv \phi_A(x) + \epsilon^{rs}(x) \mathbf{G}_{A^{rs}}^B \phi_B(x) \\ &= \phi_A(x) + \Delta x_\mu (\partial_\mu \epsilon^{rs}(x)) \mathbf{G}_{A^{rs}}^B \phi_B(x) = \phi_A(x) + \Delta x_\mu \mathbf{A}^{rs}_\mu(x) \mathbf{G}_{A^{rs}}^B \phi_B(x) \end{aligned}$$

covariant derivative with revealing gauge field $A^{rs}_\mu(x)$.

$$D_\mu \phi_A \equiv \{ \phi_A(x + \Delta x) - \phi_A(x + \Delta x) // \} / \Delta x_\mu = \partial_\mu \phi_A - A^{rs}_\mu(x) \mathbf{G}_{A^{rs}}^B \phi_B(x)$$

$$A^{rs}_\mu(x) \equiv \partial_\mu \epsilon^{rs}(x).$$

(d) **Pre Quantized Spinor(matter) Field Lagrangean.**

ϕ (electron, quark with mass) is matter, while A^{rs}_μ is not matter, but something vacuum field.

$$\mathcal{L} = (ic)^{-1} \{ -c \bar{\psi} (\hbar \gamma_\mu (\partial_\mu + g A^{rs}_\mu(x) \mathbf{G}_{rs}) + mc) \psi \}$$

(e) **Total Quantum Gravity Dynamics(QGD)Field Lagrangean.**

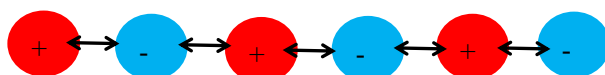
Aim of this report is to reveal a typical method for deriving fact on matter world. As for the details of **gauge field**, **dipole field** and **FP ghost** <ⓉⓈ> terms are abbreviated at this time.

gauge field is due to local gauge invariance related with spinor invariance <(g), (h)>

Also two of latter are exactly due to *Canonical Quantization*. Now following is the supreme Lagrangean of **all the information container on the matter world**.

$$\mathcal{L}_{QGD} = (ic)^{-1} \{ -c \bar{\psi} (\hbar \gamma_\mu (\partial_\mu + g A^{rs}_\mu(x) \mathbf{G}_{rs}) + mc) \psi \} - \frac{1}{4} F^{rs}_\mu F^{rs}_\mu + ic B^{rs} \partial_\mu A^{rs}_\mu + \chi C^{rs} \partial_\mu (\partial_\mu + g A^{jk}_\mu) \mathbf{G}_{jk} C^{rs}$$

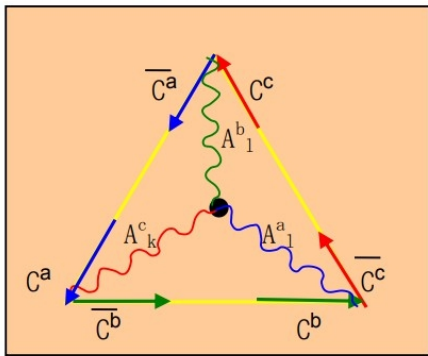
The last term of so called **FP ghost** is to reveal marvelous fact on vacuum world, at where, there is positive matter man with negative matter man **the gigantic super dipole**. By such dipole ghost, we can move space, that is, matter successive translation is annihilating here and creating near there. Such ultra light free electron can be at anywhere through dipole string almost in a time <no limit of light velocity rule, because no police detecting>. Thereby, such an electron can go through two slit in a time, but reveals its one spot appearance by collision event the observable by police.



“a dipole string” ,

Note: elementary particle size must be zero, but something not nothing (a bubble with life time “zero” \rightarrow ⓉⓈ).

(c) nucleon dipole formation reaction by FP ghost $\{\bar{C}^a, C^a\}$ with gauge field $\{A^a_\mu\}$.



This is **complex particle dipole**

such as **nucleon of 3 quaks(a,b,c)**.with

gauge field $\{(\partial_\mu A^a_\nu - \partial_\nu A^a_\mu) f_{bc}^a A^b_\mu A^c_\nu\}$.

Not only elementary particle, but also **any**

complex particle has dipole ghost in vacuum.

*this was authors assumption, but not verified.

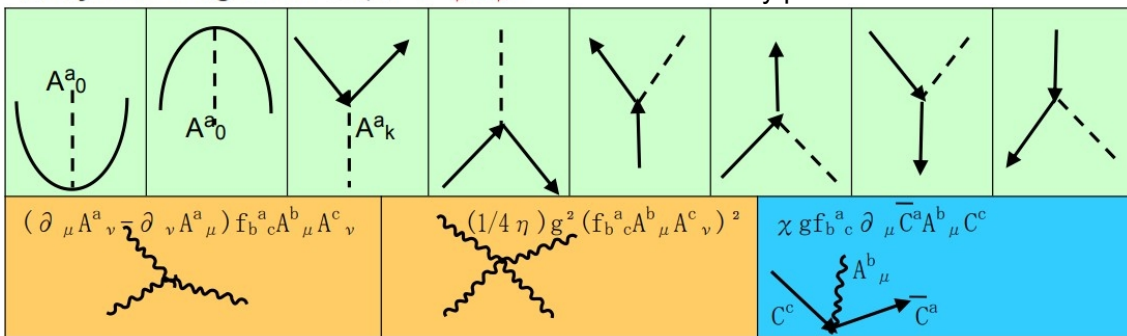
This complex dipole could be negative energy field.

$$0 = ic \partial_\mu D_\mu C^a = \square C^a + gf_{bc}^a \partial_\mu (A^b_\mu C^c). \quad \langle C^a \text{ is zero mass field} \rangle$$

<http://www.777true.net/Energy-Creation-Process-from-QED-to-QGD.pdf>

A most fundamental matter are **electron** and **nuclei**{neutron and proton}, the latter are composed of **3-quarks**, even such complex nucleon have super dipole. Such gauge field is so called *strong force in nuclei*.

(b) **Feynman Diagram** of $\mathcal{H}^I_{QGD} \equiv \Gamma^a_\mu A^a_\mu$. all that elementary particle reaction of 1st order.



⇒ **Own reaction** of gauge field A^a_μ and A^b_ν is due to $-\frac{1}{4} F^{rs}_\mu F^{rs}_\mu$ in \mathcal{L}_{QGD}

⇒ **FP ghost x gauge field reaction** is due to $\chi \bar{C}^{rs} \partial_\mu ((g A^{jk}_\mu) G_{jk}) C^{rs}$ in \mathcal{L}_{QGD}

⇒ Mater ψ and gauge field A^a_μ reaction is also due to top term of \mathcal{L}_{QGD} .

$$\Gamma^a_\mu A^a_\mu = (i\hbar g) \psi * (\gamma_0 \gamma_\mu \mathbf{G}_a) \psi. \quad A^a_\mu = (\text{constant}) x < \psi * x (\text{operator})^a_\mu x \psi > A^a_\mu = \Gamma^a_\mu A^a_\mu.$$

Γ^a_μ is a kind of *electrical current=j* reacting with *EM field A* in EM dynamics, where a is current color. Above is all that of **elementary reactions** $< \psi^a$ and A^a_μ ; A^a_μ and A^b_ν), in general gauge(QGD)field, arrow is matter{spinor= ψ , (*spinor like FP ghost C^a*)}, the other are gauge particle(A^a_μ).

Could you feel that Lagrangean= \mathcal{L}_{QGD} is all the information container.?!

⑤ QGD revealed following fact.

(1) creation universe from nothing <Big Bang> without man made model.

parallel running universes in (11+1) dimension total universe..

☞: Why space is 11 dimension ?, it is told mathematician revealed over 11 dimension world becomes terrible sick !!. "mathematical science" diamond Co, published in Japan.

.....sick!!, it maybe terrible contradiction denying the realization.

(2) matter evolution history <SO(11;1) → SO(11) → SO(10) → SU(5) → SU(3) × SU(2) × U(1)>

Temperature down by universe expansion left survived quantum gravity family.

The last term are strong, weak and electromagnetic U(1) forces at now. note SU(3) in nuclei is not

4 dimensional, quark never be isolated.

(3) Newton universal attraction force as macroscopic approximation.

(4) spinor particle mass formula <12B\$ SSC(1993)'s task>.

(5) $0 = +E(\text{positive matter energy}) - E(\text{gravity force})$ in total sum of universe energy

http://www.777true.net/Logic-the-most-simple_but-supreme-way-for-recognition.pdf

<http://www.777true.net/img008-Quick-Guide-to-Quantum-Gravitational-Dynamics.pdf>

③ God the almighty being.

(1) Logic declares a contradiction causes every proposition true (collapse and creation).

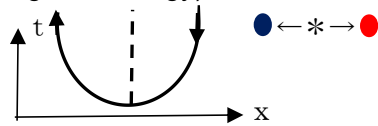
, contradiction is defined both A and $not-A$ are true (realizable).

(2) quantum physical vacuum world is contradictory due to vacuum polarization reaction.

Those are creation of matter from nothing and annihilation of matter into nothing.

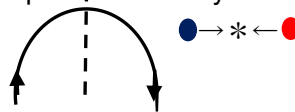
our logic in dairy life is nothing is nothing forever, thereby this is extreme contradiction !

(A) electron positron pair
creation with scalar photon
(it is attractive force with
negative energy)



(B) electron positron pair
annihilation with scalar photon

<(A)→(B) is called vacuum polarization, at anywhere, anytime>
all of quarks is entirely the same polarization.



(3) Creation of universe from nothing is logically reasonable. Quantum logic states, actually observable something is object for physics, but supreme nothing origin of this universe is out of science where was ruled by the almighty being.

☞ : None can tell being of physics law in noting primitive world.

This is also a decisive spirit of QM described at here.

<http://www.777true.net/Proof-on-God.pdf>

<http://www.777true.net/Scientifical-Mechanism-of-Prophecy-by-Paranormalities.pdf>

APPENDIX_1:Reference.

- (1)Birkov,G & Neumann,J,V:Ann.Math,2nd Ser,37,823(1936),*Quantum Observation Logic*,
- (2)豊田利幸,並木美喜雄,量子力学Ⅲ 20 章(現代物理の基礎 5),岩波,1972.東京
- (3)L.I.Schiff,Quantum Mechanics,Magraw hill,1955.
- (4)R,Utiyama,Phys.Rev.**101**(1956),1597,*Invariant Theoretical Interpretation of Interaction*.
- (5)L.D.Fadeev&V.N.Popov,Phys.lett.25B(1967),29,*General Gauge Field Quantization*.

APPENDIX_2:Related Topics.

<http://777true.net/cla-mechanics.pdf>

<http://777true.net/QFTstructure1.pdf>

<http://www.777true.net/Goedel-Chaos.pdf>

<http://777true.net/phys-hidden.pdf>

http://777true.net/GRAVITY_FIELD_as_GUAGE_one.pdf

<http://777true.net/img006-Quantum-Gravity-Dynamics-the-summary.pdf>

<http://777true.net/img008-Quick-Guide-to-Quantum-Gravitational-Dynamics.pdf>

<http://www.777true.net/Energy-Creation-Process-from-QED-to-QGD.pdf>

<http://www.777true.net/Real-Image-of-quantum-Chemical-Reaction.pdf>

This is useful in Chemistry general.

http://www.777true.net/Logic-the-most-simple_but-supreme-way-for-recognition.pdf

<http://www.777true.net/Troublesome-Illusion-of-Elementary-Particle-Physics.pdf>

<http://www.777true.net/Math-Physical-Science-Library-List-in-777true.net.pdf>

<http://www.777true.net/Energy-Creation-Process-from-QED-to-QGD.pdf>

<http://777true.net/CANONICAL-QUANTIZATION-PRINCIPLE.pdf>

<http://777true.net/General-Gauge-Principle.pdf>

http://777true.net/Quantum-Stochastic-Mechanics_QSM_the-Hidden.pdf

<http://777true.net/True-or-False-Judging-Machine.pdf>

APPENDIX_3: The Failure of Quantum Gravity Theory in the Established Academy.

(1) *general curve linear coordinate.*

They employed so called *general curve linear coordinate* due to *General Theory of Relativity* (physics is invariant **in any coordinate** and gravity is space distortion), so they failed in pure gauge transform for the Quantization. While gravity field by **Principle of Equivalence** becomes LLT (with localized orthogonal coordinate) making complete gauge field transform.

“invariant line length expression”.

$ds^2 = g_{jk} dx_j dx_k$ *General Theory of Relativity.*

$ds^2 = dx_k dx_k$ LLT.

“gauge field transform”

$\delta A^a_\mu(x) \equiv \partial_\mu \epsilon^a(x) + \epsilon^b(x) A^c_\mu(x) f_b^{ac}$.

general gauge field transform

Not above form,.....

General Theory of Relativity.

$\delta A^{rs}_\mu(x) \equiv \partial_\mu \epsilon^{rs}(x) + \frac{1}{2} \epsilon^{mn}(x) A^{kl}_\mu(x) f_{mn}{}^{rs}{}_{kl}$.

Gravity field by Principle of Equivalence

*structure constant definition: f_b^{ac} .

Lie algebra are physical variable (Hermite) operator for **hyper charge** of elementary particles

$[G_r, G_s] = G_r G_s - G_s G_r = f_{rs}^q G_q \leftarrow \phi(x + \Delta x) \equiv \phi(x) + \epsilon^r(x) G_r \phi(x)$.

local general gauge transform on spinor state and Lie algebra $\{G_r\}$ in *parallel shift definition*.

Revealing gauge field $A^{rs}_\mu(x)$ in above gauge transformation with coordinate transform parameter $\epsilon^{rs}(x)$.

$A^{rs}_\mu(x) = \partial_\mu \epsilon^{rs}(x)$.

* $dx'_\mu = (\delta_{\mu\nu} + \epsilon_{\mu\nu}(x)) dx_\nu \rightarrow dx'_\mu dx'_\mu \equiv dx_\nu dx_\nu \rightarrow \epsilon_{\mu\nu}(x) = -\epsilon_{\nu\mu}(x)$: LLT on coordinate gauge above is invariant

(2) The 2nd failure in coordinate definition.

$(x_0 = ict, x_1, x_2, \dots, x_{11})$ the classical expression of Minkovsky expression in LLT.

$ds^2 = -c^2 t^2 + dx_1^2 + dx_2^2, \dots + dx_{11}^2$.

While the established academy employ coordinate **without imaginary number=i**, by employing so called metric tensor.

By employing $x_0 = ict$, author succeeded in deriving **imaginary gauge field in QGD** <...this is not ordinal physics, but one in virtual extremely short period in uncertainty principle of Time and Energy> which acts decisive role in generating negative energy in universe initial creation time (Big Bang). In beginning of corporate, there were virtual debt called capital, similarly, universe made debt negative energy to create matter of positive energy and negative energy of gravity field the attraction force toward the conservation law of energy. $0 = +E(\text{matter}) - E(\text{gravity})$.

*Also note total debt of the world is total monetary assets, which would cause outrageous suffer in coming world ?!!.

APPENDIX_4: About n Our Conscious and Phenomena the Paranormal.

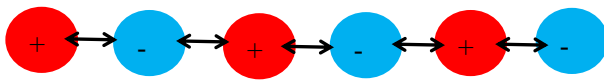
In this report, it is absolutely stressed that *a truth of Logic & Physics must be actually observable (measurable with something gauge) realization*. However this is not to deny actually happen events of **phenomena paranormal with our conscious**.

<http://www.777true.net/Proof-on-God.pdf>

<http://www.777true.net/Scientifical-Mechanism-of-Prophecy-by-Paranormalities.pdf>

The Out Line.

- (1) In established Classical Electromagnetic Dynamics (CED) of Maxwell equation has two fundamental components (well known transversal EM (A) wave of portable phone), and longitudinal electric (scalar, or) wave the not commercial used, not well known in general. The latter is due to static electric due to charge = ρ (the former is due to current = j).
- (2) B wave < author's business > is radiated by capacitor antenna **without energy** !!, all electrician know capacitor and induction (C, L) never consume energy (but resistor R). A portable phone wave is due to radiation resistor with Lithium battery.
- (3) Static electricity of so called "Coulomb Force = CF" is due t dipole chain with \pm charges.



"a dipole string",

, where attraction force of negative energy is acting on. $0 = +E - E$ <energy conservation>.

<http://www.777true.net/Real-Image-of-quantum-Chemical-Reaction.pdf>

- (4) Our matter (bio) world is complex **dynamics** <time change with energy> of chemical matters with CF, which can radiate B wave = ϕ , $\square \phi(t, x) = -\rho(t, x) / \epsilon$. < \square = wave operator, ϵ = constant >.

Also ϕ acts on bio chemical complex of charges <receiving > to cause something events.

*our conscious of neuron complex dynamics can radiate, receive B wave.

, paranormal resonance communication between twin is famous. In the other world,

- twin of ourselves (ghost) can exists. \rightarrow (5)
- (5) Quantum vacuum world is the supreme complex of \pm chemical complex (FP ghost) with \pm elementary particles. It is also supreme chaos (contradiction) of **almighty world** <the other world>>. A contradiction enable everything true in Logic.

*Note vacuum world is non observable as the rule in QM, however (5) can realize as **zero probability**, while real number zero is nothing, and not nothing the **miracle** contradictional.

\Rightarrow : To tell the truth, $\pm \infty$ is not observed clearly, \rightarrow Gödel Incompleteness Theorem.

Thereby, rational number? $0 = 1/\infty$ is also unclear, it causes miracle of zero the real number ??.

- (6) Reincarnation Theorem.

<http://www.777true.net/Goedel-Chaos.pdf>

A probability is defined on *outcome times* "r" in N times trial. $"p" = \lim_{N \rightarrow \infty} r/N$.

Thereby finite "r" times realization <miracle ?> probability is zero in $N \rightarrow \infty$,

Consequently non zero probability is infinitely **repeatable**<Reincarnation Theorem>.