Energy Creation Process from QED to QGD. 2014/12/17

In this report,possible quantum mechanism of **creation energy from nothing** is explained by so called **standard theory**<Quantum Electro Dynamics(**QED**),and Gravity one(**QGD**)>. This was first invented by **Nicola.Tesla,**which is called **scalar wave** radiated from **capacitor antenna**.Electrician knows capacitor never consume energy,but can radiate charge density wave which realize $0=\oiiint dv\{\rho^B\phi-\alpha BB/2-ED/2\}=+E-E$.<**energy creation the legal**>.

QED stage: alternating dipole field realize $0=\oiiint dv\{\rho^B\phi-\alpha BB/2-ED/2\}=+E-E$.

$-E=-\alpha BB/2-ED/2$ $\rho^B\phi=+E$

-e - - - - - - - - +e

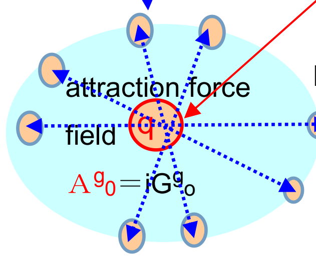
This is temporal

"Negative energy transfer QED to QGD"

$\Delta E=\Delta mc^2$.<energy transfer from QED>

q hot ϕ (quantum state of "q" with ΔE)

QGD stage: gravity dipole field realize $0=\oiiint dv\{J^g{}_0 A^g{}_0-\alpha^g B^g B^g/2-E^g D^g/2\}=+E-E$.



$\Box iG^g{}_0\equiv J^g{}_0=\eta gc\hbar\bar{\phi}\gamma_0 Q_g\phi+\eta\chi gf_a{}^c{}_b C^b\partial_0\bar{C}^c$.

"hot ϕ is to change $iG^g{}_0$ the gravity field".

Note $iG^g{}_0$ is extremely small in local,but big in universe.

$A^g{}_0\equiv iG^g{}_0\rightarrow\{E^g{}_k=ic\partial_k A^a{}_0,\ B^g=-ic\partial_k A^a{}_0/\alpha^g\}$

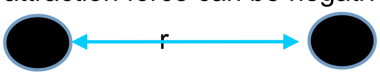
The Universe Bank of Gravity Field(the great Debtor).

A mass(positive energy by $J^g{}_0 A^g{}_0$) is a hyper charge to generate universal attraction force which becomes negative energy($-\alpha^g B^g B^g/2-E^g D^g/2$).

Ⅰ:**Question to readers to enter this report.**

Why attraction force can be negative energy ?.

hint.



How much energy to separate those ?

Attraction force between distance$=r\rightarrow\infty$ becomes zero.

Ⅱ:Readers should be familiar with **Quantum Field Theory(QFT)**<see **APPENDIX-0:QGD summary**>.or you should read following page to learn QED.

http://www.777true.net/BWG.pdf

Ⅲ:**APPENDIX-0:QGD summary**

APPENDIX-1:Energy Conservation Low in Lagrangean Formulation.

APPENDIX-2:Mass Generation Mechanism and Macro Gravity Field.

APPENDIX-3:Why can QED create energy from nothing<the quantum magic> !!!

APPENDIX-4:As for gauge parameter$\equiv\alpha$.

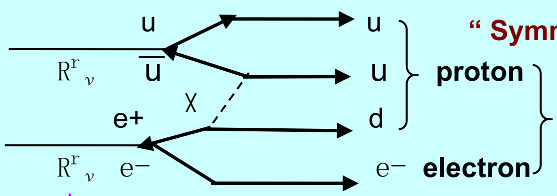
APPENDIX-5:non contradiction=observability vs vacuum contradiction.

[1] : Origin of Macro Gravity Field

(1)**About history of this universe<initial hot universe to cold one at now> .**

Only initial condition of superior iG^g_μ than R^r_ν can cause **Big-Bang** creation this universe In phase transition of $SO(N;1)\rightarrow SO(N=11)$. Then R^r_ν increased explosively(**BIG-BANG**) for positive energy creation toward **matter creation**<**hydrogen creation by pair one**>.

*M.Yoshimura,Phys.Rev.Let,**41**(1978),281



" Symmetry Breaking of Matter & Anti-matter"

hydrogen creation in Big-Bang.

↑ $+E$ $-E$ $-E$

$U=[(E^r{}_j)^2+(H^r{}_k)^2-(E^g{}_1)^2-(H^g{}_m)^2]$, ← $[(E^r{}_j)^2+(H^r{}_k)^2-(E^g{}_1)^2-(H^g{}_m)^2]$

growing in $SO(N=11)\leftarrow SO(N;1)$ Initial superior **BIG-BANG**.

While other $iG^g{}_{k>0}$ were vanished,however only longitudinal component $iG^g{}_0$ could weakly survive.The last stage of temperature decreasing toward $T\rightarrow 0$ in this universe,also transversal gauge field $R^r{}_{k>0}$ became weakened.After all weakend but massively survived $iG^g{}_0$ had become **universal attraction force** of macro gravity field of negative energy$=-E$. $iG^g{}_0$ also act to cause **mass** mc^2<positive matter energy$=+E$> that establish $0=+E-E$.

(2)**The first Phase transition Dynamics $SO(N;1)\rightarrow SO(11)$ of Guage Field in Big-Bang.**

$\Box iG^g{}_\mu - g^2\{\Sigma_{r(g)}{}^{N-1}(R^r{}_{\nu\neq\mu})^2-\Sigma_{h\neq g}{}^{N-1}(G^h{}_{\nu\neq\mu})^2\}iG^g{}_\mu \equiv J^g{}_\mu$.

$\Box R^r{}_\mu - g^2\{\Sigma_{s\neq r1.r2}{}^{2N-4}(R^s{}_{\nu\neq\mu})^2-\Sigma_{j=1}{}^2(G^{g(rj)}{}_{\nu\neq\mu})^2\}R^r{}_\mu \equiv K^r{}_\mu$.

Stability Criterion in Phase Transition in $SO(N;1)\rightarrow SO(11)\rightarrow\ldots\rightarrow SU(3)\times SU(2)\times SU(1)$

$[\Box-M]\phi=J.\rightarrow$ $M>0$:stable,$M=0$:critical, $M<0$:unstable<<decay,or grow>>,

$M^{a=0k}{}_\mu = g^2\Sigma_{n\neq k,0}\{(f_{0k}{}^{0n}{}_{kn}A^{kn}{}_\mu)^2+(f_{0k}{}^{kn}{}_{0n}A^{0n}{}_\mu)^2\}$

$\equiv g^2\{\Sigma_{r(a)}{}^{N-2}(R^r{}_{\nu\neq\mu})^2-\Sigma_{g\neq a}{}^{N-2}(G^g{}_{\nu\neq\mu})^2\}$.......... $\{iG^g{}_\mu$ stability$\}$.

$M^{a=kl}{}_\mu = g^2\Sigma_{k<l<n}{}^{2N-4}\{(f_{kl}{}^{kn}{}_{ln}A^{ln}{}_\nu)^2+(f_{kl}{}^{0k}{}_{01}A^{01}{}_\mu)^2+(f_{kl}{}^{01}{}_{0k}A^{0k}{}_\nu)^2\}$

$\equiv g^2\{\Sigma_{r(a1),r(a2)}{}^{2N-4}(R^r{}_{\nu\neq\mu})^2-\Sigma_{j=1}{}^2(G^{g(aj)}{}_{\nu\neq\mu})^2\}$.... $\{R^r{}_\mu$ stability$\}$.

$M^{a=0k}{}_\mu =< 0$, $M^{a=kl}{}_\mu < 0$. G's superior means own instability toward own annihilation, because G is **negative energy**(imaginary field non-physical),of which growing by instability means Illegal of **energy conservation low 0**$=+E-E$ in time of uncertainty $\Delta t\Delta E=\hbar$. While R's instability means positive energy of R's explosive growing.If not,it is to contradict energy conservation low toward $0=+E-E$ in the time duration.In the beginning was light of $iG^g{}_\mu$ → $R^r{}_\mu$ → hydrogen $\{(uud)+(e-)\}$. See **APPENDIX-2:**

[2] : **QGD Hamiltonian the physical interpretation.**

(1)**QGD Lagrangean the definition.**

$$\mathcal{L}_{QGD} \equiv -c\bar{\phi}[\hbar\gamma^{\mu}(\partial_{\mu}+gA^{a}_{\mu}\mathbf{Q}_{a})+mc]\phi + icB^{a}\partial_{\mu}A^{a}_{\mu} + \tfrac{1}{2}\alpha^{a}B^{a}B^{a}$$

$$-(1/2\eta)(\partial_{\mu}A^{a}_{\nu}-\partial_{\nu}A^{a}_{\mu}+gf_{b}{}^{a}{}_{c}A^{b}_{\mu}A^{c}_{\nu})^{2} + \chi\bar{C}^{a}\cdot\partial_{\mu}(\partial_{\mu}C^{a}+f_{b}{}^{a}{}_{c}A^{b}_{\mu}C^{c}).$$

$$= -c\bar{\phi}[\hbar\gamma^{\mu}(\partial_{\mu}+gA^{a}_{\mu}\mathbf{Q}_{a})+mc]\phi - (1/2\eta)(\partial_{\mu}A^{a}_{\nu}-\partial_{\nu}A^{a}_{\mu})^{2}$$

$$-(/\eta)gf_{b}{}^{a}{}_{c}A^{b}_{\mu}A^{c}_{\nu}(\partial_{\mu}A^{a}_{\nu}-\partial_{\nu}A^{a}_{\mu}) - (1/2\eta)(gf_{b}{}^{a}{}_{c}A^{b}_{\mu}A^{c}_{\nu})^{2}$$

$$+icB^{a}\partial_{\mu}A^{a}_{\mu} + \tfrac{1}{2}\alpha^{a}B^{a}B^{a} - \chi\partial_{\mu}\bar{C}^{a}\cdot(\partial_{\mu}C^{a}+gf_{b}{}^{a}{}_{c}A^{b}_{\mu}C^{c}).$$

☞ : $\tfrac{1}{2}\alpha B^{a}B^{a} \neq \tfrac{1}{2}\alpha^{a}B^{a}B^{a}$. See **Appendix_4**.

(2)**QGD Hamiltonian the definition.**

$$\mathcal{H}_{QGD} \equiv (\partial_{0}\phi_{B})\,\partial\mathcal{L}/\partial(\partial_{0}\phi_{B}) + (\partial_{0}A^{a}_{\nu})\,\partial\mathcal{L}/\partial(\partial_{0}A^{a}_{\nu}) + (\partial_{0}C^{a})\,\partial\mathcal{L}/\partial(\partial_{0}C^{a}) - \mathcal{L}_{QGD}.$$

$$= -c\hbar\bar{\phi}\gamma^{0}\partial_{0}\phi - (1/\eta)(\partial_{0}A^{a}_{k}-\partial_{k}A^{a}_{0}+gf_{b}{}^{a}{}_{c}A^{b}_{0}A^{c}_{k})(\partial_{0}A^{a}_{k})$$

$$+ic\,\partial_{0}A^{a}_{0}B^{a} - \chi\,\partial_{0}\bar{C}^{a}\partial_{0}C^{a} - \mathcal{L}_{QGD}.$$

(3)**QGD Hamiltonian of free terms and interaction terms.**

(a)$\mathcal{H}_{QGD} \equiv \mathcal{H}^{0}_{QGD} + \mathcal{H}^{I}_{QGD} \equiv \mathcal{H}^{0}_{QGD} + \Gamma^{a}_{\mu}A^{a}_{\mu}.$

$$= c\hbar\bar{\phi}\gamma^{k}\partial_{k}\phi + \bar{\phi}mc^{2}\phi$$

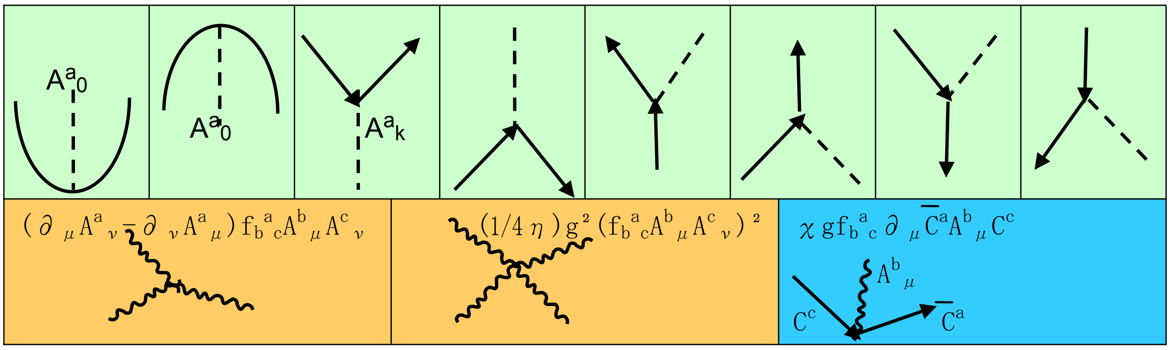
$$-\{(1/2\eta)(\partial_{0}A^{a}_{k}-\partial_{k}A^{a}_{0})^{2} + (1/2\eta)(\partial_{k}A^{a}_{1}-\partial_{1}A^{a}_{k})^{2}\} - (1/\eta)(\partial_{0}A^{a}_{k}-\partial_{k}A^{a}_{0})\,\partial_{k}A^{a}_{0}.$$

$$-icB^{a}\partial_{k}A^{a}_{k} - (\alpha^{a}/2)B^{a}B^{a} + \chi\,\partial_{k}\bar{C}^{a}\partial_{k}C^{a}$$

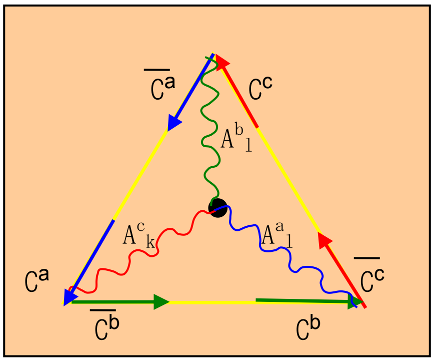
$$\left.\begin{aligned}&+gc\hbar\bar{\phi}\gamma^{\mu}A^{a}_{\mu}\mathbf{Q}_{a}\phi\\ &+(1/\eta)gf_{a}{}^{c}{}_{b}A^{a}_{\mu}A^{b}_{\nu}(\partial_{\mu}A^{c}_{\nu}-\partial_{\nu}A^{c}_{\mu})\\ &+(1/2\eta)(g^{2}f_{a}{}^{f}{}_{c}f_{d\neq a}{}^{f}{}_{e}A^{a}_{\mu}A^{c}_{\nu}A^{d}_{\mu}A^{e}_{\nu})\\ &+\chi gf_{a}{}^{c}{}_{b}\partial_{\mu}\bar{C}^{c}A^{a}_{\mu}C^{b}.\end{aligned}\right\}\ \mathcal{H}^{I}_{QGD} \equiv \Gamma^{a}_{\mu}A^{a}_{\mu}.$$

$$*\ \{-(1/2\eta)(\partial_{0}A^{a}_{k}-\partial_{k}A^{a}_{0})^{2} + (1/2\eta)(\partial_{k}A^{a}_{1}-\partial_{1}A^{a}_{k})^{2}\} \equiv \{\mathbf{E}^{a}\mathbf{D}^{a}+\mathbf{H}^{b}\mathbf{B}^{b}\}/2$$

(b)**Feynman Diagram** of $\mathcal{H}^{I}_{QGD} \equiv \Gamma^{a}_{\mu}A^{a}_{\mu}$.



(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$\{(\partial_\mu A^a{}_\nu - \partial_\nu A^a{}_\mu) f_b{}^a{}_c A^b{}_\mu A^c{}_\nu\}$.
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.

$0 = ic\,\partial_\mu D_\mu C^a = \Box C^a + g f_b{}^a{}_c\,\partial_\mu (A^b{}_\mu C^c)$. 〈$C^a$ is zero mass field〉

(4)**QGD interaction Hamiltonian and hyper-charge current expression** $\equiv A^a{}_\mu J^a{}_\mu$.

Energy of these terms are non-observable(**singular** interaction Hamiltonian) or especially positive by frozen constant longitudinal gravity field($A^a{}_\mu = iG^g{}_0 \equiv i^2 W^g/c + i^2\delta G^g{}_0$) .

$\mathscr{H}^I{}_{QGD} \equiv A^a{}_\mu J^a{}_\mu$
$+ gc\hbar\bar{\phi}\,\gamma^\mu A^a{}_\mu \mathbf{Q}_a \phi$ → 0 〈but except → $A^a{}_0 \equiv iG^g{}_0 \equiv i^2\phi^g/c \equiv i^2 W^g/c + \delta\, iG^g{}_0$〉.
$+ (1/\eta) g f_a{}^c{}_b A^a{}_\mu A^b{}_\nu (\partial_\mu A^c{}_\nu - \partial_\nu A^c{}_\mu)$ → 0 〈$A^a{}_{k>0}$ →0 vanishing transversal component〉
$+ (1/2\eta)(g^2 f_a{}^f{}_c f_{d\neq a}{}^f{}_e A^a{}_\mu A^c{}_\nu A^d{}_\mu A^e{}_\nu)$ → 0 〈$A^a{}_{k>0}$ →0 vanishing transversal component〉
$+ \chi g f_a{}^c{}_b\,\partial_\mu \bar{C}^c A^a{}_\mu C^b$. → indefinite at now for author.

(5)**QGD non-interaction Hamiltonian and possible negative energy terms.**

$\mathscr{H}^0{}_{QGD} \equiv$
$= c\hbar\bar{\phi}\,\gamma^k \partial_k \phi + \bar{\phi} mc^2 \phi$ ← 〈kinetic and mc^2 energy is positive〉
$+ \{-(1/2\eta)(\partial_0 A^a{}_k - \partial_k A^a{}_0)^2 + (1/2\eta)(\partial_k A^a{}_1 - \partial_1 A^a{}_k)^2\} - (1/\eta)(\partial_0 A^a{}_k - \partial_k A^a{}_0)\,\partial_k A^a{}_0$.
$-icB^a \partial_k A^a{}_k$ → 0 〈$A^a{}_{k>0}$ →0 vanishing transversal component〉
$-(\alpha^{a*}/2) B^a B^a$ $-(\alpha^g/2) B^g B^g < 0$. → 〈$A^a{}_{k>0}$ →0; $B^a = -ic\,\partial_0 A^a{}_0/\alpha^a$〉
$+ \chi\,\partial_k \bar{C}^a \partial_k C^a$. → indefinite at now for author.

$\mathscr{H}^{GF}{}_{QGD} \equiv \{-(1/2\eta)(\partial_0 A^a{}_k - \partial_k A^a{}_0)^2 + (1/2\eta)(\partial_k A^a{}_1 - \partial_1 A^a{}_k)^2\} - (1/\eta)(\partial_0 A^a{}_k - \partial_k A^a{}_0)\,\partial_k A^a{}_0$
$= \{\mathbf{E}^a \mathbf{D}^a + \mathbf{H}^b \mathbf{B}^b\}/2 + (1/c^2\eta)(\mathbf{E}^a{}_t + \mathbf{E}^a{}_1)(-\mathbf{E}^a{}_1)$. 〈QED analogy expression〉
By longitudinal gravity filed,above terms becomes negative due to $\alpha^g = +1/\varepsilon^g$.
$\mathscr{H}^{GF}{}_{QGD}(\mathbf{E}^{a=g}{}_t = 0) = \{\mathbf{E}^g \mathbf{D}^g\}/2 - \mathbf{E}^g \mathbf{D}^g = -\mathbf{E}^g \mathbf{D}^g/2 < 0$.
Note $iG^g{}_0 \equiv i^2\phi^g/c$ is real,while $R^r{}_0 \equiv i\phi^r/c$ are all imaginary.
<$E^g{}_k = -\partial_k(i\phi^g)$, $D^g{}_k = -\varepsilon^g E^g{}_k$>.

(6)"**0 sum energy conservation low" globally in this universe<APPENDIX-1>.**

$$0=\iiiint_{-\infty}^{+\infty}dx^4\mathcal{H}_{QGD}=\iiiint_{-\infty}^{+\infty}dx^4\{\mathcal{H}^0_{QGD}+\mathcal{H}^I_{QGD}\}=\iiiint_{-\infty}^{+\infty}dx^4\mathcal{H}^{G0}_{QGD}(A^g_k=0).$$

$$\mathcal{H}^{G0}_{QGD}(A^g_k=0)\equiv(1/2\eta)(\partial_k A^g_0)^2-(\alpha/2)B^gB^g+\{gc\hbar\bar{\phi}\gamma^0A^g_0\mathbf{Q}_g\phi+\chi gf_g{}^c{}_b\partial_0\bar{C}^cA^g_0C^b\}$$

$$0=\iiiint_{-\infty}^{+\infty}dx^4\{-E^gD^g/2-(\alpha/2)B^gB^g-A^g_0J^g_0\}.$$

From **QED analogy**(7), $J^g_0A^g_0$ is **positive energy** of matter(ϕ) and dipole matter(C^b),while $-\partial_kA^g_0$, iB^g are **negative one** of gravity field generated by the former.

(7)**Energy** can be created **by manmade way** by scalar wave radiation**(N.Tesla).**

http://www.777true.net/BWG.pdf

$\mathcal{H}^{G0}_{QED}(A_k=0)=-ED/2-\alpha BB/2+\rho\phi=0$ by $\Box\phi=0$.

Scalar wave ϕ in QED satisfy $0=+E-E$ **globaly** by time&space average !.

(a) $\phi\equiv\sin(kx-\omega t)$. $\rightarrow$ $\Box\phi=0$. $\langle k=\omega/c;\ \alpha=-1/\varepsilon\rangle$

(b) $E_x=-\mathrm{grad}\,\phi=-k\cos(kx-\omega t)$.

$-E^gD^g/2=-\varepsilon k^2\cos(kx-\omega t)^2/2$.

(c) $B=-ic\,\partial_0A_0/\alpha=\varepsilon i\,\partial_t\phi/c=-i(\varepsilon\,\omega/c)\cos(kx-\omega t)$.

$-\alpha BB/2=-\varepsilon(\omega/c)^2\cos(kx-\omega t)^2/2$.

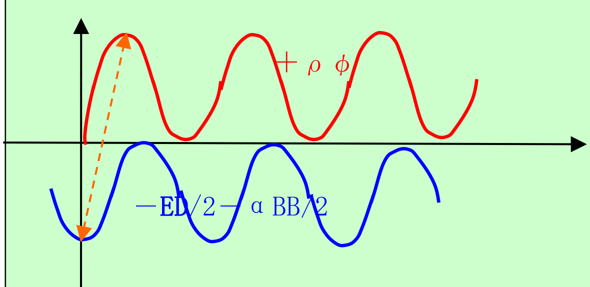
(d) $\rho\,\phi=-\varepsilon\,\mathrm{div}\cdot\mathrm{grad}\,\phi=\varepsilon k^2\sin(kx-\omega t)^2$

(e) $U=-ED/2-\alpha BB/2+\rho\,\phi=\varepsilon k^2[-\cos(kx-\omega t)^2+\sin(kx-\omega t)^2]=-\varepsilon k^2\cos2(kx-\omega t)$.

$\iiiint_{-\infty}^{+\infty}dx^4U(x)=\iiiint_{-\infty}^{+\infty}dx^4\cos2(kx-\omega t)=0$.

Then note we could not physically observable on negative energy(b)(c),

while positive energy(d) **can be observable.**



*note $J_0A_0=ic\rho(i\phi/c)=-\rho\phi$. Sign become negative in this form.

[3] : **Energy Creation from QED to QGD .**

Law of energy conservation had already been proved as **0 sum law**<see Appendix-1>.

Therefore in [2],we are to describe possible process for energy creation.

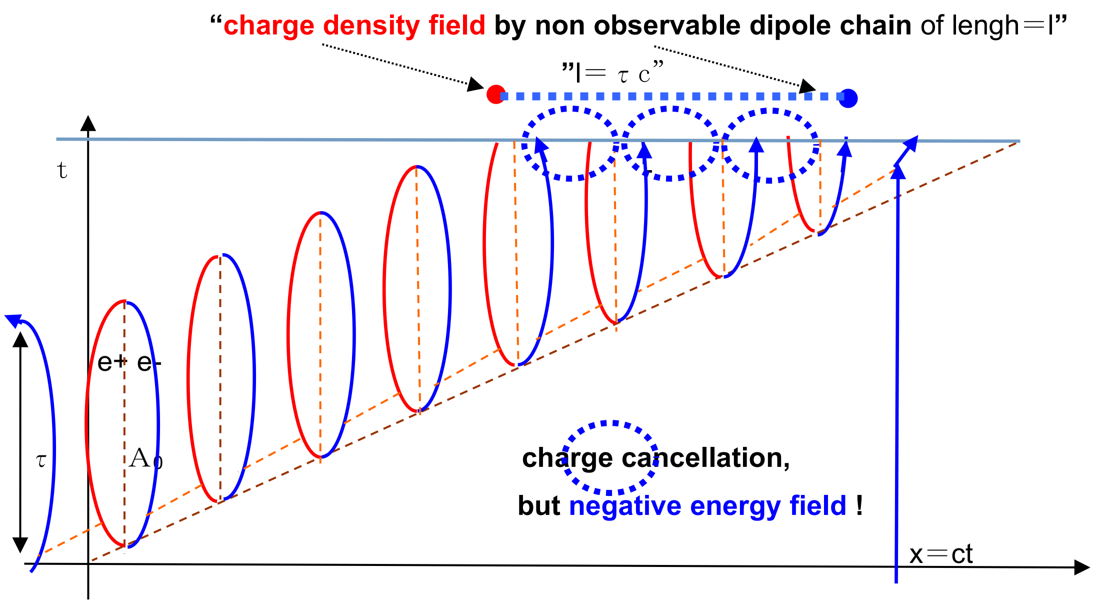
(a)As was mentioned in [1] : (7), an energy can be created from $\Box\phi=0$ in QED.

Now we shall describe the process from initial QED to final QGD. If energy creation was mass increment of $\Delta E=\Delta mc^2$,the mass increment Δm was described in **quantum state** of hot matter$=\phi$ which never fail to excite gravity field $iG^g{}_0\equiv i^2W^g/c+i^2\delta G^g{}_0$.

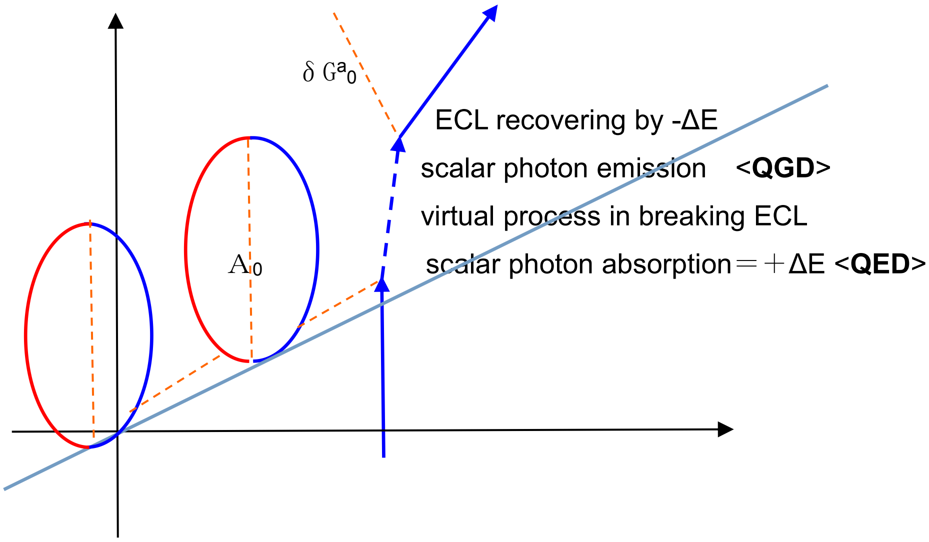
$\Box iG^g{}_0=\eta gc\hbar\bar{\phi}\gamma^0 Q_g\phi.\leftarrow\phi\leftarrow\Delta E=\Delta mc^2\leftarrow\Box\phi=0$ radiation by energy free capacitor

$\Delta(iG^g{}_0)\rightarrow 0>\Delta(-E^gD^g/2-(\alpha^g/2)B^gB^g)=-\Delta mc^2=-\Delta E=-\Delta(A^g{}_0J^g{}_0)$.

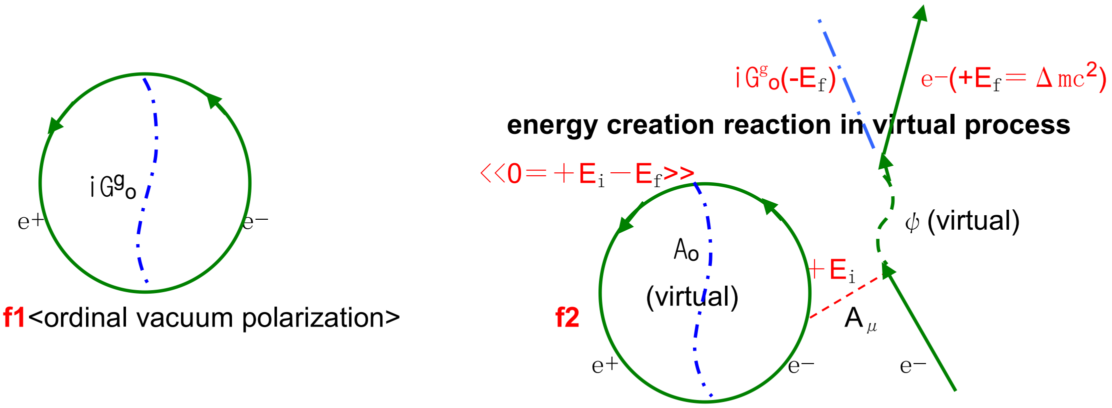
(b)**how to generate charge density wave by induced polarization propagation:**



(c)**Energy Conservation Law(≡ECL) breaking in virtual process and the recovering.**



(d)**The reaction process**.



f1 is **normal vacuum polarization**,in which initiation is creation of matter{e+,-e-} with energy $0=+E-E$,where -E of negative energy is with gauge field $iG^g{}_o$,however those are to be terminated(vacuum polarization annihilation as nothing).

f2 is a **possible QGD reaction** of **energy creation from nothing** by vacuum polarization induced by such QED **charge density wave radiation** as an example.Initiation is the same as normal polarization case.Then created {e-}is supposed to do work by $+E_i$.In above case, e- emits photon{A_μ}toward another e- which is to gain energy($+E_i$). Then created pair of {e+ -e-}with energy deficit of $+E_i$ could terminate normal vacuum polarization due to **virtual process** nature allowing energy conservation law.The real and final energy conservation law is to be accomplished by emitting negative gravity field of $iG^g{}_o(-E_f)$ by φ.

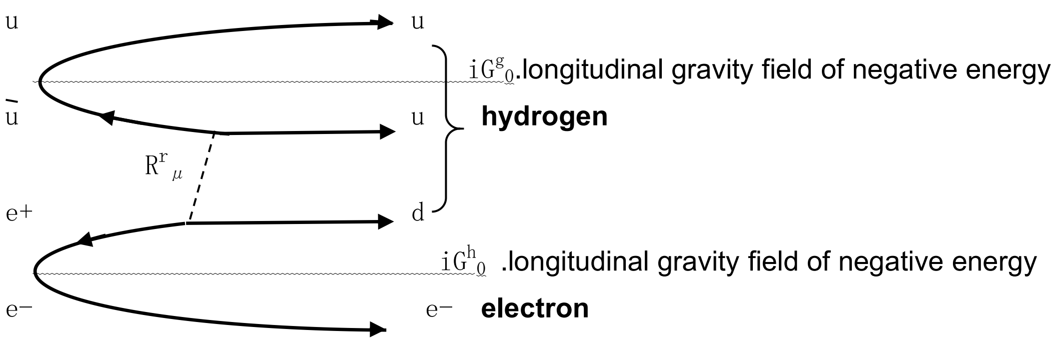
The final reaction of gauge field is to accomplish energy conservation law.

$E_i(A_\mu\rightarrow\phi)-E_f(iG^g{}_o)=0.$

This is not a proof,but a possibility of reaction in the concept.

(e)**A Possible Matter**(uud＋e-＝H+ e-) **Creation Reaction from Nothing in QGD.**

In the beginning is double pair creations{u+,u-}&{e+,e-}



M.Yoshimura,Phys,Rev.Lett.**41**(1978),281

"Symmetry breaking down reaction of matter and anti-matter"

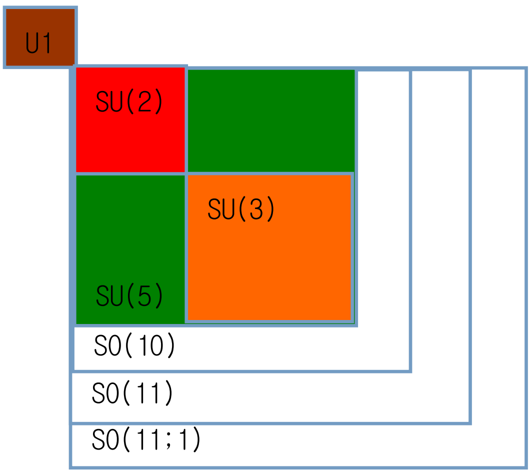
(f)**Correction on Lie Algebra Sequence.**

SO(11;1)⊃SO(11)⊃SO(10)⊃SU(5)⊃SU(3)×SU(2)×U(1).

Above is not correct,but following is right.

SO(11;1)×U(1)⊃SO(11)×U(1)⊃SO(10)×U(1)⊃SU(5)×U(1)⊃SU(3)×SU(2)×U(1).

QED was created from the beginning.



APPENDIX-0:QGD summary:

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

⑴**Gravity Field is represented by the Principle of Equivalent<A.Einstein 1916>**

"Gravity and inertia force(accelerated coordinates) is equivalent.".

⑵**the Principle of Equivalent is represented by localized Lorentz Invariance.**

＊R.Utiyama,Phys.Rev.**101**(1956),1597.

In accelerated coordinates,*localized Lorentz invariant must be established.*

⑶**the localized Lorentz invariance is also localized Gauge invariance in linear coordinate**(by author M.Suzuki 1993). Accepted to Progress of Theoretical Physics(1993) and Phys Rev Letter D(1997),but rejected to publish.

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

⑷**Lagrangean in localized Gauge invariance is uniquely determined as follows**.

Once **Lagrangean** had been determined,all the dynamical information can be derived from formalized algorithm.That is,all is unique **Lagrangean**.

$$\mathcal{L}_{QGD} = -c\bar{\phi}\left[\hbar\gamma^{\mu}(\partial_{\mu} + gA^{a}{}_{\mu}\mathbf{Q}_{a}) + mc\right]\phi + icB^{a}\partial_{\mu}A^{a}{}_{\mu} + \tfrac{1}{2}\alpha B^{a}B^{a}$$
$$-(1/4\eta)(\partial_{\mu}A^{a}{}_{\nu} - \partial_{\nu}A^{a}{}_{\mu} + gf_{b}{}^{a}{}_{c}A^{b}{}_{\mu}A^{c}{}_{\nu})^{2} + \chi\bar{C}^{a}\cdot\partial_{\mu}(\partial_{\mu}C^{a} + f_{b}{}^{a}{}_{c}A^{b}{}_{\mu}C^{c}).$$

＊L.D.Faddeev&V.N.Popov,Phys Lett,**25B**(1967),29.

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

⑸**Gauge symmetry of localized Lorentz invariance is SO(N=11;1).**

Lie algebra of $SO(N;1)$: $\mathbf{Q}_{a(kl)} = \gamma^{k}\gamma^{l}/2$

⑹**The time & space Dimension Problem**<empirically N＝11>.

N＝11 is not determined by any principle,but math strongly indicates N＝11.

Space more than 12 is told not to be valid.

⑺**Summary:What can determine Lagrangean !!.**

Ⅰ:Quantization Principle[canonical conjugate principle].

Algorithm of Quantum Mechanics

Ⅱ:Generalized Gauge Invariant Principle(including localized Lorentz one).

Mutual interaction forces in matter.

(8)**SO(N=11;1)localized Lorentz invariant and anti-hermite field** $\{iG^{ok}{}_{0},\ iG^{ok}{}_{l}\}$.

$x_\mu \equiv [ict, x_1, x_2, , , , x_N,], dx'_\mu \equiv [\delta_{\mu\nu} + \varepsilon_{\mu\nu}(x)]dx_\nu \leftrightarrow \varepsilon_{\alpha\beta} = -\varepsilon_{\beta\alpha}$.

$\varepsilon_{\mu\nu} = (\varepsilon_{01}, \ldots, \varepsilon_{0N}) : (\varepsilon_{12}, \ldots, \varepsilon_{N-1N})$ imaginary; real	$A^{\alpha\beta}{}_\mu = \partial_\mu \varepsilon_{\alpha\beta} \equiv \{iG^g{}_\mu, R^r{}_\mu\} \equiv A^a{}_\mu$ $\gamma^\alpha\gamma^\beta/2 = -\gamma^\beta\gamma^\alpha/2 = \mathbf{Q}_a$
$iG^{01}{}_{0}, \ldots, iG^{0N}{}_{0}$, (longitudinal)→survive $iG^{01}{}_{N}, \ldots, iG^{0N}{}_{N}$, (transversal)→ 0. **Anti-hermite**<non-closed algebra>	$R^{12}{}_{0}, \ldots, R^{N-1N}{}_{0}$,<imaginary> $R^{12}{}_{N}, \ldots, R^{N-1N}{}_{N}$, hermite<**SO(N)closed algebra**>

☞: The most singular feature of **QGD** is emerging none Hermite field $\{iG^{ok}{}_{0}.\ iG^{ok}{}_{k}\}$. $iG^{ok}{}_{k}$ are **imaginary variable** and realizing negative energy only in **instantaneous Big-Bang the virtual process** of $\Delta t \Delta E = \hbar$.However real variable of **longitudinal** $\{iG^{0k}{}_{0}\}$ was to be weakened,but to survive as **universal attraction force** at last stage of stationary state.

＊**w suffix convention** (a≡kl) $\#iG^g{}_\mu = N-1$, $\#R^r{}_\mu = N(N-1)/2$<see table>.

$\equiv \{g \equiv 01, 02, , , 0N, r \equiv 12, 13, , , 1N, 23, 24, , , 2N, 34, 35, \ldots, N-1N\} \equiv (a)$.

＊ $\mathbf{Q}_{a(kl)} = \gamma^k \gamma^l/2$, ＊＊$\{A^{\alpha\beta}{}_\mu, B^{\alpha\beta}{}_\mu, C^{\alpha\beta}\} = -\{A^{\beta\alpha}{}_\mu, B^{\beta\alpha}{}_\mu, C^{\beta\alpha}\}$.

＊SO(N:1)generator : $[\mathbf{Q}_{a(kl)}, \mathbf{Q}_{b(mn)}] = f_{a(kl)}{}^{c(lm)}{}_{b(mn)} \mathbf{Q}_{c(lm)}; f_{kl}{}^{lm}{}_{mn} = \delta^{lm}$.

	0	1	2	..	..	N
0		G	G			G
1			R			R
2						R
:						R
:			SO(N)			R
N						

(9)**The QGD Lagrangean.**

$$\mathcal{L}_{QGD} = -c\bar{\phi}[\hbar\gamma^\mu(\partial_\mu + gA^a{}_\mu \mathbf{Q}_a) + mc]\phi$$
$$+ icB^a \partial_\mu A^a{}_\mu + \tfrac{1}{2}\alpha^a B^a B^a$$
$$-(1/4\eta)(\partial_\mu A^a{}_\nu - \partial_\nu A^a{}_\mu + gf_b{}^a{}_c A^b{}_\mu A^c{}_\nu)^2$$
$$+\chi\bar{C}^a \cdot \partial_\mu(\partial_\mu C^a + f_b{}^a{}_c A^b{}_\mu C^c).$$

(10)**Euler Equations.**

$$0 = ic\partial_\mu A^a{}_\mu + \alpha^a B^a.$$
$$0 = ic\partial_\mu D_\mu C^a = \Box C^a + gf_b{}^a{}_c \partial_\mu(A^b{}_\mu C^c).$$

$$[\Box - g^2(f_a{}^c{}_b A^b{}_\nu)^2]A^a{}_\mu \equiv J^a{}_\mu = \eta gc\hbar\bar{\phi}\gamma_\mu \mathbf{Q}_a \phi$$
$$+ gf_b{}^a{}_c \partial_\nu(A^b{}_\mu A^c{}_\nu) + g^2 f_a{}^c{}_b A^b{}_\nu(\partial_\mu A^c{}_\nu - \partial_\nu A^c{}_\mu) + g^2 f_a{}^c{}_b A^b{}_\nu(f_{d\neq a}{}^c{}_e A^d{}_\mu A^e{}_\nu)$$
$$+ \eta\chi gf_a{}^c{}_b C^b \partial_\mu \bar{C}^c.$$

APPENDIX-1:Energy Conservation Low in Lagrangean Formulation.

Dynamics by Lagrangean Formulation is entirely formal as its name,however **the simplicity** also can be true and anyone could not find any error.

(1)**Any dynamical system is uniquely determined by the Lagrangean's 0 variation value** $\delta \mathcal{L}_{GF}(\phi_\alpha ; \partial_\mu \phi_\alpha)=0.$ $\oint dx^N \partial_\mu K_\mu =0.$

$0=\delta \mathcal{L}_{GF}(\phi_\alpha ; \partial_\mu \phi_\alpha)=\delta\phi_\alpha \cdot \partial \mathcal{L}_{GF}/\partial \phi_\alpha + \partial_\mu[\delta\phi_\alpha \cdot \partial \mathcal{L}_{GF}/\partial(\partial_\mu \phi_\alpha)] - \delta\phi_\alpha \cdot \partial_\mu[\partial \mathcal{L}_{GF}/\partial(\partial_\mu \phi_\alpha)] = \delta\phi_\alpha\{\partial \mathcal{L}_{GF}/\partial \phi_\alpha - \partial_\mu[\partial \mathcal{L}_{GF}/\partial(\partial_\mu \phi_\alpha)]\}.$

$\rightarrow \quad \partial \mathcal{L}_{GF}/\partial \phi_\alpha - \partial_\mu[\partial \mathcal{L}_{GF}/\partial(\partial_\mu \phi_\alpha)]=0.$ . . . . . Euler Equation.

(2)**Conserved Canonical Variable of Energy&Momentum Tensor.**

$T^{\mu\nu}\equiv[\partial \mathcal{L}_{GF}/\partial(\partial_\mu \phi_\alpha)]\partial_\nu \phi_\alpha - \delta_{\mu\nu}\mathcal{L}_{GF}. \quad \rightarrow \quad \partial_\nu T^{\mu\nu}=0.$

$\rightarrow 0=\oint dx^N \partial_\nu T^{0\nu} = \partial_0 \oint dx^N T^{00} + \oint dx^N \partial_k T^{0k} = \partial_0 \oint dx^N T^{00}.$

$T^{00}=[\partial \mathcal{L}_{GF}/\partial(\partial_0 \phi_\alpha)]\partial_0 \phi_\alpha - \mathcal{L}_{GF} \equiv \mathcal{H}_{GF}.$

"Hamiltonian system without explicit time dependency conserves the energy".

That is, the initial energy value !!! $E=\oint dx^N \mathcal{H}_{GF}|_{t=0}.$

Note this is not local law,but global one<full volume integral>.

(3)**Total Energy of This Universe created from Nothing is Zero !!!.**

However it can be as $0=+E-E.$

(4)**Singularity of mutual interaction Hamiltonian**$=\mathcal{H}^I_{QGD}.$

$\mathcal{H}^I_{QGD}=gc\hbar\bar{\phi}\gamma^\mu A^a_\mu Q_a \phi + (1/\eta)(\partial_\mu A^a_\nu - \partial_\nu A^a_\mu) g f_b{}^a{}_c A^b_\mu A^c_\nu + (1/2\eta) g^2 (f_b{}^a{}_c A^b_\mu A^c_\nu)^2 + \chi g f_b{}^a{}_c \partial_\mu \bar{C}^a A^b_\mu C^c.$

An **interactional Hamiltonian**=$\mathcal{H}^I_{QGD}$ can not be **causalgic energy observable** in general,but tool to calculate **quantum state transition probability** in reaction due to http://www.777true.net/img007-Quick-Guide-to-Quantum-Stochastic-Mechanics.pdf mathematical singularity*).Product of hyperfunction such as field operator $\phi(x), A^a_\mu(x)$ can not be defined due to mathematical singularity in general.This is the origin of the **difficulty of divergence in perturbation calculation in quantum field theory.**

*)N. Nakanishi, 場の量子論(quantum field theory)P7, 培風館, 1975, 東京.

However $j^a_\mu A^a_\mu = gc\hbar\bar{\phi}\gamma^\mu A^a_\mu Q_a \phi$ can be observable when A^a_μ becomes constant field, which are mentioned in **mass energy generation** due to frozen constant field of $A^a_\mu \sim iG^g_0 \equiv i^2 W^g/c + \delta\, iG^g_0.$

APPENDIX-2:Mass Generation Mechanism and Macro Gravity Field.

＊weakened quantum gravity field as constant one in bottom potential.

＊the negative energy by down bottom 凹 potential by $\langle iG^g_0 \equiv i^2 W^g/c + \delta\, iG^g_0 \rangle$.

(1)**frozen gauge field＝constant one and 0 point vibration :**$iG^g_0 \equiv i^2 W^g/c + \delta\, iG^g_0$.

Temperature decreasing realized minimum potential<frozen gauge field>.

Note only longitudinal component $iG^g_0 \equiv i^2 \phi^g/c$ can become real,while $i\phi^r/c$ can not,

$\mathscr{L}_{GF} = T - V = -(1/4\eta)(F^a_{\mu\nu})^2 = -(1/2\eta)[\partial_\mu A^a_\nu - \partial_\nu A^a_\mu + g f_b{}^a{}_c A^b_\mu A^c_\nu]^2$

$= -(1/2\eta)[\partial_\mu A^a_\nu]^2 - (1/\eta)\partial_\mu A^a_\nu \partial_\nu A^a_\mu - (1/\eta)[\partial_\mu A^c_\nu - \partial_\nu A^c_\mu] g f_a{}^c{}_b A^a_\mu A^b_\nu$

$-(12\eta) g^2 (g f_a{}^c{}_b A^b_\nu)^2 (A^a_\mu)^2 - (1/\eta)(g^2) f_a{}^c{}_b A^b_\nu (f_{d\neq a}{}^c{}_e A^d_\mu A^e_\nu)\} A^a_\mu$

$* \partial_\mu A^a_\nu \partial_\nu A^a_\mu = \partial_\nu(\partial_\mu A^a_\nu A^a_\mu) - (A^a_\mu \partial_\mu(\partial_\nu A^a_\nu) = 0.$

$= -(1/2\eta)(\partial_\nu A^a_\mu)^2 - V$

$= -(1/2\eta)(\partial_\nu A^a_\mu)^2 - (g/2\eta)(f_a{}^c{}_b A^b_\nu)^2 (A^a_\mu)^2$

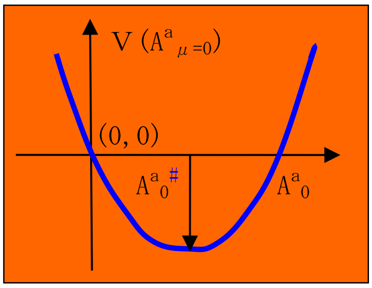
$-(1/\eta)\{g f_a{}^c{}_b A^b_\nu (\partial_\mu A^c_\nu - \partial_\nu A^c_\mu)$

$-(1/\eta)(g^2) f_a{}^c{}_b A^b_\nu (f_{d\neq a}{}^c{}_e A^d_\mu A^e_\nu)\} A^a_\mu$

$= -(1/2\eta)(\partial_\nu A^a_\mu)^2 - (1/2\eta) M^a_\mu (A^a_\mu)^2 - N^a_\mu A^a_\mu$

$= -(1/2\eta)(\partial_\nu A^a_\mu)^2$

$-(1/2\eta) M^a_\mu [A^a_\mu + N^a_\mu / M^a_\mu]^2 + (N^a_\mu)^2 / 2\eta M^a_\mu.$



frozen constant gauge field with **0**-vibration

$V = (1/2\eta) M^a_\mu [A^a_\mu + N^a_\mu / M^a_\mu]^2 - (N^a_\mu)^2 / 2\eta M^a_\mu.$

$M^a_\mu = g (f_a{}^c{}_b A^b_\nu)^2.$

$N^a_\mu = \{g f_a{}^c{}_b A^b_\nu (\partial_\mu A^c_\nu - \partial_\nu A^c_\mu) + g^2 f_a{}^c{}_b A^b_\nu (f_{d\neq a}{}^c{}_e A^d_\mu A^e_\nu)\}.$

$iG^g_0 \equiv i^2 W^g/c + \delta\, iG^g_0 \equiv A^{a\#}_0 = -N^a_0 / M^a_0$ . . . . 〈**gauge field value at potential bottom**〉

$= \{g f_a{}^c{}_b A^b_\nu (\partial_{\mu=0} A^c_\nu - \partial_\nu A^c_\mu) + g^2 f_a{}^c{}_b A^b_\nu (f_{d\neq a}{}^c{}_e A^d_\mu A^e_\nu)\} / g (f_a{}^c{}_b A^b_\nu)^2 \sim 0/0.$

(2)**Zero point vibration of** $\{iG^g_0 \equiv i^2 W^g/c + \delta\, iG^g_0\}$ **the longitudinal field.**

$[\Box - g^2 (f_a{}^c{}_b A^b_\nu)^2] A^a_\mu \equiv J^a_\mu = \eta g c\hbar \bar{\phi} \gamma^\mu \mathbf{Q}_a \phi$

$+ g f_b{}^a{}_c \partial_\nu (A^b_\mu A^c_\nu) + g f_a{}^c{}_b A^b_\nu (\partial_\mu A^c_\nu - \partial_\nu A^c_\mu) + g^2 f_a{}^c{}_b A^b_\nu (f_{d\neq a}{}^c{}_e A^d_\mu A^e_\nu)$

$+ \eta \chi g f_a{}^c{}_b C^b \partial_\mu \overline{C}^c.$

(3)**weakened quantum gravity field had become wave Eqn Field with mass=0.**

$\Box A^a_\mu \equiv J^a_\mu = \eta g c\hbar \bar{\phi} \gamma_\mu \mathbf{Q}_a \phi + g f_b{}^a{}_c \partial_\nu (A^b_\mu A^c_\nu) + \eta \chi g f_a{}^c{}_b C^b \partial_\mu \bar{C}^c$..

Vanishing transversal component<$A^b_{k>0}=0$> yields **wave equation**(3)**<QED analogy !!!>**.

$* \Box iG^g_0 \equiv J^g_0 = \eta g c\hbar \bar{\phi} \gamma_0 \mathbf{Q}_g \phi + \eta \chi g f_a{}^c{}_b C^b \partial_0 \bar{C}^c$.

Thus weakened quantum gravity field had become Dalambert Eqn Fields{ δiG^{01}_0, δiG^{02}_0,. , δiG^{011}_0} which have become quite analogous to QED $\Box A_0 = -\mu j_0$. <$A_0 \equiv i\phi/c$, $j_0 \equiv ic\rho$>.

(4)Mass Generation Mechanism.

Mass generation of spinor field is caused from **minimal gauge interaction** between **frozen gauge field** $iG^g_0 (= i^2 W^g/c + \delta iG^g_0)$ and spinor ϕ. This is analogy of $E = -ic\bar{\phi}\gamma^0 q A_0 \phi$.

Note zero point vibration term could not observable energy.

$g c\hbar \bar{\phi} \gamma^0 \delta iG^g_0 \mathbf{Q}_g \phi$ =mathematically singular.<see Appendix-1>

$E = -A^g_0 J^g_0$

$= mc^2 \phi * \phi = g c\hbar \bar{\phi} \gamma^0 A^a_0 (iG^g_0) \mathbf{Q}_a \phi = \bar{\phi} g c\hbar \gamma^0 [i^2 W^g/c] \mathbf{Q}_g \phi = c^2 \phi * [(i^2 g\hbar W^g/c^2) \mathbf{Q}_g] \phi$.

$M = [(-g\hbar W^g/c^2) \mathbf{Q}_g]$. .... **spinor particle mass formula**.

$J^g_0 \equiv \eta g c\hbar \bar{\phi} \gamma^0 \mathbf{Q}_g \phi$. .... **hyper charge current of** $\mu = 0$ component.

(5)deriving macro gravity equation.

(a)**field equation:**

$\Box iG^g_0 = \eta g c\hbar \bar{\phi} \gamma^0 \mathbf{Q}_g \phi + \chi g f_a{}^c{}_b \partial_0 \bar{C}^c (iG^a_0) C^b$.

<$A^a_{k>0} \to 0$ vanishing transversal component>, see [1](4)

(b)**Gauge color contraction in frozen Guage field** $\{W^g\}$ **and** ϕ**'s definition.**

$\phi \equiv (L_P^2 c W^g) i \delta G^g_0$. <$L_P \equiv$ Plank length>

$\Box (L_P^2 c W^g) iG^g_0 = -(\eta L_P^2 c^4) \bar{\phi} \gamma^0 (-g\hbar W^g \mathbf{Q}_g/c^2) \phi + \chi g f_a{}^c{}_b \partial_0 \bar{C}^c (iG^a_0) C^b$.

$\Box \phi = -(\eta L_P^2 c^4) \phi * [-(W^g g\hbar/c^2) \mathbf{Q}_g] \phi + \chi g f_a{}^c{}_b \partial_0 C^c (iG^a_0) C^b$.

$\equiv -(\eta L_P^2 c^4) \phi * \mathbf{M}^g \phi + \chi g f_a{}^c{}_b \partial_0 C^c (iG^a_0) C^b$.

$\nabla \phi = K_G \rho(x)$........ stationary assumption drops time dependent terms.

$\phi(\mathbf{x}) = -\int dx'^3 \rho(x')/4\pi K_G^{-1} |\mathbf{x}-\mathbf{x}'|$.

APPENDIX-3:Why can QED create energy from nothing<the quantum magic> !!!

(1)(2) are full set of QED equations., $x_\mu \equiv [ict, \mathbf{x}]$, $A_\mu \equiv [i\phi/c, \mathbf{A}]$, $\partial_\mu A_\mu \equiv \Sigma_{\mu=0}^{3} \partial_\mu A_\mu$.

(1) $\Box A^a_\mu = -\mu j_\mu$.

(2) $\alpha B + ic\partial_\mu A_\mu = 0$. < $\alpha = -1/\varepsilon$; $c^2 = 1/\varepsilon\mu$ >

$\Box B = -(ic/\alpha)\partial_\mu \Box A_\mu = (ic\mu/\alpha)\partial_\mu j_\mu = (-ic\varepsilon\mu)\partial_\mu j_\mu = ((ic)^{-1}\partial_\mu j_\mu$.→ $\Box B = ((ic)^{-1}\partial_\mu j_\mu$.

(3) B **field is drived by breaking law of current conservation one** $\partial_\mu j_\mu = 0$.

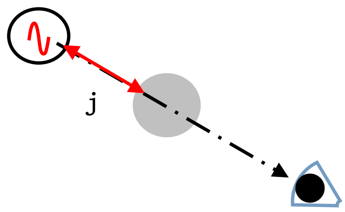
In classical electro-magnetism, **current conservation law** $\partial_\mu j_\mu = 0$ is absolute.

Then absolutely $\Box B = 0$ in natural environment.B may be mere a quantum noise.

However in quantum theory where **observability***) ruling, $\partial_\mu j_\mu \neq 0$ can be realized by charge vibration $\partial_0 j_0 \neq 0$ with nothing current $\mathbf{j} = 0$<no magnetic observing>..

*) Quantum Theory can be reconstructed form observation logic<**Birkov-Neuman**>.

(4)**Actual implementation for radiating** $B = ic\varepsilon\partial_0 A_0$**<time dependent scalar wave>**



In current progressing direction field,nothing magnetic one(nothing current observation),however,they can observe longitudinal electrical field(A_0) by charge . vibration source($\partial_t \rho$). This is also coherent B field radiation. < $\partial_\mu j_\mu \equiv \partial_t \rho + \mathrm{div}\,\mathbf{j}$>.

$\Box\partial_0 A_0 = -\mu\partial_0 j_0$. → $\Box\partial_t \phi = -\partial_t \rho./\varepsilon$

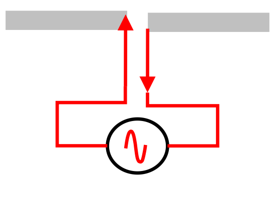
$B = -(ic/\alpha)\partial_\mu A_\mu = -(ic/\alpha)\partial_0 A_0 = (i\varepsilon/c)\partial_t \phi$. <nothing transversal component $A_k = 0$>.

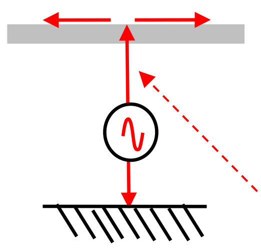
$\Box B = ((ic)^{-1}\partial_0 j_0 \neq 0$.

(5)**mono pole antenna of capacitor never consume energy !!!!.**

http://www.777true.net/BWG.pdf

dipole antenna **monopole antenna** vanishing magnetic field in far field.





As is wellknown,capacitor never consume energy,while but not resistor.A monopole antenna can be proved to be a capacitor.

* certainly,this driving line radiates some positive energy.

To tell or to write is "*not can believe*",but to see is to believe. An experiment is decisive.

APPENDIX-4:As for gauge parameter.

Lagrangean term αBB/2 has been told **arbitrary** due to the **ghost nature<non-physical observable>.**Therefore so called Feynman gauge($\alpha \neq 0$),or Landau gauge(α =0) were in the past. But this is not correct,$\alpha = -1/\varepsilon$ in QED.

(1)**QED Gauge Parameter.**<$c^2 = 1/\varepsilon\mu$>

$0 = D_E \mathscr{L}_{QED} \to \Box A_\mu = -\mu(j_\mu - ic\partial_\mu B) + \partial_\mu \partial_\nu A_\nu \to$

$\Box \partial_\mu A_\mu = (-\alpha/ic)\Box B = (-\alpha/ic)(ic)^{-1}\partial_\mu j_\mu = -\mu\partial_\mu j_\mu + ic\mu(1+\alpha\varepsilon)\Box B.$

$*0 = ic\mu(1+\alpha\varepsilon)\Box B = \mu ic\partial_\mu\partial_\mu B + \partial_\mu\partial_\mu(-\alpha B/ic) = \mu ic\Box B + (-\alpha/ic)\Box B$

$= (\mu ic + (-\alpha/ic))\Box B = (ic\mu + (ic\alpha\varepsilon\mu)\Box B = ic\mu(1+(\alpha\varepsilon)\Box B.$

$** (-\alpha/ic)(ic)^{-1}\partial_\mu j_\mu = -\mu\partial_\mu j_\mu \to (-\alpha/ic)(ic)^{-1} = -\mu$。

$\to \alpha = -1/\varepsilon$, $\Box A_\mu = -\mu j_\mu$. ☞: α had been undetermined in former QED.

(2)**QGD Gauge Parameter.**

[2](5)**QGD non-interaction Hamiltonian and possible negative energy terms.**

(1)$\mathscr{H}^0{}_{QGD} \equiv$

$= c\hbar\overline{\phi}\gamma^k\partial_k\phi + \overline{\phi}mc^2\phi$ ← <kinetic and mc^2 energy is positive>

$+\{-(1/2\eta)(\partial_0 A^a{}_k - \partial_k A^a{}_0)^2 + (1/2\eta)(\partial_k A^a{}_1 - \partial_1 A^a{}_k)^2\} - (1/\eta)(\partial_0 A^a{}_k - \partial_k A^a{}_0)\partial_k A^a{}_0.$

$-icB^a\partial_k A^a{}_k$ → 0 $\langle A^a{}_{k>0}$ →0 vanishing transversal component$\rangle$

$-(\alpha^a/2)B^aB^a$ $-(\alpha/2)B^gB^g < 0$. → $\langle A^a{}_{k>0}$ →0; $B^a = -ic\partial_0 A^a{}_0/\alpha$ $\rangle$

$+\chi\partial_k\overline{C}^a\partial_k C^a$. → indefinite at now for author.

If $\alpha^g = -1/\varepsilon < 0$, then $-(\alpha^g/2)B^gB^g > 0$ and

$(1/2\eta)(\partial_k A^g{}_0)^2 = (1/2\eta c^2)(\partial_k\varphi^g)^2 = (\varepsilon^g E^g{}_k)/2 = E^g D^g/2 > 0.$

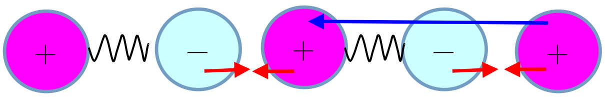
Note η was treated something like μ as in QED. This is against our hope.

It is too evident that gravity as **attraction force has negative energy**.

(3)**negative permittivity.**

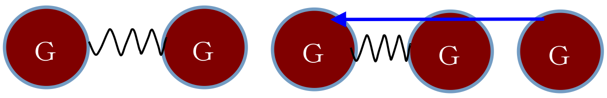
(a)**normal permittivity＝vector D is parallel with E.**

$D = +\varepsilon E.$



(b)**negative permittivity＝vector D is anti-parallel with E.**

$D = -\varepsilon E.$



Same charges attract with each other＝**universal attraction force !!!.**

APPENDIX-5:non contradiction＝observability vs **vacuum contradiction.**

A mathematics can be constructed from the supreme logic＝**non-contradiction**.

A quantum physics can be constructed from the supreme logic＝**observability**.

Note in matter world a phenomenon never occur by **double image visible.** Visible is nothing,but observability.That is,**observability and non contradiction is equivalent.**

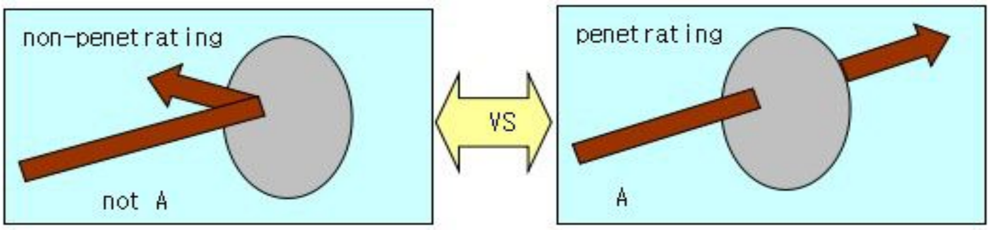
http://www.777true.net/fLogic-the-most-simple_but-supreme-way-for-recognition.pdf

①A contradiction never be observable in our material world .

<☞:but it can happen in something invisible such as **non-matter world(vacuum one)**>.

⑴**a decisive example：**

A weapon merchant say "this spear can break through any shields,and this shield can block any spears".Then a passinger asked the merchant" If you try to break thorough the shield with the spear ,what will happen ?",..........。



⑵In actual our visible(**observable**) physical material world,it never be possible to realize simultaneously {**A**(breaking thorough the shield) and **not A**(not breaking thorough the shield)}.As the consequence,our material world phenomena is basicly **non-contradictional.** Those happen mainly in **something invisible** as our languages(**lie** as software).

☞:Non-contradiction is an essence and mathematics system can be created only from uniqueness the presupposition of non-conctradictioness.Because,if cause A,then result B is unique,it becomes something functional B＝f(A).By assigning numbers set A yields unique value B is called **function**.This is the fundamental cause why material science is described by mathematics.Note our frequent tasks are researching ***what causes what results***.

⑶ contradiction is to break down something orderly.Telling lie cause loss of others,An error causes breaking down some order in our material world.

②If a contradiction had happened,then what would cause ?.

⑴If happened,it is **something invisible** as non-material world.

One of those is non-observable **physical vacuum world**.

⑵A contradiction enable everything happen.In QED and QGD,$\{B^a,\overline{C^a},C^a\}$are so called **ghost field** and relate with vacuum.**In APPENDIX-3,** we showed $\Box B=((ic)^{-1}\partial_\mu j_\mu$

which is zero in classical electrodynamics,while QED is not.