3-Dimensional String based alternative particle model.

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Abstract,

In particle physics it is an interesting challenge to postulate that the FORM and structure of elementary particles is the origin of different FUNCTIONS of these particles.

In this paper we present a possible solution based on complex 3-D ring shaped particles, which are equipped with three point like hinges and one splitting point, all four points divided equally over the ring surface.

The 3-D ring itself is postulated to represent the "Virgin Mother" of all other particles and is coined Higgs particle, supplied with the 3-hinges coded (OOO).

Introduction,

It is assumed that the vacuum is seeded with massive numbers of massless Higgs particles, all energetic oscillating inside a chiral vacuum lattice system and as such the origin and bearer of all energy in the universe. (reference: 1)

If by a local energy excess, two Higgs particles collide with enough energy, it is assumed that at fist an electron and positron emerges by the transformation of the two Higgs particles. Due to the propeller shape of the Fermions, these Fermions start to spin by a constant collision and scattering process with the Higgs vacuum, changing Higgs particles continuously into different forms of Photon/Gluons.

ALTERNATIVE STANDARD MODEL
of elementary (single) particles with click-on potentials to form compound Quarks- and Leptons.

Explanation of the codes:
U=   Up rotation (180 degrees)
O=   Unchanged circle.
L=   Left rotation (90 degrees)
R=   Right rotation (90 degrees)
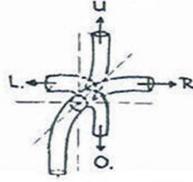
Summary with oscillation routes : (◄─►) or the definite Graviton decay route (───►) .

Spin 0 particle:	OOO	= Higgs particle.
Spin (2) particles:	ROL (or LOR)	= Graviton
Spin 1 particles:		
	UOU	= General Photon (also Gluon)
	ROU	=Em. North Photon (also Gluon)
	LOU	=Em. South photon (also Gluon)
	ROR	=E+ photon (also Gluon)
	LOL	=E- photon (also Gluon)

Only These particles are building -
blocks for Quarks.
Direct W. quark oscillations d<=>s..

Spin ½ particles

Weak interactions

		Gluon-Neutrino oscillations
	OLO	=Positron.
	ORO	=Electron
	RLR	= Electro-Neutrino
	LRL	= Anti-electro Neutrino
	LLL	= Muonic Neutrino
	RRR	= Anti-Muonic Neutrino
	ULU	= Tau Neutrino
	URU	= Anti-Tau Neutrino

Figure 1, 3D image of Basic Singular Particles;
ONE Higgs boson (OOO), TWO basic single mirror symmetrical Fermions: the Electron and Positron
(OLO and ORO), ONE Graviton (LOR), TWO sets of mirror symmetrical monopole Gluons/Photons
**(ROU-LOU, ROR-LOL) One symmetrical Gluon Photon (UOU).**
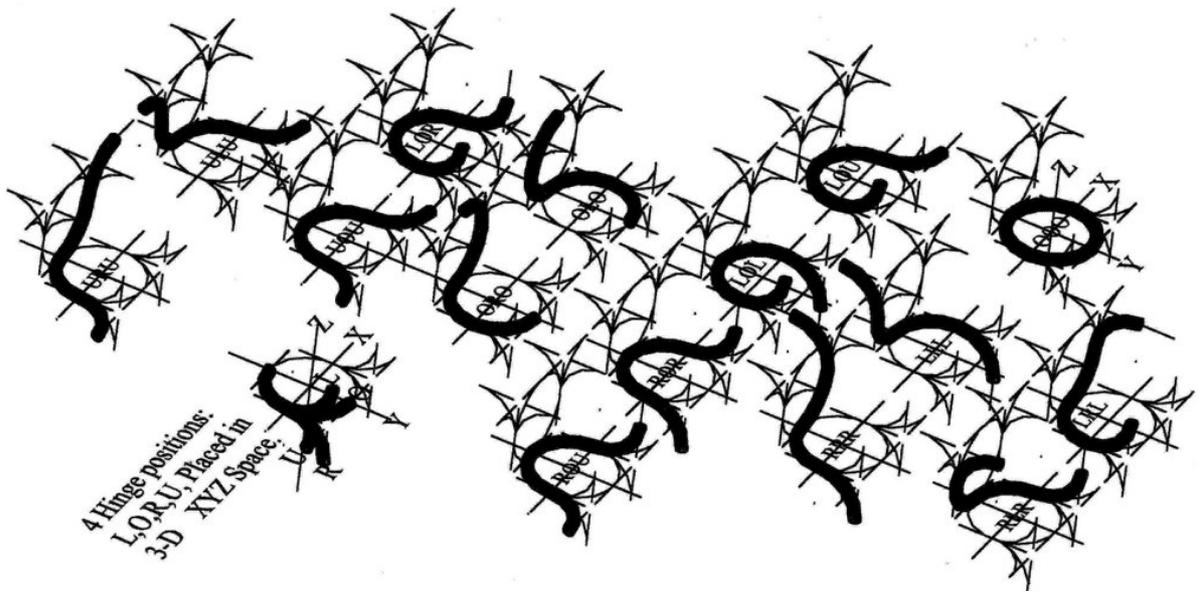
Figure 2, 3D image of all Singular particles including 3 sets of mirror symmetrical Neutrinos: RLR-LRL, RRR-LLL, URU-ULU.

Figure 3, 3D image of the Leptons: Electron, Positron, (singular) Muons and Tau particles (Compound particles).

Figure 4, 3D-Image of all 36 Quarks: UP-DOWN-STRANGE-CHARM-BOTTOM-TOP.

Geometry of the GOD particle based on four ELBOW
MACARONI shaped arms connected with three hinges.
These hinges are only able to rotate in steps of 90 degree
rotation, coded with: O, L, R, and U relative rotations.
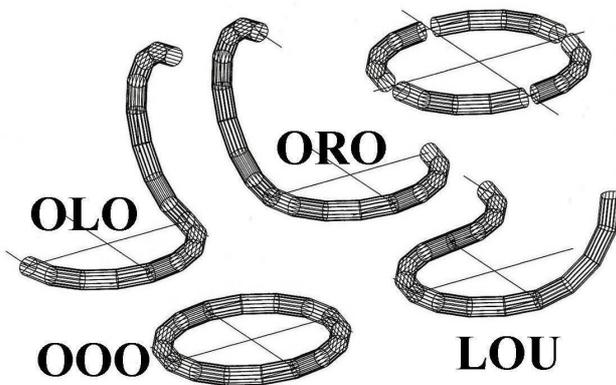
Figure 5.
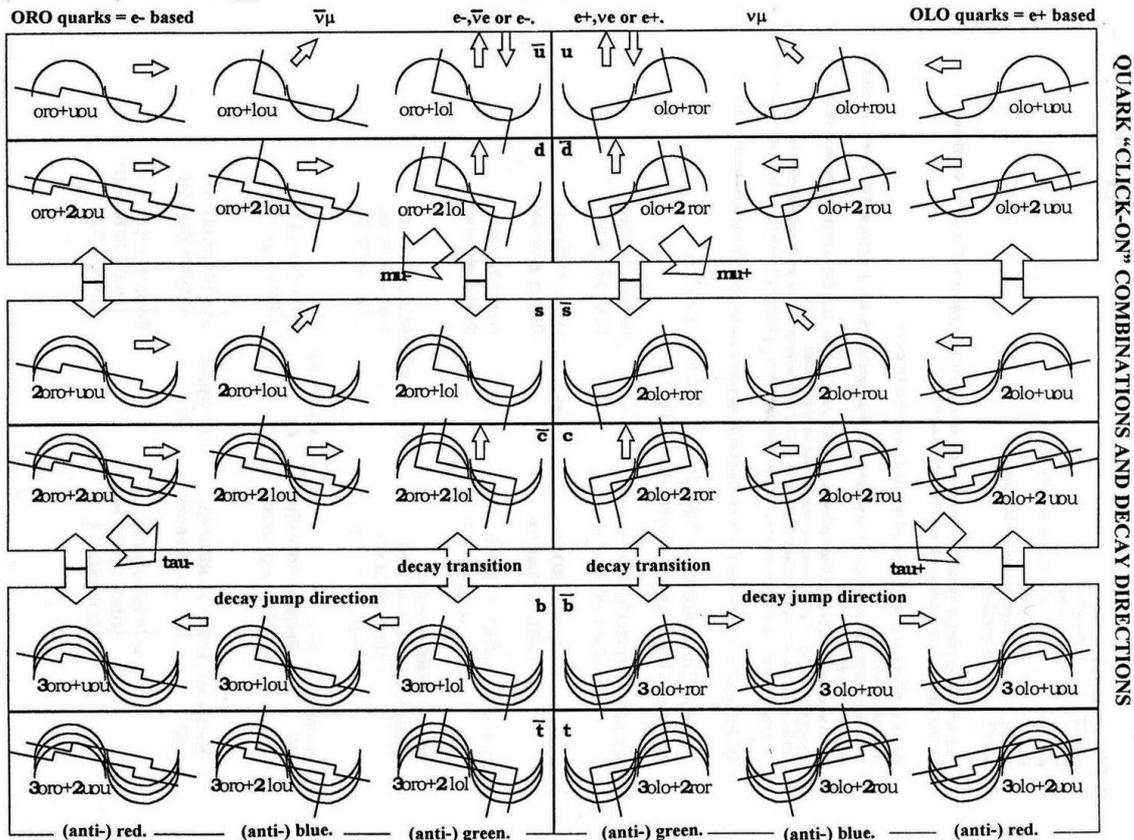
Figure 6, Simplified 2D image of Leptons and Quarks including indications for Decay routes indicated by arrows.

The Weak force, how change a d-quark (ORO+LLL+LRL) into an u-quark (OLO+ROR) in the case of Neutron-- Proton decay.
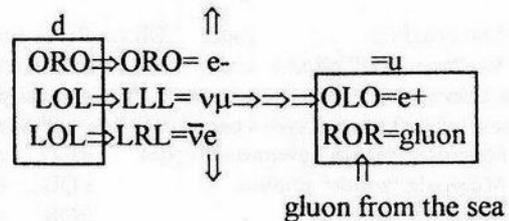
Figure 7, The WEAK force in action by a complex exchange of particles and without a clear sign of the Weak particle. Conclusion there is no need for a massive Weak particle in this system. The massless Higgs particle, seems to do the job properly by transformation of two compound Gluon particles (LOL) attached to the electron (ORO): (LOL into LLL) and (LOL into LRL) . In succession, the (LLL) particle is changed into (OLO) a Positron, able to combine with a free Gluon (ROR) out of the SEA of Gluon plasma.

THE DECAY OF QUARKS AND LEPTONS

According to my model: elementary particles have a **sub-quantum structure**, caused by the postulate that a kind of Higgs particle is the **basic elementary particle.** (see the relation with the model page: 4)
Two Higgs particles can change form by collision into an electron and positron pair.(ORO+OLO)
Each Higgs particle can change form by collision with a quark or lepton into one of the
 6 different possible types of photons:

1: **The graviton**   code: LOR (or ROL) can **not** "click-on" to e+ or e- particles to form quarks.
2: **The " general" photon** code   UOU.   can "click-on" to e+ or e- particles, to form quarks for all "red, anti-red"
(the colors are my own choice) quarks. The general photon has no quark confinement function, so is not a "real" gluon.
The 4 (gluon) photon types can also "click-on" to e+ or e- they are:
3: **Magnetic "north" photon** (in code)   ROU.   combining for all **"positive/blue, anti-blue"**   quarks.
4: **Magnetic "south" photon**   LOU.   combining for all **"negative/blue, anti-blue"**   quarks
5: **Electric + photon**   ROR.   combining for all **"positive/green, anti-green"** quarks.
6: **Electric - photon**   LOL.   combining for all **"negative/green, anti-green"** quarks.
Quarks are "click-on" combinations of e- and e+s with **5 different types of photons: 4 gluon** types and **1 general** type.
(so: quarks are not elementary)

Together with 1,2 or 3 **electrons**, 3 photon types can "click on" and combine into different **negative charged quarks.**
The **electron:** ORO can combine with LOL, LOU (gluons) and UOU (general photon)
Together with 1,2 or 3 **positrons**, 3 photon types can "click on" and combine into different **positive charged quarks.**
The **positron:** OLO can combine with ROR, ROU (gluons) and UOU (general photon)

Higgs boson   (in code) OOO
The H-bosons is responsible for:
A: all .photon/gluon production, as continuous collision product with all masscarrying particles.
(OOO+lepton/quark= photon/gluon+lepton/quark
B: spontaneous pair production (OOO+OOO=ORO+ OLO (e- and e+)),

Z	=ORO+OLO	Z-boson (electron + positron can "click" together, without anihilating each other)
Wo, W+ and W-		don't excist as particles.
e-	=ORO	electron.
e+	=OLO	positron.
ve	=RLR	electr. Neutrino.
$\bar{v}e$	=LRL	anti-electr. Neutrino.
vμ	=LLL	muonic neutrino.
$\bar{v}μ$	=RRR	anti- muonic neutrino.
vτ	=ULU	tau neutrino
$\bar{v}τ$	=URU	anti- tau neutrino

For quark click-on combinations: see page 25 (opp).
Quark "up-grading" due to subjoining of extra ORO's (or OLO's) (energy addition)
and extra gluons, joining from the "sea" of gluons (energy addition)

          e- → $\bar{u}$ →   d   →   s → $\bar{c}$ →   b → $\bar{t}$
→   ORO→ 1 ORO→1 ORO →2 ORO→2 ORO →3 ORO →3 ORO.
               1gluon→2 gluon →1 gluon→2 gluon-→1 gluon→2 gluon.

          e+ → u → $\bar{d}$ → $\bar{s}$ →   c → $\bar{b}$ →   t
→   OLO→ 1 OLO→1 OLO →2 OLO→2 OLO →3 OLO→3 OLO.
               1gluon→2 gluon →1 gluon→2 gluon-→1 gluon→2 gluon.

The **muon** is equivalent with the **naked** (anti) green d(own)-quark
The **tau** is equivalent with the **naked** (anti) red b(ottom)-quark

The differences between:

e- and $\bar{u}$,	is one gluon,.
$\bar{u}$ and d,	is one gluon,
d and s,	is one gluon changed form into an e-
s and $\bar{c}$,	is one gluon,
$\bar{c}$ and b,	is one gluon changed form into an e-
b and $\bar{t}$,	is .one gluon .

Quark "down-grading or decay" is going down the energy ladder, "spitting out" e-, e+'s and gluons in their original form (unchanged) or changed into neutrino's.

Quark stability is originated by the sub-quantum structure of the quark
If the structure has
1: an A-symmetric form (such as the (anti-)blue u-,s- and b-quarks), the ability to spin, and the stability is minor to those with a symmetric form.
2: more components, this will lead to:decrease of stability and mass increase due to more protuberances (more vulnerability for Higgs impulses) resp. more production of gravitons)
Lifetimes and decay routes of quarks should be dependant of these rules, but we see interesting changes:
The prefered (anti-) red-blue- green sequences of the decay ladders are changing between the **charm** and the **bottom** quarks.
The differences in the sequences of charges related to the mass ladder is not clear. Further investigation is needed.

Systematic summary of basic quark decay modes.

e- and e+ $\Rightarrow$ UOU = general photon   (anihilation)

$\bar{u} \Rightarrow$ e-,$\bar{v}$e | ORO$\Rightarrow$ORO = e- $\quad$ u$\Rightarrow$e+ ,ve | OLO$\Rightarrow$OLO= e+
$\qquad\qquad$ | LOL $\Rightarrow$LRL =$\bar{v}$e $\qquad\qquad\qquad\qquad$ | ROR$\Rightarrow$RLR=ve

$\bar{u} \Rightarrow$ e- | ORO$\Rightarrow$ORO=e- $\quad$ u$\Rightarrow$e+ | OLO$\Rightarrow$OLO=e+
$\qquad\quad$ | LOL $\Rightarrow$ gluon sea $\qquad\qquad\qquad\quad$ | ROR$\Rightarrow$ gluon sea

$\bar{u} \Rightarrow \bar{v}\mu$ | ORO$\Rightarrow$RRR=$\bar{v}\mu$ $\quad$ u$\Rightarrow v\mu$ | OLO$\Rightarrow$LLL=$v\mu$
$\qquad\quad$ | LOL$\Rightarrow$ gluon sea $\qquad\qquad\qquad\quad$ | ROR$\Rightarrow$ gluon sea

(d (anti-)green is also:μ)

d$\Rightarrow$e-,$\bar{v}$e,$v\mu$ | ORO$\Rightarrow$ORO=e- $\quad$ $\bar{d}\Rightarrow$e+,ve,$\bar{v}\mu$ | OLO$\Rightarrow$OLO=e+
$\qquad\qquad\qquad$ | LOL$\Rightarrow$LRL=$\bar{v}$e $\qquad\qquad\qquad\qquad\qquad$ | ROR$\Rightarrow$RLR=ve
$\qquad\qquad\qquad$ | LOL$\Rightarrow$LLL= $v\mu$ $\qquad\qquad\qquad\qquad\qquad$ | ROR$\Rightarrow$RRR=$\bar{v}\mu$

$\pi-\Rightarrow\mu-$,$v\mu$ $\quad$ d=μ- $\qquad\qquad$ $\pi+\Rightarrow\mu+$,$v\mu$ $\quad$ $\bar{d}$=μ
d$\bar{u}$ $\qquad\qquad$ $\bar{u}$=|ORO$\Rightarrow$RRR=$\bar{v}\mu$ $\qquad$ du $\qquad\qquad$ u=|OLO$\Rightarrow$LLL=$v\mu$
$\qquad\qquad\qquad$ | LOL $\Rightarrow$ gluon sea $\qquad\qquad\qquad\qquad\qquad$ |ROR$\Rightarrow$ gluon sea

K-$\Rightarrow\mu-$,$v\mu$ $\bar{u}$=|ORO$\Rightarrow$RRR=$\bar{v}\mu$ $\qquad$ K+$\Rightarrow\mu$,$v\mu$ u=|OLO$\Rightarrow$LLL=$v\mu$
s$\bar{u}$ $\qquad\qquad$ |LOL$\Rightarrow$ gluon sea $\qquad\qquad\quad$ $\bar{s}$u $\qquad\qquad$ |ROR$\Rightarrow$ gluon sea

$\qquad\qquad$ s=|ORO$\Rightarrow$ORO| $\qquad\qquad\qquad\qquad\qquad$ $\bar{s}$=|OLO$\Rightarrow$OLO|
$\qquad\qquad\quad$ |ORO$\Rightarrow$LOL| =μ- $\qquad\qquad\qquad\qquad$ |OLO$\Rightarrow$ROR| =μ+
$\qquad\qquad\quad$ |LOL $\Rightarrow$LOL| $\qquad\qquad\qquad\qquad\qquad\qquad$ |ROR$\Rightarrow$ROR|

Three different kinds of Weak interactions.

Hydronic decays:
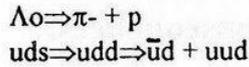
$\Lambda o \Rightarrow \pi- + p$
$uds \Rightarrow udd \Rightarrow \bar{u}d + uud$
The principle interaction is:

```
            s ⇒ d
        ┌─────────┐
        │ORO ⇒ ORO│
        │ORO ⇒ LOL│
        │LOL ⇒ LOL│
        └─────────┘
```
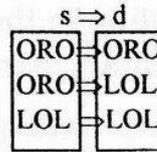
$s \Rightarrow d$ and pair production (addition) of u and $\bar{u}$ from the Higgs and gluon "sea"

semi-leptonic processes

$n \Rightarrow p + e- + \bar{v}e$
$ddu \Rightarrow duu + e- + \bar{v}e$
The principle interaction is :
$d \Rightarrow u + e- + \bar{v}e$

```
   d               ⇑
┌──────────────┐         =u
│ORO ⇒ ORO= e- │      ┌──────────┐
│LOL ⇒ LLL= vμ │⇒⇒⇒⇒│OLO=e+    │
│LOL ⇒ LRL=v̄e  │      │ROR=gluon │
└──────────────┘      └──────────┘
                ⇓         ⇑
               gluon from the sea
```

leptonic processes

$\mu- \Rightarrow e- + \bar{v}e + v\mu$
$d \Rightarrow e- + \bar{v}e + v\mu$

```
   d
┌──────────────┐
│ORO ⇒ ORO= e- │
│LOL ⇒ LRL= v̄e │
│LOL ⇒ LLL= vμ │
└──────────────┘
```
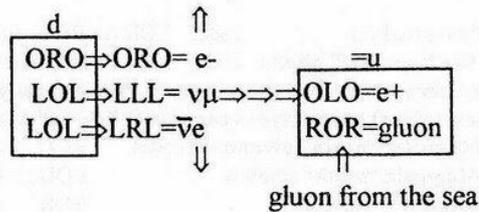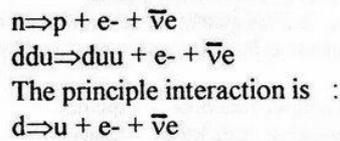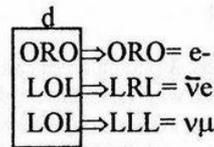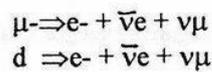
Some electromagnetic decays.

$\pi o \Rightarrow \gamma + \gamma$ **ORO+OLO anihilation $\Rightarrow$ 1x γ**
$u\bar{u} \Rightarrow 2\gamma$

```
   ū                    u
┌──────────────┐   ┌──────────────────┐
│ORO ⇒ OOO  sea│   │OLO ⇒ OOO sea ⇒γ= uou│
│LOL ⇒ UOU  ⇒γ │   │ROR ⇒ OOO sea     │
└──────────────┘   └──────────────────┘
```

$\eta o \Rightarrow 2\gamma$ **ORO+OLO anihilation $\Rightarrow$ 1x γ**
only: $\bar{d}d$ decays $\Rightarrow 2\gamma$
so first: $\bar{s}s \Rightarrow \bar{d}d$.

```
   d                    d̄
┌──────────────┐   ┌──────────────────┐
│ORO ⇒ OOO  sea│   │OLO ⇒ OOO sea ⇒γ= uou│
│LOL ⇒ LOL  sea│   │ROR ⇒ ROR sea     │
│LOL ⇒ UOU  ⇒γ │   │ROR ⇒ ROR sea     │
└──────────────┘   └──────────────────┘
```

$\Sigma o \Rightarrow \Lambda o + \gamma$
$uds \Rightarrow sdu + \gamma$ $d \Rightarrow \bar{u} \Rightarrow d$

```
   d         ⇒        ū        ⇒         d
┌──────┐         ┌──────┐           ┌──────┐
│ORO   │         │ORO   │           │ORO   │
│LOL   │   ⇒     │LOL   │     ⇒     │LOL   │
│LOL⇒UOU=γ│ from the gluon sea ⇒    │LOL   │
└──────┘         └──────┘           └──────┘
```
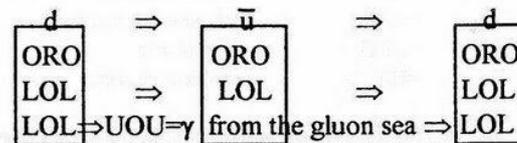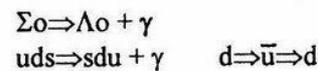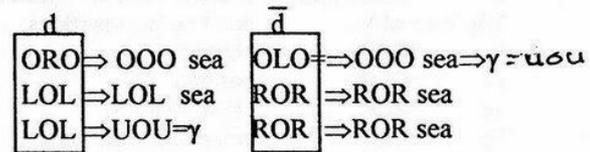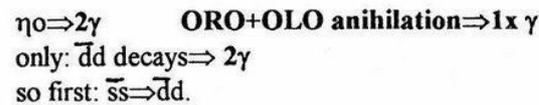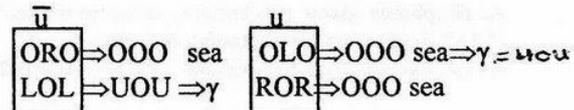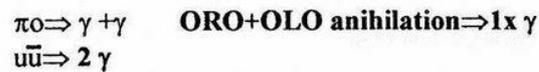
Some strong interactions.

$\Lambda++ \Rightarrow p + \pi+$: $uuu \Rightarrow duu + u\bar{d}$
                    ⇑────────⇑
          $d\bar{d}$ pair production from the Higgs and gluon sea
$\Delta o \Rightarrow p + \pi-$: $ddu \Rightarrow duu + d\bar{u}$
                    ⇑────⇑
          $u\bar{u}$ pair production from the Higgs and gluon sea
$\Delta o \Rightarrow n + \pi o$: $ddu \Rightarrow ddu + u\bar{u}$
                    ⇑────⇑
          $u\bar{u}$ pair production from the Higgs and gluon sea
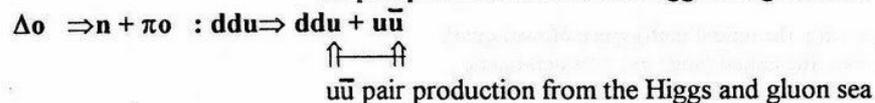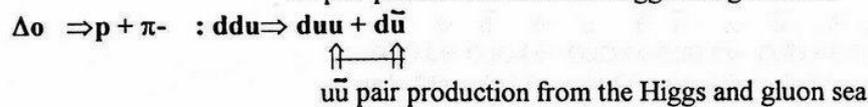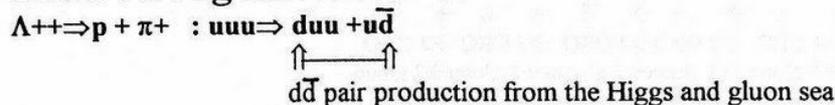
The double spin of Fermions.
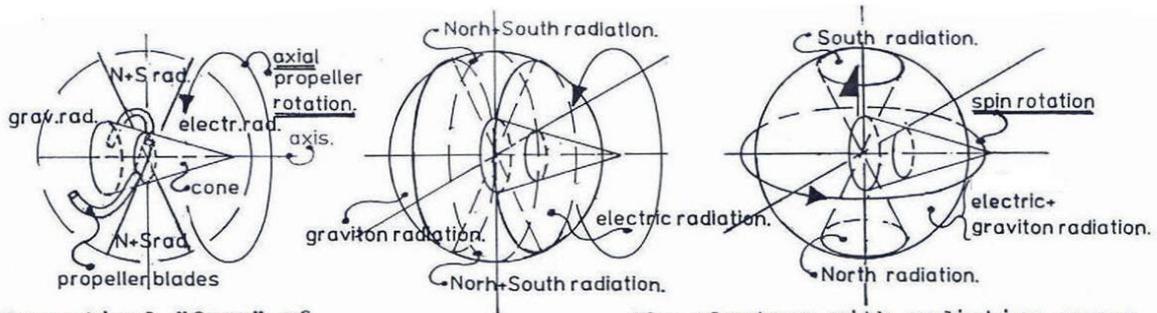
Theoretical "form" of
the electron, with radiation
cones due to axial rotation.

The electron with radiation cones
due to circular or "spin" rotation
and axial rotation.

The "Eigen energy" distribution around the spinning Fermion propeller, is supposed to come in cone form. The Fermion spin and radiation is the product of a scattering process with oscillating Higgs vacuum particles. As a result, the Fermion has a double spin around two polar axes. This is supposed to be the origin of a dipole Magnetic field with North and South monopole photon radiation and the circular distribution of graviton and electric radiation. In addition it must be stated that all Fermions are entangled with their object /subject particle far away.

Figure 8, double spin of Fermion and Quark propellers.
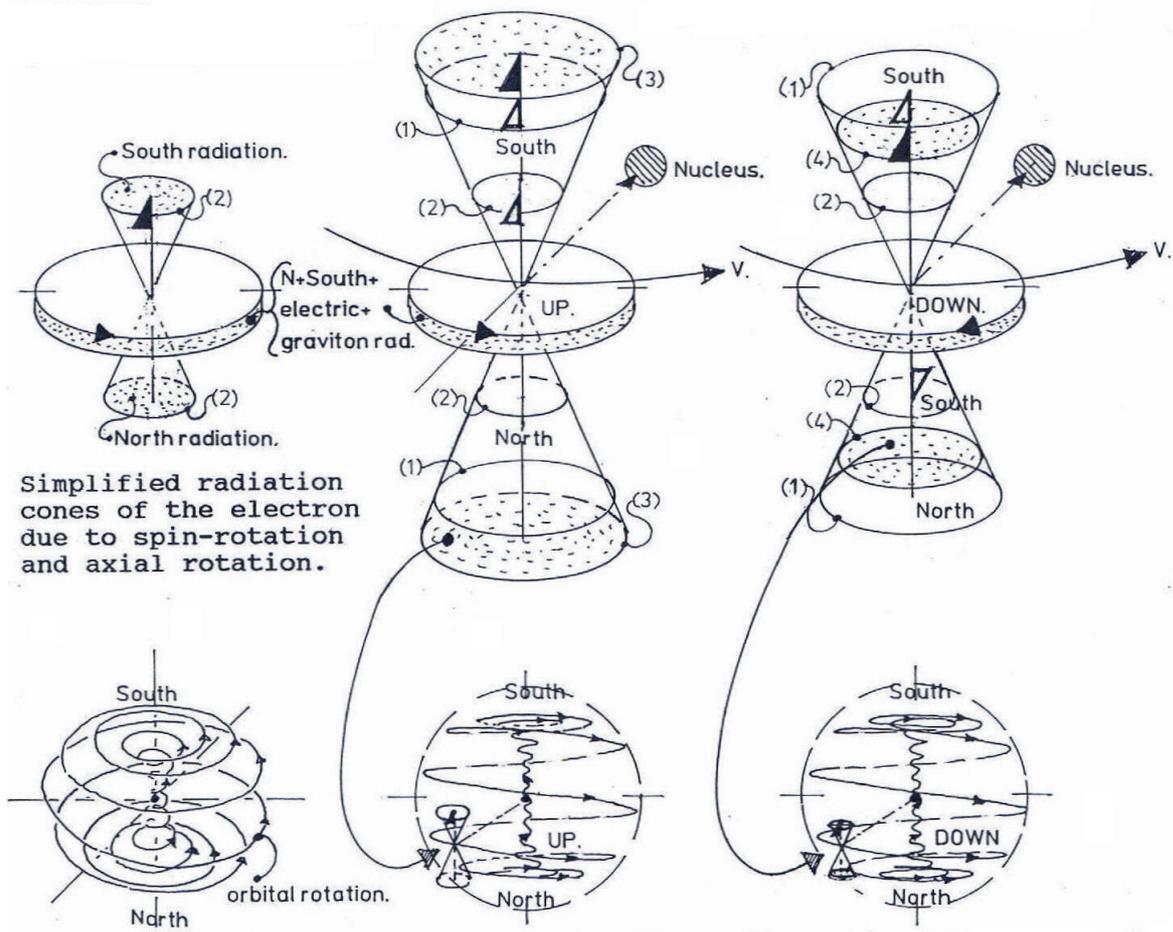
Simplified radiation
cones of the electron
due to spin-rotation
and axial rotation.

Figure 9, The difference between up and down Atoms.

References:
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Category: Relativity and Cosmology
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By Leo Vuyk, LuLu publishers, 2008.
ISBN number 978-1-4092-1031-3