

About Quarks, Entanglement, and wave-particle duality

The informational Quarks are sorted below by property, first particle, and then wave for quanta of time. Sorting increases energy order and wave-particle properties, which we can split into categories below.

The Quark below refers to particle properties:

The Quark Down has equivalence with Quark Magnetic Field information ...

The Quark Strange has equivalence with the Quark Electric Charge information ...

The Quark Bottom has equivalence with Quark mass (particle) information ...

The Quark below refers to wave properties:

The Quark Charm has equivalence with Quark Gravity information ...

The Quark Up has equivalence with Quark Light information ...

The Quark Top has equivalence with Quark Time information ...

The fundamental wave-particle property is generated mainly by Tau neutrino τ (Quark Time information) generated by Stars, in fewer cases, Light generated by sources of light, and Gravity generated by mass. Tau neutrino τ in collision with electrons generates energy for all electron orbitals, sustaining the energy level in the atoms and generating a magnetron for electromagnetic forces (magnetron is a very light pion π^+ , π^- with rest mass $0.007eV/c^2$) and A, an entanglement particle. $e + \check{\tau} \xrightarrow{trans} e + \pi^+ + \pi^- + 2\mu\hat{+} + A\hat{+} + \Delta E$
 (1) And the τ neutrino will collide with a pair of protons and neutrons, generating the process of continuous migration of protons, generating gravity, and the μ neutrino that generates the hologram of space at the closure of the Local Universe:

$$p + \check{\tau} \xrightarrow{transf} n + \nu\hat{+} + A\hat{+} + \pi^+ + \mu\hat{+} \xrightarrow{decay} (p + e + \nu\hat{+}) + \mu\hat{+} + \check{\pi}^- + \pi^+ = p + (e + \pi^+) = p + \mu + \Delta E \quad (2)$$

Where the Activate Entanglement particle has a speed over light speed "c" of around

$$c \ll V_{AEntang} \approx 3 \cdot 10^{17} \text{ m/s.}$$

After the Big Bang, there was inflation of about ~4.15 million years. After that, there was a quark epoch period of nucleosynthesis of hydrogen and helium-4 when there was a very hot matter in expansion, and the universe cooled down. There were mostly hydrogen atoms and a kind of lower gravity between matter; there was nearly no space and no time: "A moment before the time at the place where there wasn't space". The dark period ended after 290 million years with the appearance of the First Star; thus, the first day of the Local Universe took place after lower gravity produced the first huge star. In the first nuclear reaction, there was a miracle that happened. It generated light (photos) and Tau neutrinos, thus Time. At the initial stage, the matter was in an amorphous state in the primordial stage; they were only mass, and there was a slight dual manifestation of atoms and microparticles generated by ν and the non-created light of the neighboring boundary Universe. After the ignition of the First Star, the duality of the wave-particle due to the τ neutrino induced its rise in intensity. Suddenly, the τ neutrino of mass $\sim 0.188eV/c^2$ generates time and, in interaction with matter, strengthens gravity and generates expanding Space. According to the equation, gravity rises a couple of times as below, because the number of ν increases. Initially, there were only the transformations:

$$p + \check{\nu} \xrightarrow{transf} n + posit \xrightarrow{decay} (p + e + \nu\hat{+}) + \mu\hat{+} + posit = p + (e + posit) = p \quad (3)$$

And after muon neutrinos appeared, there was expanding space. It grows tenth to time the reaction that generates an electronic neutrino ν and creates the space that is a μ neutrino, a magnetron, and an Activate (Entanglement) particle. The "A" Entanglement appears at any interaction (emission or absorption) of Muon neutrino as an echo of muon neutrino and has the meaning of an Information Field that travels almost instantly in the hole LU. *Thus, τ neutrino, when it interacts with a microparticle, generates a temporal ionization of particles in the initial $3d$, + T coordinates and emerges after a quantum of time. It behaves as a wave and appears after quanta of time ΔT in the next quanta of space $3d + \Delta d$. The final position is $3d + \Delta d$, & time $T + \Delta T$, continuing the movement from quanta to quanta until the next collision with τ . The space is probably like a sponge with minimum distances between stationary positions available for a microparticle. A particle enters that sponge and exits according to the probabilistic calculus of Onduscular Theory into another place, traveling a space quantum (probably with the restriction that in one position-time of the space-time continuum, there should be only one object: wave, quark, or particle). Also, the wave property of microparticles is given by ν neutrino (graviton), which generates a gravitational ionization (3) with the*

same mechanism above. The quanta of space in LU (Black Hole excluded) has ~ the dimension of the Quark ~ $0.43 \cdot 10^{-19}$ m, see the link below: <https://arxiv.org/abs/1604.01280>. **This is the wave-particle duality.**

So, 6 informational quarks mean: Mass (M), Magnetic field (M_g), Electric charge (E), Gravity (G), Light (L) & Time (T). The informational quarks correspond with the known quarks as follows: Light = Up Quark; Magnetic field = Down Quark; Gravity = Charm Quark; Electric charge = Strange Quark; Time = Top Quark; Mass = Bottom Quark.

Property: Quark:	Mass	Magnetic Field	Electric Charge	Gravity	Light	Time	Boundary condition (Dirichlet) Initial Value	Symmetry Equation
Particle:	Bottom	Down	Strange	Charm	Up	Top		
Electron Plot	1	1838	-1	0	0	0	$g(R) = 0$ Gaussian distribution' $V = \frac{\partial f(r, t)}{\partial t}$	Spherical $\frac{2m}{h^2} \left(E - \frac{e^2}{r} + \frac{L^2}{2mr^2} \right) f(r, t) + \frac{R}{r^2} \frac{\partial^2 (r \cdot f(r, t))}{\partial r^2} = \frac{1}{V^2} \frac{\partial^2 f(r, t)}{\partial t^2}$
Anti- electron (positron)	1	-1838	1	0	0	0	$g(R) = 0$ Same as the electron	Spherical $\frac{2m}{h^2} \left(E + \frac{e^2}{r} \right) f(r, t) + \frac{R}{r^2} \frac{\partial^2 (r \cdot f(r, t))}{\partial r^2} = \frac{1}{V^2} \frac{\partial^2 f(r, t)}{\partial t^2}$
*Neutron	1838	-1.913	0	-1	0	0	$g(R) = 0$	Spherical $\frac{2m_n}{h^2} E \cdot f(r, t) + \frac{R}{r^2} \frac{\partial^2 (r \cdot f(r, t))}{\partial r^2} = \frac{1}{V^2} \frac{\partial^2 f(r, t)}{\partial t^2}$
Proton	1836	2.793	1	0	0	0	$g(2R) = 0$	Spherical $m_p \frac{E - U(r)}{h} f(r, t) + \frac{R}{r^2} \frac{\partial^2 (r \cdot f(r, t))}{\partial r^2} = \frac{1}{V^2} \frac{\partial^2 f(r, t)}{\partial t^2}$
Magnetron (monopole) Plot	0	-2.793	0	1	1	0	$f(2R, z, 0) = 0$ $D[1](f)(0, 0, 0) = -R$ & <i>Dirak quantization Gauss law</i>	Cylindrical $\frac{R}{r} \Delta H(r, z, t) = \frac{1}{c^2} \frac{\partial^2 H(r, z, t)}{\partial t^2}$
Graviton = ν Electronic Neutrino Plot	0	-1838	0	1	1	0	$g(2R) = 0$ $\frac{f(r, 0)}{4\pi r^2} \approx$ <i>Newton Law for $r < R/20$</i>	Spherical $\frac{R}{r} \Delta f(r, t) = \frac{1}{c^2} \frac{\partial^2 f(r, t)}{\partial t^2}$
Particle γ (Gamma- ray)	0	0	0	1	1	-1	$g(2R_s) = 0$ $V \approx 10^9 \cdot c$	Spherical $\frac{R}{r} \Delta f(r, t) = \frac{1}{V^2} \frac{\partial^2 f(r, t)}{\partial t^2}$

<u>Plot</u>								
<u>Particle $E_{(r,t)}$ electric charge</u>	0	0	1	1	0	1	$g(R) = 0,$ $g'(0) = R$ Maxwell equations	Spherical $\frac{\partial^2 E(r,t)}{\partial r^2} - \frac{\partial^2 E(r,t)}{c^2 \partial t^2}$ $= \frac{1}{Rc} \frac{\partial E(r,t)}{\partial t}$
<u>Photon (Light) Plot</u>	0	1	0	0	1	1	$f(R,z,0) = 0$ Gaussian distribution' s	Cylindrical $\frac{R}{r} \Delta H(r,z,t) = \frac{1}{c^2} \frac{\partial^2 H(r,z,t)}{\partial t^2}$
<u>μ Neutrino bound with Higgs Boson Plot</u>	0	0	0	-1	1	1	$g(2R_s) = 0$ $\int_{r_{\min}}^{2R_s} F(r) dr =$ $\frac{c}{H_0}$ $\frac{P(r,0)}{4\pi r^2} \approx$ <i>Hubble const.</i>	Spherical $\frac{R}{r} \Delta f(r,t) = \frac{1}{c^2} \frac{\partial^2 f(r,t)}{\partial t^2}$
<u>Phonon (Audion) The sound particle Plot</u>	0	-1	0	1	1	0	$g(R) = 0$ $V = 343\text{m/s}$ $V = \frac{\partial f(r,t)}{\partial t}$	Spherical $\frac{R}{r} \Delta f(r,t) = \frac{1}{V^2} \frac{\partial^2 f(r,t)}{\partial t^2}$
<u>Tau τ Neutrino (Time) Plot</u>	0	0	0	1	1	1	$f(R,0) = 0,$ $\int P(0,t) dt =$ 2.918 Gly $P(r_0,0)=0; r_0$ radius smolest Black Hole	Spherical $\frac{R}{r} \Delta f(r,t) = \frac{1}{c^2} \frac{\partial^2 f(r,t)}{\partial t^2}$
Torsion Particle P_T	0	-1.913	0	0	1	-1	$f(2R,z,t) = 0$ $V \approx 10^9 \cdot c$	Cylindrical $\frac{R}{r} \Delta H(r,z,t) = \frac{1}{v^2} \frac{\partial^2 H(r,z,t)}{\partial t^2}$
<u>Particle $B_{(r,z,t)}$ magnetic charge</u>	0	$\pi^+/\pi^- = +/-$ 3.291059 $8 \cdot 10^{-16} \text{ T}$	0	0	1	1	$B(2R,z,t) = 0$ Maxwell equations	Cylindrical $\frac{\partial^2 B(r,z,t)}{\partial r^2} - \frac{\partial^2 B(r,z,t)}{c^2 \partial t^2}$ $= \frac{1}{Rc} \frac{\partial B(r,z,t)}{\partial t}$
*Particle M (Mass resonance)	1	0	1	0	1	0	$g(R) = 0$ Gaussian distribution' s $V = \frac{\partial f(r,t)}{\partial t}$	Cylindrical $\frac{2m}{h^2} \left(E + \frac{e^2}{r} - \frac{L^2}{2mr^2} \right) H(r,z,t)$ $+ \frac{R}{r} \Delta H(r,z,t)$ $= \frac{1}{V^2} \frac{\partial^2 H(r,z,t)}{\partial t^2}$

*Opto-electron	1	0	-1	0	1	0	g(R) = 0 Gaussian distribution's $V = \frac{\partial f(r, t)}{\partial t}$	Cylindrical $\frac{2m}{h^2} \left(E - \frac{e^2}{r} + \frac{L^2}{2mr^2} \right) H(r, z, t)$ $+ \frac{R}{r} \Delta H(r, z, t)$ $= \frac{1}{V^2} \frac{\partial^2 H(r, z, t)}{\partial t^2}$
*Anti-Neutron	1838	1.913	0	-1	0	0	g(R) = 0	Spherical $\frac{2m_n}{h^2} E \cdot f(r, t)$ $+ \frac{R}{r^2} \frac{\partial^2 (r \cdot f(r, t))}{\partial r^2}$ $= \frac{1}{V^2} \frac{\partial^2 f(r, t)}{\partial t^2}$
* Thermal Particle Plot	1	2.793	0	0	1	0	g(2R) = 0 Gaussian distribution's $V = \frac{\partial f(r, t)}{\partial t}$ m = electron mass	Spherical $\frac{2m}{h^2} \left(E + \frac{L^2}{2mr^2} \right) \cdot f(r, t)$ $+ \frac{R}{r^2} \frac{\partial^2 (r \cdot f(r, t))}{\partial r^2}$ $= \frac{1}{V^2} \frac{\partial^2 f(r, t)}{\partial t^2}$
* Particle_{En} (Physical Entropy Virtual particle) Plot	0	1	0	1	0	1	S(2R,0) = 0 Gaussian distribution's [g'(0) = - R]	Spherical $\frac{R}{r} \Delta S(r, t) = \frac{1}{V^2} \frac{\partial^2 S(r, t)}{\partial t^2}$
Particle E _x	0	0	1?	1	0	-1	g(R) = 0 V >> c	Spherical $\frac{\partial^2 E(r, t)}{\partial r^2} - \frac{\partial^2 E(r, t)}{V^2 \partial t^2} = 0$
Particle S (Synchron)	0	0	0	1	-1	-1	g(R) = 0 f(Rs,t) = 0 V >> c	Spherical $\frac{R}{r} \Delta f(r, t) = \frac{1}{V^2} \frac{\partial^2 f_1(r, t)}{\partial t^2}$
Activate (Entanglement)	0	?	0	0	1	-1	H(R,z,t) = 0 V >> c	Cylindrical $\frac{R}{r} \Delta H(r, z, t) = \frac{1}{V^2} \frac{\partial^2 H(r, z, t)}{\partial t^2}$
Particle B _{x(r,z,t)}	0	π^+/π^-	0	0	1	-1	B(2R,z,t) = 0 V >> c	Cylindrical $\frac{\partial^2 B(r, z, t)}{\partial r^2} = \frac{\partial^2 B(r, z, t)}{V^2 \partial t^2}$

* Mass resonance Particle M_i; & opto-electron particles,

Not yet produced or detected: Particle E_x; Particle B_x; Particle E_n (Physical Entropy Virtual particle); Part s;

* Virtual Entropy Particle P_{En} (as gaps in semiconductors) to induce mass resonance (at Very Low temperature by resonance with Thermal Particle absolute ~ 0 Kelvin = - 273.15 Celsius).

Thus, we have the postulate of superposition is explained by the temporal ionization of the particle by tau τ neutrino so between two positions in space-time is a wave covering a microsphere of interaction in superposition with all

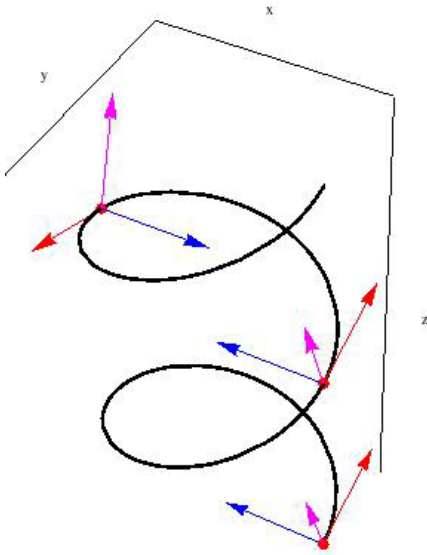
statutes within the sphere of radius $r = V \cdot T_c$ where T_c is the time quanta of the particle and V is the velocity of particle flux. The other aspect is the double-slit experiment that emerges from the superposition, which is well explained. Also, the fact that the observer can collapse the wave function in the measurement process is due to the interaction with the particle (usually with the light of photons with energy in the visual window around 2-5 eV) but we interact with the particle with photons of energy less than ~ 0.9 eV, infrared, depending on the particle (Time quanta). The wave function collapse occurs when interacting, initially in the superposition of several eigenstates, reduced to a single eigenstate due to observation (thus interaction with the external world). The explication is that observation (if it is in the optical window) generates energetic exchange with the particle, and if it is beyond the threshold value of ~ 0.9 eV, the temporal ionization is partially or fully blocked. The wave function collapse is within a couple of Time Quanta. There is another aspect of the quantum erasing of the past that refers to the instant traveling of information that goes with a speed $V \gg c$ in Synchron Particles, a longitudinal wave that makes the experiment more confusing. The time arrow is only forward, and only with energy support, the time for a set region of space can go backward in time. If two particles are entangled, they exchange spinning energy; thus, the torsion particle is a longitudinal wave that propagates in a couple of Time Quanta, and the exchange of spin information takes place with $V \gg c$ within the Local Universe. I guess that the torsion particle associated with spinning is the same kind of Coriolis force induced by a set of particles with spin pointing in one direction.

Reintroducing the azimuthal dependence to recover the full 3D photon field.

<http://www.michaelvio.byethost8.com/PhotonAi.pdf>

This satisfies the original equation:

$$\frac{R}{r} \Delta H = \frac{1}{c^2} \frac{\partial^2 H}{\partial t^2}$$



Thus, we solve the equation, and we have EOWF; hence Photon \Rightarrow we divide $H_3(r)/r$ with d unitary of dimension $[L^{-3/2}]$ the final solution approximatively of the photon onduscular wave function

$H_3(r)H_4(z) \cdot u(t)/r$ of dim $[L^{-3/2}]$ constants as in file <http://www.michaelvio.byethost8.com/PhotonAi.pdf>

With $\frac{\partial z}{\partial t} = V_z$ & $\frac{\partial r}{\partial t} = V_r$, and $\frac{\partial z}{\partial r} = 0$ also Pythagoras $\Rightarrow V_z^2 + V_r^2 = c^2$

Thus, in every moment, we have the speed of a photon in the helicoidal spiral trajectory with the maximum speed that is "c" and components in the radial plane, V_r & V_z , in the direction of the propagation.

But the speed V_z in the direction of the propagation, is almost "c" because V_r is small in comparison to the light speed (the variation of the polarization); thus, we approximate $V_z/c \sim 1$

Link: <http://www.michaelvio.byethost8.com/Propag.pdf>

<http://www.michaelvio.byethost8.com/SphSim.pdf>

<http://www.michaelvio.byethost8.com/CylSim.pdf>

A particle always consists of three informational quarks. Two particles may interact if they are in proximity to each other for a quanta of time. If they have the same quark and the same value, but opposite signs, the quark information vanishes, but another informational quark emerges, so the number of quarks should be three. As you can see, Gravity and Electric charge have a similar potential equation (Charm & Strange) as Light and Magnetic field (Up & Down); Time and Mass thus (Top & Bottom) have τ and μ neutrino as the interaction fundamental particle and a similar onducular equation with a similar solution.

The meaning of a negative magnetic field is that the magnetic field is opposite to the spin.

The mass is always positive in the local universe.

The meaning of positive time is that the propagation speed is the light speed ($3 \cdot 10^8$ m/s), and the negative time means that the transfer is almost instant to usual distances, $V \gg c$ ($\sim 3 \cdot 10^{17}$ m/s).

5 May 2026