The Particles of Existence (PE)

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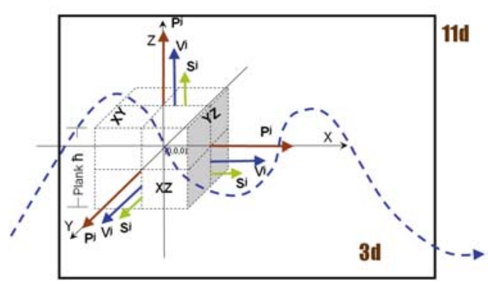
The final solutions of the equation (1), obtained starting from the postulates of the TTR Theory [1], show that the mass **m** of a *Particle of Existence* (*PE*) corresponds to the mass of the *Proton*. This result has been obtained by placing **m** as unknown factor in the equation (1) and time **t** = 80 years (corresponding to the average life time of a Human Being), also lets it to assume (analysis still in progress that will be provided with a later publication), that all the 6 types of possible *PE* within our 3d universe, really correspond to 6 types of *Super-Hydrogens* having a total mass approximately equivalent to that of a *Super-Proton*.

For the *TTR theory* [1] the *PEs* are just 3d *sections* of the *Points of Alef* (*PoA*) that substantiate and, through the 10 *PoA*'s *replicas*, are eternally moving within the 11d container of all the possible existences (i.e. *Alef*). The final equation (1) was obtained by considering that, in any place of impact of a *PoA* with our universe [2], it appears a new random *PE* which belongs and is transported by that specific *PoA* until its exit from the 3d space. Each *PE* consists of only 3 components: *S (Structure), V (Life), P (Thought)*, as subdimentional *sections* of the same ones of its own *PoA* conveyor. The *PE* components are expressed in the outside world through the three forces: $\overrightarrow{S^j},\overrightarrow{V^j},\overrightarrow{P^j}$ (j=1,2,3), while having much less energy than those of the same natives components of the *PoA* [3] they belog to. Therefore, the *PoA*, in addition to these 3, has also the unknown and more powerful components: $C_4,\ldots,C_{11}$. Each *PE* casually becomes a new Being of the only 6 possible types, dependent by the combinatorial composition of the components S,V,P randomly determined by the impact conditions of the *PoA* with the 3D space:

S>V>P – Elementary Particles of Matter
S>P>V – Beings of type E6 (Unknowns)
P>V>S – Humans Beings
P>S>V – Beings of type E5 (Unknowns)
V>S>P – Vegetal Beings
V>P>S – Animals Beings

According to the *TTR Theory* [1], the *PEs* corresponding to the Elementary Particles of Matter (S>V>P), being compliant to the native structure of the *PoA* [4] - are the most probables and, therefore, the most widespread in all the universes (1d-10d), included our 3d.
Since each *PE* has its life line coinciding with that of its conveyor *PoA*,

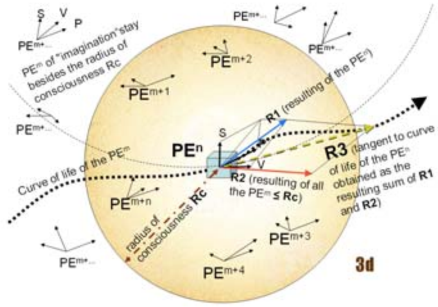


to find the final equation (1) we must calculate the resultant of the two forces corresponding respectively to the resultant of the three forces *F(S), F(V), F(P)* of the PE^n considered, and the resultant of all the resultants of all the SVP forces of all the others PE^m present and agents in and out of the PE^n consciousness radius (Rc). Where the radius Rc of consciousness of a PE^n is the set of all the PE^m ($n \neq m$) able to directly

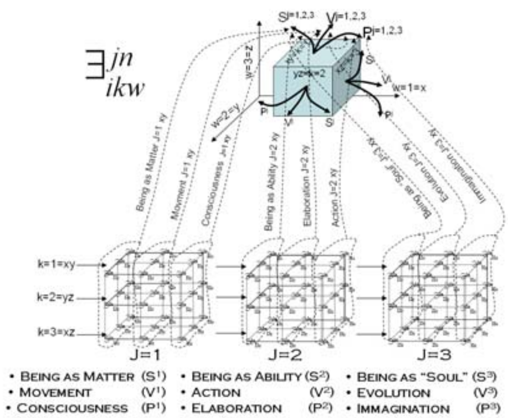
[1] *Links:*
- *Book: "Mistero dell'Esistenza" and*
- *Video Presentation (Youtube)*

[2] *The same PoA impacts infinite universes contained in Alef ranging in size from 1d to10d*
[3] *Orthogonal Projection Law (OPL)*
[4] *SVP Law* [1]

interact through both virtual and material contributions with the PE^n.



All the forces $\overrightarrow{S^j}, \overrightarrow{V^j}, \overrightarrow{P^j}$ are expressible with the mathematical operator named "Esistore": $\exists^{jn}_{ikw}$, which is a sort of Tensor of the 4th grade (81 members):



where:

- **n,** is the index that identifies the PE^n
- **J=1,2,3,** they identify the three groups of components that form a sub-Esistore of order 3 (included into the primary Esistore of fourth order) which act on the Cartesian planes, xy=1,yz=2,xz=3, of the PE's infinitesimal cube.
- **i,** it indicates the type of components: i=1 for S, i=2 for V, i=3 for P.
- **k,** it indicates the plane on which they act the forces: k= 1 for xy, k= 2 for yz, k= 3 for xz
- **w**, it indicate the Cartesian coordinates: x,y,z of the forces in action. w=1,w=2,w=3.

Now, valuing each of the Esistore's components, we can obtain the final equation (1) corresponding to the condition in which the resultant of the *PE* becomes zero. The time T_e in which this takes place, precisely corresponds to the moment when the *PE*, and his *PoA* conveyor, finally escapes from the universe. With the result of a consequent apparent "Death" (which is real only for the 3d observer!) of the Being-3d identified through that specific PE (soul, personality, individuality, ecc.).

For simplicity, the resultant $\overline{R3}$ will be calculated assuming that the Forces SVP $\overrightarrow{S^j}, \overrightarrow{V^j}, \overrightarrow{P^j}$ are:

- Only orthogonal to the faces of the cube (size of Planck) which represents the PE.
- They have the same intensity on each face of the cube.

To define the forces $\overrightarrow{S^j}, \overrightarrow{V^j}, \overrightarrow{P^j}$ that make up the Esistore, let's start from the equation of Einstein (which later we'll write in his relativistic version):

$$E = mc^2$$

You can also write as:

$$E = m\left(\frac{S}{t}\right)^2 \rightarrow \quad \frac{E}{S^2} = \frac{m}{t^2}$$

Now, if we want to calculate the energy of the *PE* as a function of time t, we must rewrite (2) with the Esistore's components:

$$\frac{m^{jn}_{kw}}{t^2} = \frac{E^{jn}_{kw}}{S^2}$$

which corresponds precisely to Energy that the PE, considered as a Being of Matter (S^1), exerts on the unit of surface area ($SxS=S^2$) of the cube in the unit of time t, through the S properties of structure represented by the three Sj forces $\overrightarrow{S^j}, \overrightarrow{V^j}, \overrightarrow{P^j}$ (j = 1,2,3) acting on the xy, yz and xz cube's faces, as if they were the following features of the *PE* structure::

- **Being of "Matter" (S^1) → (S)**
- **Being of "Capacity" (S^2) → (V+P)**
- **Being of "Soul" (S^3) → (S+V+P)**

Being of Matter (S^1)

$$\left(\frac{m^n}{t^2}\right)_{x,y,z}$$

This is the the basic properties of the *PE*, which is manifested through its spatial dimension in terms of mass/energy. We can say that (S^1) corresponds to the *PE*'s structure as its "be itself".

Being of Capacity (S^2)

$$\frac{d}{dt}\left(\frac{m^n}{t^2}\right)_{x,y,z}+\left(\frac{d_E m^{n,m}}{dt}\right)_{x,y,z}\ (n\neq m), d(n,m)\leq \mathbf{Rc}$$

This is the property of structure of the *PE* shown as his "capacity" depends on the sum of two components: V+P. It would be like saying that a person "is" its specific capacity to be, for instance, a doctor, or a carpenter, or an artist, or a housewife, etc. This specific character of the *PE* corresponds to his being not only as a spatial structure S^1, but also as a specific skills identified by the outside world, namely: S^2.

Where $\boldsymbol{d_E}$,$\oplus$ is the derivation symbol that expresses the variation in time of the S component of the *PE*, which depend by the materials contributions as well as the virtual ones of others separate *PE*s, always in compliance with the *SVP Law* [1]:

$$\left(\frac{d_E m^{n,m}}{dt}\right)_{x,y,z}=m^n\oplus m^m$$

$$m^n\oplus m^m=S^n+S^m,\ V^n+V^m,\ P^n+P^m$$

Being "Soul" (S^3)

$$\left(\frac{m^n}{t^2}\right)_{x,y,z}+\frac{d}{dt}\left(\frac{m^n}{t^2}\right)_{x,y,z}+\left(\frac{d_E m^{n,m}}{dt}\right)_{x,y,z}\ (n\neq m), d(n,m)\leq \mathbf{Rc}$$

This is the property due to the sum of the three components (S+V+P) of the *PE* that manifests itself as characteristic of '"soul" of a Being, namely: its sensitivity, its overall spiritual and characterial imprinting visible at the outside world, regardless of how S,V and P can act through the S^1 and S^2.

The V^j components

The V^j do express the Life V properties through the V^j forces (j=1,2,3) corresponding to the following prerogatives of the *PE:*

- **Movement (V^1) (V)**
- **Action (V^2) (S+V)**
- **Evolution (V^3) (S+V+P)**

Movement (V^1)

$$\frac{d}{dt}\left(\frac{m^n}{t^2}\right)_{x,y,z}$$

This is the prerogative which allows the *PE* to move and change its spatial position.

Action (V^2)

$$\left(\frac{m^n}{t^2}\right)_{x,y,z}+\frac{d}{dt}\left(\frac{m^n}{t^2}\right)_{x,y,z}\ (n\neq m),\ d(n,m)\leq \mathbf{Rc}$$

This is the prerogative which allows the *PE* to act proactively through the action of the sum S and V.

Evolution (V^3)

$$\frac{d}{dt}\left(\left(\frac{m^n}{t^2}\right)_{x,y,z}+\frac{d}{dt}\left(\frac{m^n}{t^2}\right)_{x,y,z}+\left(\frac{d_E m^{n,m}}{dt}\right)_{x,y,z}\right)\ (n\neq m),\ d(n,m)\ \leq \mathbf{Rc}$$

This property gives the *PE* the power to mature, change and evolve of its "soul" (S+V+P) with time. It could also be assimilated to the succession of sections that are formed over time during the transit of the *PoA* which they belong.

P^j components

The P^j express the thought's P properties through P^j forces (j=1,2,3) corresponding to the following prerogatives of the *PE*:

- **Consciousness (P^1) (S)**
- **Elaboration (P^2) (S+P)**
- **Imagination (P^3) (S+V+P)**

Consciousness (P^1)

$$\left(\frac{d_E m^{n,m}}{dt}\right)_{x,y,z}\ (n\neq m),\ d(n,m)\leq \mathbf{Rc}$$

If the result of this change is not equal to 0 it corresponds to the consciousness of the *PE* in relation to the world around her.

Elaboration (P^2)

$$\left(\frac{d_E^2 m^{n,m}}{dt^2}\right)_{x,y,z}\ \left(m^m\neq 0\right)$$

This is the prerogative which allows the *PE* to modify and increase their awareness of the outside world, so obtaining information for his vision and understanding of details.

Imagination (P^3)

$$\left(\frac{d_E m^{n,m}}{dt}\right)_{x,y,z}\ (n\neq m), d(n,m)$$

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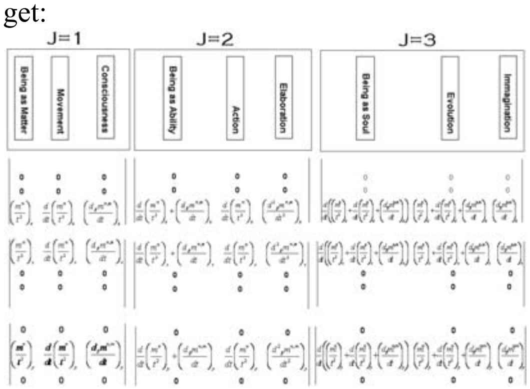
This is the prerogative which allows the *PE* to run External sums $m^n \oplus m^m$ on itself, even beyond the radius of conscience Rc, so obtaining also information for their vision and imaginary understanding.

Using the values of the components just defined into the (Simplified) Esistore we get:



From which we derive the components of the following vector:

$$\overrightarrow{R3} = \overrightarrow{R_x} \bullet \varepsilon^1 + \overrightarrow{R_y} \bullet \varepsilon^2 + \overrightarrow{R_z} \bullet \varepsilon^3$$

$$\overbrace{(S^1_{YZ,X} + S^1_{XZ,Y} + S^1_{XY,Z})}^{\overrightarrow{S^1}} + \overbrace{(V^1_{YZ,X} + V^1_{XZ,Y} + V^1_{XY,Z})}^{\overrightarrow{V^1}} + \overbrace{(P^1_{YZ,X} + P^1_{XZ,Y} + P^1_{XY,Z})}^{\overrightarrow{P^1}}$$

$$\overbrace{(S^2_{YZ,X} + S^2_{XZ,Y} + S^2_{XY,Z})}^{\overrightarrow{S^2}} + \overbrace{(V^2_{YZ,X} + V^2_{XZ,Y} + V^2_{XY,Z})}^{\overrightarrow{V^2}} + \overbrace{(P^2_{YZ,X} + P^2_{XZ,Y} + P^2_{XY,Z})}^{\overrightarrow{P^2}}$$

$$\overbrace{(S^3_{YZ,X} + S^3_{XZ,Y} + S^3_{XY,Z})}^{\overrightarrow{S^3}} + \overbrace{(V^3_{YZ,X} + V^3_{XZ,Y} + V^3_{XY,Z})}^{\overrightarrow{V^3}} + \overbrace{(P^3_{YZ,X} + P^3_{XZ,Y} + P^3_{XY,Z})}^{\overrightarrow{P^3}}$$

And finally we get the final vector:

$$\overrightarrow{R3} = \left(\frac{d^2 m(t)^i}{dt^2}\left(3+\frac{1}{t^2}\right)_x + \frac{dm(t)^i}{dt}\left(3+\frac{5}{t^2}-\frac{4}{t^3}\right)_x + 2m(t)^i\left(\frac{1}{t^2}-\frac{5}{t^3}+\frac{3}{t^4}\right)_x + 3\left(\frac{d^2 m(t)^j}{dt^2}\right)_x + 3\left(\frac{dm(t)^j}{dt}\right)_x \right)_X \bullet \overrightarrow{\varepsilon^1} +$$

$$\left(\frac{d^2 m(t)^i}{dt^2}\left(3+\frac{1}{t^2}\right)_y + \frac{dm(t)^i}{dt}\left(3+\frac{5}{t^2}-\frac{4}{t^3}\right)_y + 2m(t)^i\left(\frac{1}{t^2}-\frac{5}{t^3}+\frac{3}{t^4}\right)_y + 3\left(\frac{d^2 m(t)^j}{dt^2}\right)_y + 3\left(\frac{dm(t)^j}{dt}\right)_y \right)_Y \bullet \overrightarrow{\varepsilon^2} +$$

$$\left(\frac{d^2 m(t)^i}{dt^2}\left(3+\frac{1}{t^2}\right)_z + \frac{dm(t)^i}{dt}\left(3+\frac{5}{t^2}-\frac{4}{t^3}\right)_z + 2m(t)^i\left(\frac{1}{t^2}-\frac{5}{t^3}+\frac{3}{t^4}\right)_z + 3\left(\frac{d^2 m(t)^j}{dt^2}\right)_z + 3\left(\frac{dm(t)^j}{dt}\right)_z \right)_Z \bullet \overrightarrow{\varepsilon^3}$$

When the three Cartesian components are null ($\overrightarrow{R_x} = \overrightarrow{R_y} = \overrightarrow{R_z} = 0$), then the *PE*^{i} ($m(t)^i$), which interacts with the *PE*^{j} ($m(t)^j$) within the Rc of the *PE*^{i}, exits from our universe and its corresponding 3d Being, dies! This occurs at time T_e, precisely coinciding with one of the solutions of the final equation (1) $\overrightarrow{R_x} = \overrightarrow{R_y} = \overrightarrow{R_z} = 0$:

$$\underbrace{\frac{d^2 m(t)^i}{dt^2}\left(3+\frac{1}{t^2}\right)_x + \frac{dm(t)^i}{dt}\left(3+\frac{5}{t^2}-\frac{4}{t^3}\right)_x + 2m(t)^i\left(\frac{1}{t^2}-\frac{5}{t^3}+\frac{3}{t^4}\right)_x}_{m(t)^i} + \underbrace{3\left(\frac{d^2 m(t)^j}{dt^2}\right)_x + 3\left(\frac{dm(t)^j}{dt}\right)_x}_{m(t)^j} = 0$$

(1)

One of the solutions of this equation corresponds to the time T_e in which the PoA definitively leaves from our universe, taking with it the i-th *PE* ($m(t)^i$). In fact, the output from our 3d space of PE coincides with the time Te when the components $\overrightarrow{R_x} = \overrightarrow{R_y} = \overrightarrow{R_z}$ of the tangent to the lifeline of the *PE*, which depend on the three *SVP* forces described by its Esistore, become null.

Now, substituting into (1):

- t=80 years, corresponding to the average life of one of the six possible types of *PE* (especially the one corresponding to the soul of a Human Being)
- x_{ij}=1, for the distance between the two core particles: m^i e m^j .
- c=300000, for the speed of light in 3d space.
- v_i equal to the speed of light in 11d, as postulated by TTR.
- v_j=250000, as a value less than c.
- m^i=m^j=m for the two unknowns masses, master and slave, of example.

we demonstrate the thesis in object, i.e: the mass of a *PE* is equivalent to that of a Proton. First of all we replace the relativistic masses in the equation (1):

$$m = \frac{m_0}{\sqrt{1-\frac{v^2}{c^2}}}$$

$$\frac{dm(t)^i}{dt} = m_0\left(\frac{1}{\sqrt{1-\frac{\left(\frac{s}{t}\right)^2}{c^2}}} - 1\right) \qquad \frac{d^2 m(t)^i}{dt^2} = \left(\frac{m_0 s^2}{c^2 t^3\left(1-\frac{s^2}{c^2t^2}\right)^{\frac{3}{2}}}\right)$$

substituting:

$$\frac{m_0(t)^i}{\left(1-\frac{v_i^2}{c^2}\right)^{\frac{1}{2}}}\left(\frac{3cx_i^2}{1-\frac{v_i^2}{c^2}}+\frac{cv_i^2}{1-\frac{v_i^2}{c^2}}-6-\frac{10\left(1-\frac{v_i^2}{c^2}\right)^{\frac{1}{2}}+2}{t^2}+\frac{8\left(1-\frac{v_i^2}{c^2}\right)^{\frac{1}{2}}-10}{t^3}-\frac{6}{t^4}\right)+3m_0(t)^j+\frac{3m_0(t)^j cx_j^2}{\left(1-\frac{v_j^2}{c^2}\right)\left(1-\frac{v_j^2}{c^2}\right)^{\frac{1}{2}}}-\frac{3m_0(t)^j}{\left(1-\frac{v_j^2}{c^2}\right)^{\frac{1}{2}}}=0$$

placing:

$$\left(1-\frac{v_i^2}{c^2}\right)=A$$

$$\frac{m_0(t)^i}{(A)^{\frac{1}{2}}}=B$$

$$\frac{3cx_i^2}{A}+\frac{cv_i^2}{A}-6=D$$

$$3m_0(t)^j+\frac{3m_0(t)^j cx_j^2}{\left(1-\frac{v_j^2}{c^2}\right)\left(1-\frac{v_j^2}{c^2}\right)^{\frac{1}{2}}}-\frac{3m_0(t)^j}{\left(1-\frac{v_j^2}{c^2}\right)^{\frac{1}{2}}}=C$$

we obtain:

$$B\left(D-\frac{10(A)^{\frac{1}{2}}+2}{t^2}+\frac{8(A)^{\frac{1}{2}}-10}{t^3}-\frac{6}{t^4}\right)+C=0$$

Now, according to the postulates of TTR theory, we know that at the time Te (equation corresponding to the final desired solution) the PE will exit from our space and will start to move at the speed of its PDA conveyor in 11d space:

$$\lim_{t\to t_0} v = 4{,}03326*10^{14}c$$

$$\left(1-\frac{v_i^2}{c^2}\right)^{\frac{1}{2}}=A^{\frac{1}{2}}=\left(1-\frac{\left(4{,}03326*10^{14}c\right)^2}{c^2}\right)^{\frac{1}{2}}=\left(1-4{,}03326*10^{28}\right)^{\frac{1}{2}}=F$$

replacing:

$$BDt^4-2Bt^2+10Bt-6B+Ct^4-10FBt^2+8BFt=0$$

$$t^4\left(BD+C\right)-2Bt^2\left(1+5F\right)+2Bt\left(5+4F\right)-6B=0$$

and placing:

a=(B*D+C) b= -2*B*(1-5F)
c=(2*B)*(4F+5) d=-6*B

we get: $at^4+bt^2+ct+d=0$

And considering only 2 of the 4 solutions, i.e: t_1 e t_3, we have:

t_1 = - t_3 = -1/2*sqrt((sqrt((-72*a*b*d+27*a*c^2+2*b^3)^2-4*(12*a*d+b^2)^3)-72*a*b*d+27*a*c^2+2*b^3)^(1/3)/(3*2^(1/3)*a)+(2^(1/3)*(12*a*d+b^2))/(3*a*(sqrt((-72*a*b*d+27*a*c^2+2*b^3)^2-4*(12*a*d+b^2)^3)-72*a*b*d+27*a*c^2+2*b^3)^(1/3))-(2*b)/(3*a))-1/2*sqrt(-(sqrt((-72*a*b*d+27*a*c^2+2*b^3)^2-4*(12*a*d+b^2)^3)-72*a*b*d+27*a*c^2+2*b^3)^(1/3)/(3*2^(1/3)*a)-(2^(1/3)*(12*a*d+b^2))/(3*a*(sqrt((-72*a*b*d+27*a*c^2+2*b^3)^24*(12*a*d+b^2)^3)72*a*b*d+27*a*c^2+2*b^3)^(1/3))+(2*c)/(a*sqrt((sqrt((72*a*b*d+27*a*c^2+2*b^3)^24*(12*a*d+b^2)^3)72*a*b*d+27*a*c^2+2*b^3)^(1/3)/(3*2^(1/3)*a)+(2^(1/3)*(12*a*d+b^2))/(3*a*(sqrt((-72*a*b*d+27*a*c^2+2*b^3)^2-4*(12*a*d+b^2)^3)-72*a*b*d+27*a*c^2+2*b^3)^(1/3))-(2*b)/(3*a)))-(4*b)/(3*a))

and solving:

$$\frac{m_0(t)^i}{\left(1-\frac{v_i^2}{c^2}\right)^{\frac{1}{2}}}\left(\frac{3cx_i^2}{1-\frac{v_i^2}{c^2}}+\frac{cv_i^2}{1-\frac{v_i^2}{c^2}}-6-\frac{10\left(1-\frac{v_i^2}{c^2}\right)^{\frac{1}{2}}+2}{t^2}+\frac{8\left(1-\frac{v_i^2}{c^2}\right)^{\frac{1}{2}}-10}{t^3}-\frac{6}{t^4}\right)+3m_0(t)^j+\frac{3m_0(t)^j cx_j^2}{\left(1-\frac{v_j^2}{c^2}\right)\left(1-\frac{v_j^2}{c^2}\right)^{\frac{1}{2}}}-\frac{3m_0(t)^j}{\left(1-\frac{v_j^2}{c^2}\right)^{\frac{1}{2}}}=0$$

$$\frac{m}{\left(5.76715*10^{15},1.73205i\right)}*\left(-8.92106*10^{12},8.9802*10^{19}-0.00267926i\right)+3*m+\frac{3m*300000}{\left(1-4{,}03326*10^{28}\right)\left(5.76715*10^{15},1.73205i\right)}-\frac{3*m}{\left(5.76715*10^{15},1.73205i\right)}=0$$

$$-5.20188*10^{-16}+(3-5.87612\times10^{-38}*i)*m,(3-1.56228*10^{-26}i)*m+1.73205*i=0$$

$$-5.20188\times10^{-16}+(3i)m,(3.-1.56228\times10^{-26}i)m+1.73205i=0$$

$$-5.20188\times10^{-16}+(3i)m\approx1.73205$$

$$m=\left(\frac{1.73205}{(3*i)}+5.20188\times10^{-16}\right)*\frac{1}{365*24*60*60}$$ (t è stato espresso in anni:. Quindi, per averlo in secondi, dobbiamo dividere per 365*24*60*60)

$$m=1.64951\times10^{-23}-1.83076\times10^{-8}i$$

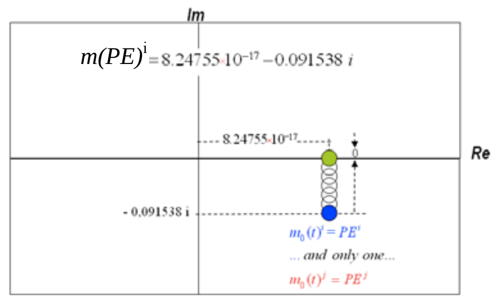
$$m=\left(1.64951\times10^{-23}-1.83076\times10^{-8}i\right)*\left(\frac{1}{2}\right)*\left(10^7\right)$$

Questo è il valore in Giga eV/c^2 che dobbiamo dividere per 2 perché le particelle in gioco m, per semplicità, sono solo due: Master(m^i) e Slave(m^j)

we finally obtain the ***PE***’s mass:

$$\boxed{m(PE)^i=8.24755\times10^{-17}-0.091538\,i\ \text{grams}}$$

This result falls in the complex plane and becomes real and extraordinarily comparable with the mass of the Proton when the imaginary part tends to zero by inserting in (1) an increasing number of *PE* $m(t)^j$ "slaves".



Complex plane

Where the Proton’s mass is:

$$8.34026\times10^{-17}\,grams$$

$$\approx15\times mass\ of\ RNA\ in\ the\ \phi X\ 174\ virus\ (\approx5.4\ ag)$$

$$\approx5\times10^7\times unified\ atomic\ massunit(\approx1.7\times10^{-27}\,kg)$$

$$\approx5\times10^7\,m_p\,(proton\ masses)$$

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