Abstract: Calculated parameters and characteristics of objects of the Universe are presented in dynamic space-matter. A model of an intergalactic apparatus is presented.

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1. Introduction

All theories about the Universe are presented within the framework of Euclidean definitions and postulates.

1. “A point is that, part of which is nothing”) (“Beginnings” of Euclid). or a point is that which has no parts,
2. Line - length without width, and the 5th postulate about parallels that do not intersect.
3. If a line intersecting two lines forms interior one-sided angles less than two lines, then, extended indefinitely, these two lines will meet on the side where the angles are less than two lines.

![Figure 1 Euclidean axiomatic](image)

That is, through a point outside a line, only one line can be drawn parallel to the line. In the "Unified Theory 2" there are contradictions that are unresolvable in the Euclidean axiomatic. That is, many lines in one line (length without width), again a line. Is it a line or multiple lines? Similarly, the set of points in one point is again a point. Is it a point or multiple points? The Euclidean Elements do not provide answers to such questions. The problems of the 5th postulate are also well known.

There are real facts of the dynamic space of a bunch of straight lines that do not intersect, that is, parallel to the original line AC at infinity, presented in the "Unified Theory 2". And moving along the line (AC), there will be a dynamic space nearby, which we will not be able to get into.

Infinity cannot be stopped, so this already dynamic space always exists. And already the properties of this dynamic ($\phi \neq \text{const}$) space are presented as the properties of matter, the main property of which is movement. There is no matter outside such space, and there is no space without matter. Space-matter is one and the same.

In such a dynamic space-matter, Euclidean axiomatics is presented as a special case of zero ($\phi = 0$) angle of parallelism. At the same time, the problem of a multitude of exactly straight lines in one straight parallel line is solved, as “length without width”.

The main property of a dynamic space-matter is a dynamic ($\phi \neq \text{const}$) angle of parallelism. In this case, the Euclidean space in the XYZ axes loses its meaning.

![Fig. 3 dynamic space-matter](image)

Within the grid of Euclidean ($\phi = 0$) axes, we do not see dynamic($X+ = Y-$), ($X- = Y+$) space-matter, and we cannot imagine it. Therefore, the axioms of dynamic space-matter are introduced as facts that do not require
proof. Already in these axioms the problem of the Euclidean axiomatic of a point is solved, as a set of indivisible points-spheres, in one indivisible point-sphere, but already on (n) convergence, dynamic space-matter.

fig.3a - dynamic space-matter

Any fixation (in experiments) of a non-zero \((\varphi \neq 0)\) angle of parallelism gives a multi-sheeted Riemannian space. Now, within the framework of the axioms of dynamic space-matter in the form:

1. Non-zero, dynamic angle of parallelism \((\varphi \neq 0) \neq \text{const}\), a beam of parallel lines, determines the orthogonal fields \((X-) \perp (Y-)\) of parallel lines - trajectories, as isotropic properties, of space-matter.

2. Zero angle of parallelism \((\varphi = 0)\), gives "length without width" with zero or non-zero \(Y_0\)- the radius of the sphere-point "without parts" in Euclidean axiomatic.

3. A bundle of parallel lines with zero \((\varphi = 0)\) angle of parallelism, "equally located to all its points", gives a set of straight lines in one "width less" Euclidean straight line.

4. Internal \((X-),(Y-)\) and external \((X+),(Y+)\) fields of lines-trajectories of non-zero \(X_0 \neq 0\) or \(Y_0 \neq 0\) material sphere-point form the Indivisible Area of Localization \(\text{HOIL}(X \pm)\) or \(\text{HOIL}(Y \pm)\) dynamic space-matter.

5. In uniform fields \((X-=Y+), (Y-=X+)\) orthogonal lines-trajectories \((X-) \perp (Y-)\) there are no two identical spheres-points and lines-trajectories.

6. The sequence of Indivisible Areas of Localization \((X \pm), (Y \pm), (Y \pm)\ldots\) along the radius \(X_0 \neq 0\) or \(Y_0 \neq 0\) sphere-points on one line-trajectory gives \(n\) convergence, and \(m\) convergence on different trajectories.

7. Each Indivisible Region of Localization of space-matter corresponds to a unit of all its Evolution Criteria - CE, in a single \((X-=Y+), (Y-=X+)\) space-matter on \(m-n\) convergences

\[
\text{HOIL} = K\mathcal{E}(X-=Y+), K\mathcal{E}(Y-=X+) = 1, \quad \text{HOIL} = K\mathcal{E}(m)K\mathcal{E}(n) = 1,
\]

in a system of numbers equal by analogy to units.

8. Fixing an angle \((\varphi \neq 0) = \text{const}\) or \((\varphi = 0)\) a bunch of straight parallel lines, space-matter, gives the 5-th postulate of Euclid and the axiom of parallelism.

Any point of fixed lines-trajectories is represented by local basis vectors of the Riemannian space:

\[
e_j = \frac{\partial X}{\partial x^j}i + \frac{\partial Y}{\partial x^j}j + \frac{\partial Z}{\partial x^j}k, \quad e_i^j = \frac{\partial x^i}{\partial X}i + \frac{\partial x^i}{\partial Y}j + \frac{\partial x^i}{\partial Z}k,
\]

with fundamental tensor \(e_i(x^n) \circ e_k(x^n) = g_{ik}(x^n)\) and topology \((x^n = X,Y,Z)\) in Euclidean space. That is, the Riemannian space is a fixed state of dynamic space-matter. Local basis vectors correspond to the space of velocities \(WN=K+NT-N\), in multidimensional space-time.

Space-time is a particular case of a fixed \((\varphi \neq 0) = \text{const}\) state of dynamic \((\varphi \neq \text{const})\) space-matter. At the same time, all the Criteria of the Evolution of matter are formed in the multidimensional \(W^N=K^N+NT-N\) space-time. They are presented in the "Unified Theory 2" in the form: \((\Pi=W^2)\) - potential, \((F=\Pi^2)\) - force...
In physical theories, we are talking about electromagnetic fields of charge: $q(Y=+X=-)=IIK$, and gravitation $(G=+Y=-)$ mass fields with mass: $m(G=+Y=-)=IIK$, and the corresponding equations of dynamics (which are derived) as mathematical truths. These are Maxwell's equations:

$$c \cdot \text{rot}_t B(X=) = \text{rot}_t H(X=) = \varepsilon_0 \frac{\partial E(Y+)}{\partial t} + \lambda E(Y+)$$

$$\text{rot}_t E(Y+) = -\mu_0 \frac{\partial H(X-)}{\partial t} = -\frac{\partial E(X-)}{\partial t};$$

and equations of dynamics of gravitational-mass fields.

Indivisible Areas of Localization, $(X \pm)$ and $(Y \pm)$, as facts of reality, we correlate with indivisible quanta $(X \pm = p)$ of a proton, $(Y \pm = e)$ of an electron, $(X \pm = n_1), (Y \pm = g_0), (X \pm = n_2), (Y \pm = y = e)$ photon. These quanta form the first Localization Area $(O/L)$. And like Cartesian, spherical, cylindrical, any other coordinate system in Euclidean axiomatic, it is already possible to represent the quantum coordinate system on $(m)$ and $(n)$ convergences, indivisible quanta of space-matter, in full.

![Fig.5 quantum coordinate system](image)

Already in such a quantum coordinate system, one can consider the properties of the space-matter of the Universe, visible and invisible for photons and neutrinos of the $(O/L)$ level.

2. **Properties of space-matter of the Universe**

The visible space of the Universe is represented by a sphere with Euclidean isotropy. In fact, such a Euclidean sphere is expanding, that is, non-stationary. The reason for this non-stationary is considered to be dark energy, in the presence of observable dark masses. Extension conditions are calculated from the conditions of the 2-nd space velocity of the masses $(M_1)$ and $(M_2)$, relative to the mass of the observer $(m)$:

$$\frac{mv^2}{2} = \frac{GMm}{R}, \quad v^2 = \frac{2GM}{R} = \Pi^2$$

for $\frac{GM}{R^2} = \frac{2GM_2}{R^2}$ or $\frac{M_1}{M_2} = \frac{R_1^2}{R_2^2}, R^2 \sim (M = pV)$.

As a result of transformations: $v^2 = \frac{2G(pV)}{R} = \frac{2G \rho \pi R^3}{3R} = \frac{8\pi G \rho R^3}{3R}$, or: $\left(\frac{v}{R} = H\right)^2 = \frac{8\pi G \rho}{3}$, we get:

![Fig.6. to the conditions of expansion of space-matter](image)
\[ \rho_\text{c} = \frac{3H^2}{8\pi G} \approx 10^{-29} \left[ \frac{\text{m}^{-2}}{\text{mol}^3} \right], \] the critical density of irreversible expansion. \( (H) \) is the Hubble constant.

We are talking about the visible expansion, fixed \((Y = Y = c)\) by photons \((O\mathcal{L}_I)\) of the level of indivisible quanta of space-matter \((p, e, \nu_\mu, \nu_\tau, \nu_\nu, \gamma)\) in the quantum system coordinates. Now let's represent the indivisible quanta of space-matter, in the form \(O\mathcal{L}_n(m)\) of their \((m)\) convergence.

\(O\mathcal{L}_j \ldots O\mathcal{L}_3 \ldots (p_3 e_3 p_2 e_2 p_1 e_1 = O\mathcal{L}_2)(p, e, \nu_\mu, \nu_\tau, \nu_\nu, \gamma = O\mathcal{L}_1)(\nu_1 \nu_1 \nu_2 \nu_3 \nu_3 = O\mathcal{L}_0) \ldots O\mathcal{L}_{n-1} O\mathcal{L}_{n-2} \ldots O\mathcal{L}_i\)

In this case, the electron speed \((O\mathcal{L}_I)\) level: \((w = \left( \frac{a}{1+37} \right) \alpha c \), or \((w = \alpha \left(^{N=1} \right) c \). Einstein's Theory of Relativity and quantum relativistic dynamics, allow superluminal speeds in space-time.

Here \((a_{11} = a_{22} = 1)\) are the cosines of the angles of parallelism in the form: \(\cos(\phi_x) \ast \cos(\phi_y) = 1\). Then the sub photon velocities \((\nu_i)\) of the physical vacuum are equal to: \((w_i = \alpha \left( N=-1,-2, \ldots \right) \ast c \) superluminal velocities in \((O\mathcal{L}_I)\) levels of the physical vacuum. Similarly, the space of velocities in \((O\mathcal{L}_J)\) levels in the form:

\[ w_j = \alpha \left( N=1,2,3, \ldots \right) \ast c \]

provided that \((w_j \ast w_i = \alpha^{N+c} \ast \alpha^{N+c} = c^2)\) potentials in Einstein’s postulates for the \((O\mathcal{L}_J)\) level. In the same potentials, the mass spectrum of indivisible quanta of the entire quantum coordinate system \(O\mathcal{L}_i(m)\) at \((m)\) convergence is calculated, similarly to the calculations of the masses\((O\mathcal{L}_I)\) level:

\[ m(X= Y \rightarrow) = \Pi \hat{k} \]

\[ m = \frac{\frac{E=I^2}{Y^2}}{Y} = \left[ \frac{I^{P+}T^2}{Y} = \left( \frac{I^{P+}T^2}{Y^2} \right) \right] = \frac{I^{P+}T}{Y^2} = \frac{I^{P+}T}{Y^2} \]

where \(2m_Y = Gm_X\); and:

\[ m_Y = Gm_X/2 \]

The full calculation of the mass spectrum in: \(O\mathcal{L}_j\) and \(O\mathcal{L}_{i-1}\) levels of the physical vacuum, is performed by a simple program in TP7, and looks like.

```
program a1;
uses crt;
const a2=1/(137.036*137.036);
G=6.67e-8; n=12;
Var p,p1,p2,e1,e,c2:Real;
i,j,m:Integer;
begin clrscr;
p:=938.28; e:=0.511;
p:=a2*e2/G; WriteLn('p1=',p);
e1:=G*p/2; WriteLn('e1=',e1);
p1:=a2*e1/2; WriteLn('p1=',p1);
for i:=1 to n do
begin
  WriteLn('n=',i);
e1:=2*p1/a2; WriteLn('e1=',e1);
p2:=a2*e/G; WriteLn(p1=',p2);
e2:=2*p*a2; WriteLn('e2=',e2);
p1:=2*e1/G; WriteLn(p1=',p1);
e:=2*p*a2;
WriteLn('e=',e);
p:=2*e2/G;
WriteLn(p1=',p);
end;
ReadLn;
end.
```

Each \(O\mathcal{L}_j\), and \(O\mathcal{L}_i\) level contains two mass and three charge isotopentials.

<table>
<thead>
<tr>
<th>Nucleus quanta</th>
<th>(2\alpha \cdot p_j = N \cdot p_{j-1})</th>
<th>(p_j = 2e_{j-1}/G)</th>
<th>(e_j = 2p_{j-2}/\alpha^2)</th>
<th>(N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exaquasar</td>
<td>(2\alpha \cdot p^-<em>{26} = 290p^+</em>{25})</td>
<td>(p^-_{26} = 7.9\ E107)</td>
<td>(e^+_{26} = 9.1\ E103)</td>
<td>14</td>
</tr>
<tr>
<td>Superquasar Galaxies of the 1st kind</td>
<td>$2\alpha * p_{25}^{-} = 238p_{25}^{+}$</td>
<td>$p_{25}^{-} = 3,96 \text{E}103$</td>
<td>$e_{25} = 2,6 \text{E}100$</td>
<td></td>
</tr>
<tr>
<td>Superquasar Galaxies of the 2nd kind</td>
<td>$2\alpha * p_{20}^{-} = 290p_{19}^{+}$</td>
<td>$p_{20}^{-} = 6,25 \text{E}83$</td>
<td>$e_{20} = 7,2 \text{E}79$</td>
<td></td>
</tr>
<tr>
<td>black spheres</td>
<td>$2\alpha * p_{19}^{+} = 238p_{18}^{-}$</td>
<td>$p_{19}^{+} = 3,13 \text{E}79$</td>
<td>$e_{19} = 2,08 \text{E}76$</td>
<td></td>
</tr>
<tr>
<td>Superquasars of the 1st kind</td>
<td>$2\alpha * p_{25}^{-} = 238p_{21}^{+}$</td>
<td>$p_{25}^{-} = 3,5 \text{E}91$</td>
<td>$e_{22} = 2,35 \text{E}88$</td>
<td></td>
</tr>
<tr>
<td>of the 2nd kind</td>
<td>$2\alpha * p_{17}^{-} = 290p_{16}^{+}$</td>
<td>$p_{17}^{-} = 5,55 \text{E}71$</td>
<td>$e_{17} = 6,38 \text{E}67$</td>
<td></td>
</tr>
<tr>
<td>Mega star galaxies</td>
<td>$2\alpha * p_{16}^{-} = 238p_{15}^{+}$</td>
<td>$p_{16}^{-} = 2,77 \text{E}67$</td>
<td>$e_{16} = 1,85 \text{E}64$</td>
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</tr>
<tr>
<td>black spheres</td>
<td>$2\alpha * p_{15}^{+} = 25p_{14}^{-}$</td>
<td>$p_{15}^{+} = 1,7 \text{E}63$</td>
<td>$e_{15} = 9,26 \text{E}59$</td>
<td></td>
</tr>
<tr>
<td>Mega stars</td>
<td>$2\alpha * p_{14}^{-} = 291p_{13}^{+}$</td>
<td>$p_{14}^{-} = 4,93 \text{E}59$</td>
<td>$e_{14} = 5,67 \text{E}55$</td>
<td></td>
</tr>
<tr>
<td>super planets</td>
<td>$2\alpha * p_{13}^{-} = 238p_{12}^{+}$</td>
<td>$p_{13}^{-} = 2,46 \text{E}55$</td>
<td>$e_{13} = 1,64 \text{E}52$</td>
<td></td>
</tr>
<tr>
<td>quasars of the galaxy of the 1st kind</td>
<td>$2\alpha * p_{12}^{-} = 25p_{11}^{+}$</td>
<td>$p_{12}^{-} = 1,12 \text{E}51$</td>
<td>$e_{12} = 8,22 \text{E}47$</td>
<td></td>
</tr>
<tr>
<td>black spheres</td>
<td>$2\alpha * p_{11}^{+} = 290p_{10}^{-}$</td>
<td>$p_{11}^{+} = 4,4 \text{E}47$</td>
<td>$e_{11} = 5,03 \text{E}43$</td>
<td></td>
</tr>
<tr>
<td>quasars 1 kind</td>
<td>$2\alpha * p_{10}^{-} = 238p_{9}^{+}$</td>
<td>$p_{10}^{-} = 2,19 \text{E}43$</td>
<td>$e_{10}^{+} = 1,46 \text{E}40$</td>
<td></td>
</tr>
<tr>
<td>black spheres</td>
<td>$2\alpha * p_{9}^{-} = 25p_{8}^{+}$</td>
<td>$p_{9}^{-} = 1,34 \text{E}39$</td>
<td>$e_{9} = 7,3 \text{E}35$</td>
<td></td>
</tr>
<tr>
<td>quasar galaxies of the 2nd kind</td>
<td>$2\alpha * p_{8}^{+} = 290p_{7}^{-}$</td>
<td>$p_{8}^{+} = 1,88 \text{E}35$</td>
<td>$e_{8} = 4,47 \text{E}31$</td>
<td></td>
</tr>
<tr>
<td>black spheres</td>
<td>$2\alpha * p_{7}^{-} = 238p_{6}^{+}$</td>
<td>$p_{7}^{-} = 1,94 \text{E}31$</td>
<td>$e_{7} = 1,3 \text{E}28$</td>
<td></td>
</tr>
<tr>
<td>Quasars of the 2nd kind</td>
<td>$2\alpha * p_{6}^{-} = 25p_{5}^{+}$</td>
<td>$p_{6}^{-} = 1,19 \text{E}27$</td>
<td>$e_{6} = 6,48 \text{E}23$</td>
<td></td>
</tr>
<tr>
<td>Stellar galaxies</td>
<td>$2\alpha * p_{5}^{+} = 238p_{4}^{-}$</td>
<td>$p_{5}^{+} = 3,45 \text{E}23$</td>
<td>$e_{5} = 3,97 \text{E}19$</td>
<td></td>
</tr>
<tr>
<td>Galactic black spheres</td>
<td>$2\alpha * p_{4}^{+} = 25p_{3}^{-}$</td>
<td>$p_{4}^{+} = 1,7 \text{E}19$</td>
<td>$e_{4} = 1,15 \text{E}+16$</td>
<td></td>
</tr>
<tr>
<td>Stars</td>
<td>$2\alpha * p_{3}^{-} = 290p_{2}^{+}$</td>
<td>$p_{3}^{+} = 1,057 \text{E}15 \text{MeV}$</td>
<td>$e_{3} = 5,755 \text{E}11 \text{MeV}$</td>
<td></td>
</tr>
<tr>
<td>Planets</td>
<td>$2\alpha * p_{2}^{-} = 238p_{1}^{+}$</td>
<td>$p_{2}^{+} = 3,05 \text{E}11 \text{MeV}$</td>
<td>$e_{2} = 3,524 \text{E}7 \text{MeV}$</td>
<td></td>
</tr>
<tr>
<td>OŁ1 level</td>
<td>$2\alpha * p_{1}^{+} = 25p_{0}^{-}$</td>
<td>$p_{1}^{+} = 1,532 \text{E}7 \text{MeV}$</td>
<td>$e_{1} = 10216 \text{MeV}$</td>
<td></td>
</tr>
<tr>
<td>$2\alpha * v_{\mu}^{-} = 292v_{e}^{-}$</td>
<td>$238\text{U} v_{\mu}^{+} = 938,28 \text{MeV}$</td>
<td>$e^{-} = 0,511 \text{MeV}$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>physical vacuum OŁ0 level</td>
<td>$v_{1}^{-} - \alpha \gamma_{1-2} / 2$</td>
<td>$\gamma_{1} = G v 1+1/2$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>$v_{1}^{-} = 8,3*10^{-10} \text{ MeV}$</td>
<td>$\gamma_{1} = 4,5*10^{-11} \text{ MeV}$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$v_{2}^{-} = 2,4*10^{-11} \text{ MeV}$</td>
<td>$\gamma_{2} = 2,8*10^{-12} \text{ MeV}$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$v_{3}^{-} = 1,2*10^{-11} \text{ MeV}$</td>
<td>$\gamma_{3} = 8,05*10^{-13} \text{ MeV}$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$v_{4}^{-} = 7,4*10^{-22} \text{ MeV}$</td>
<td>$\gamma_{4} = 4,03*10^{-22} \text{ MeV}$</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Let us consider the properties of the classical representations of the Criteria for the Evolution of Matter. In the presented table of masses of indivisible (stable) quanta \((Y \pm)\) and \((X \pm)\) of space-matter, we are talking about the inert \(m(Y^-)\) mass, for example, \(\gamma(Y^-)\) of a photon, and the gravitational mass \(m(X+)\) e.g. 

\[ p(X+) \text{ proton or } \nu_e(X+) \text{ neutrino.} \]

We are talking about: \(p(X^-) = e(Y^+)\), \(\nu_e(X^-) = \gamma_0(Y^+)\), \(\nu_e(X-) = \gamma(Y+)\) three charge and two: \((m = \Pi \kappa)\ mass \(e(Y^-) = \nu_e(X+)\), \(\nu_e(Y^-) = \nu_e(X+)\) isopotentials in each O\(\Omega\)\(_j\), and O\(\Omega\)\(_l\) level of physical vacuum. We are talking about the energy \(E = (\Pi_1\Pi_2 \ast K)\) of the interaction of the potentials of two points at a distance \((K)\), with a force \((F = \Pi^2 = \Pi_1\Pi_2)\). The potential itself is: \(\Pi = (K \ast b)\), this is the acceleration \((b)\) at a distance \((K)\). Energy \(E = mc^2\), or \(E = hv\), where \(m = v^2 \ast V\), and so on.

In classical relativistic dynamics: \(R^2 \ast c^2 t^2 = c^4 \ast (t \ast T)^2 = (c^2 = \mathcal{F})\). In the same Criteria: \(\Pi = g_{\pi}(x^n)\) is the fundamental tensor of the Riemannian space. Then in general we have:

\[
\Pi_1^2 - \Pi_2^2 = (\Pi_1(X+) - \Pi_2(Y^-))(\Pi_1(X^-) + \Pi_2(Y^+)) = (\Delta\Pi_1(X+= Y^-)) \downarrow (\Delta\Pi_2(X-= Y^+)) \uparrow = F
\]

This force on the entire radius \((R = K)\) of the visible sphere of a single \((X\pm = Y\mp)\) space-matter of the Universe, gives (dark) energy \((U = FK)\) to the dynamics of the Universe, in gravity \((X^+= Y^-)\) mass and in electro\((Y^+ = X^-)\)-magnetic fields. Therefore, this is the energy of the relativistic dynamics of the Universe.

\[
(\Pi_1^2 - \Pi_2^2)K = (\Pi_1 - \Pi_2)K(\Pi_1 + \Pi_2) = (\Delta\Pi_1)(X+= Y^-) \downarrow K(\Delta\Pi_2)(X-= Y^+) \uparrow = FK = U
\]

What is its nature? On the radius \((R = K)\) of the dynamic sphere of the Universe there is a simultaneous dynamics of a single \((X\pm = Y\mp)\) space-matter. Considering the dynamics of potentials in gravitational mass \((X^+= Y^-)\) fields, as already known, \((\Pi_1 - \Pi_2) = g_{ik}(1) - g_{ik}(2) \neq 0\), we are talking about the "gravity" equation

\[
R_{ik} - \frac{1}{2}Rg_{ik} - \frac{1}{2}g_{ik} = kT_{ik}\]

of the General Theory of Relativity, in any system \((x^m \neq \text{const})\) of coordinates, and in various O\(\Omega\)\(_j\), and O\(\Omega\)\(_l\) levels of the physical vacuum of the entire Universe. The gradient of such a \((\Delta\Pi_1)\) potential is also known to give quantum gravity equations with inductive \(M(Y^-)\) (hidden) mass fields in the gravitational field. We are talking about \((\Delta\Pi_1 \sim T_{ik})\) \((X^+= Y^-)\) energy-momentum

\[
T_{ik} = \left(\frac{E = \Pi^2\kappa}{p = \Pi^2 \gamma}\right)_{\Pi} \left(\frac{E = \Pi^2\kappa}{p = \Pi^2 \gamma}\right)_{\kappa} = \frac{K^2}{T^2} \equiv (\Pi), \text{ gravity } (X^+= Y^-) \text{ of the mass fields of the entire Universe, with a decrease in the density of mass } (Y^-) \text{ trajectories on the Planck scale.}
\]

\[
\Pi K = \frac{\left(K_{T=\infty}\right)^3}{\left(T_{T=\infty}\right)^3} \left(\frac{1}{(T_{T=\infty})^2}\right) = (\rho_i \rightarrow 0)^\dagger \left(K_i^3 = V_i \uparrow \right)(X^+= Y^-) = (\rho_i \downarrow V_i \uparrow)(X^+= Y^-),
\]

\[
\left(R_j\right) = 1.616 \ast 10^{-33} \text{sm}, \quad \left(R_j\right) = 6.2 \ast 10^{32} \text{sm} \quad (\rho, (Y^-) \rightarrow 0).
\]

In quantum relativistic dynamics, we are talking about the non-stationary Euclidean space of a sphere, which in space-matter has the form of a dynamic ellipsoid. Moreover, the photon comes to the surface from the center of the ellipsoid at the same time. This is due to the dynamics of the speed of light, when: \(\downarrow \nu \leftarrow \frac{1}{171} \uparrow \text{ the scale of the period (photon frequency } \uparrow \nu \downarrow = \frac{1}{171} \text{ and the wavelength } \downarrow \lambda \uparrow \text{ change. This is analogous to classical relativistic dynamics, using the example of two observers. A (on the platform) and B (in the car), when simultaneous flashes of light for A in front and behind the car will not be simultaneous for B, who will see blue light in front and red light behind the car. The light wave itself does not change, but the period of interaction for the forward (approaching) wave decreases, and for the back (receding) wave increases, which changes the color of the wave. And the passage of time slows down in the } \text{"red"} \text{ interaction, and accelerates in the } \text{"blue"} \text{ interaction. Similarly, the light at a larger diameter will be } \text{"red"}, \text{ with the passage of time slowing down, at a smaller one } \text{"blue"} \text{.}
And the same relativistic quantum dynamics \( e(Y-)_j \rightarrow \gamma(Y-)_i \) in the levels \( \text{O}l_j \), and \( \text{O}l_i \) of the physical vacuum of the entire Universe.

In quantum gravity, we are talking about quantum dynamics: \( e(Y-)_j \rightarrow \gamma(Y-)_i \) in \( \text{O}l_j \), and \( \text{O}l_i \) physical vacuum levels at the \( (m) \) convergence of the entire Universe. In the unified Criteria of the Evolution of space-matter, the density \( \rho = \frac{\text{N}}{R^3} = \frac{1}{T^2} = v^2 \), give \( c = \frac{\lambda(Y-)_j \rightarrow 0}{T(Y-)_j \rightarrow 0} \) about zero parameters of the instantaneous "Explosion" infinitely large \( \rho(Y-)_j = \frac{1}{T(Y-)_j \rightarrow \infty} \) density of dynamic masses in \( (Y+ = X-)_j \) field of the Universe. At infinitely small \( (T(Y-)_j \rightarrow 0) \) periods of dynamics, in dynamic space-matter:

\[ \text{HO}l = (T(Y-)_j \rightarrow 0) * (t(Y+ = X-)_j \rightarrow \infty) = 1 \], in the \( (X-)_j \) field of the Universe, an infinite number of events occur, in "compressed time" \( (t(Y+ = X-)_j \rightarrow \infty) \), with the origin \( (T(Y-)_j = 1) \). And already in such a physical vacuum in \( (\rho(X+ = Y-)_i \rightarrow 0) \), quanta \( (\gamma(Y-)_i = (\rho(Y-)_i \rightarrow 0) \) with near zero mass density. And we are talking about the radius of the sphere of a non-stationary Euclidean expanding space, \( R(X-) \rightarrow \infty \), on \( (m) \) convergence, and \( r(X-)_i \rightarrow 0 \), on \( (n) \) convergence, i.e. superluminal speeds: \( (w_i = \alpha(-N=-1,-2...) \ast c) \), in \( (\text{O}l_i) \) levels of physical vacuum. Moreover, \( \lambda(X-)_j \rightarrow \infty \), and \( \lambda(X-)_i \rightarrow 0 \),

\[ c = \frac{\lambda(X-)_j \rightarrow 0}{T(X-)_j \rightarrow 0} \], with density \( \rho(X-)_i = \frac{1}{T(X-)_j \rightarrow \infty} \) at the limit level \( (\text{O}l_i) \), as the "bottoms" of the physical vacuum.

In quantum gravity, the acceleration of mass trajectories \( (Y- = X +) \) in a gravitational field

\[ G(X+) \left[ \frac{R}{L^2} \right] = \psi \frac{h}{n^2 \lambda} \frac{G \frac{\partial}{\partial t} \text{grad}_R Rg_{ik}(X +) \left[ \frac{R}{L^2} \right]}{\lambda} \] maximum, for \( \lambda(X-)_i \rightarrow 0 \), in \( (\text{O}l_i) \) levels of the physical vacuum.

We are talking about the superluminal velocity space \( (w_i = \alpha(-N=-1,-2...) \ast c) \), \( \gamma_i(Y-) \) photons of the \( (\text{O}l_i) \) level,
with their dynamics period: \( c = \frac{\lambda(Y)_{-i}^{\infty}}{T(Y)_{-i}^{\infty}} \), \( T(Y)_{-i} \to \infty \). This means that at infinite radii \( R(X) \to \infty \) “at the bottom” of the physical vacuum, at each of its points \( r(X)_{-i} \to 0 \), at \( (n) \) convergences, the Universe “disappears” in time: \( t = (n = 0) \ast T(Y)_{-i} = 0 \). "At the bottom" of the physical vacuum, in \((\Omega_{l})\) levels, we cannot fix events by photon \( \gamma_{l}(Y) \) with dynamics period \( T(Y)_{-i} \to \infty \). In this case, any density: of dynamic masses

\[
(\rho(Y)_{-i}) = \frac{1}{T(Y)_{-i}^{2}} \to \infty ,
\]

including photons: \( \gamma_{l}(Y) \) of all \((\Omega_{l})\) levels, to about zero \((\rho(Y)_{-i}) \to 0\)

mass densities of the physical vacuum, with acceleration \( G(X) \), on \((n)\) convergence at each point of the space-matter of the entire \((R(X) \to \infty)\) Universe. An "expanding Universe" effect is created with the effect of the primary \((T(Y)_{-i} \to 0)\) "Big Bang". At the same time, the speed of light, \( y(Y) \) photon \((\Omega_{l})\) level, remains unchanged in any level of physical vacuum: \( c = \frac{\lambda(Y)_{-i}^{\infty}}{T(Y)_{-i}^{\infty}} = c = \frac{\lambda(Y)_{-i}^{0}}{T(Y)_{-i}^{0}} = c = \frac{\lambda(X)_{-i}^{0}}{T(X)_{-i}^{0}} \). For \( y(Y) \) photons of the \((\Omega_{l})\) level, “falling” into near-zero mass densities \((\rho(Y)_{-i}) = \frac{1}{T(Y)_{-i}^{2}} \to 0\), with acceleration

\[
G(X) = \left[ \frac{k}{T_{2}} \right] = v \ast H \left[ \frac{k}{T_{2}} \right] ,
\]

where \((H)\) fixed Hubble constant: \( H = \frac{v}{R} \). The wavelength \( y(Y) \) of photons increases when “falling into near zero density” at the limiting radii \((R(X) \to \infty)\) of the Universe, in the limiting depth of the physical \((r(X) \to 0)\) vacuum. These "relic \( y(Y) \) photons" \((\Omega_{l})\) level (red in the figure) are seen in experiments. Further we speak about superluminal \( \gamma_{l}(Y) \) photons. The mathematical truth is that on the infinite radii of the entire space-matter of the Universe \( R_{j}(X) \to \infty \) with its mass \( \lambda_{l}(Y) \to \infty \) trajectories, the density of matter \((\rho_{j}(X) \to 0)\), \((\rho_{l}(Y) \to 0)\), tends to zero. The proper time of dynamics \( t \) is reduced to zero in the axioms \( \Omega_{l} = \{t(Y+ \to 0) \} \to \infty \to \infty \) dynamic space-matter, as well as acceleration dynamics:

\[
(b = (R_{j}(X) \to i\infty ))(\rho_{j}(X) \to 0) = \text{const} \quad b = (\lambda_{l}(Y) \to \infty )\rho_{l}(Y) \to 0 = \text{const}
\]

mass trajectories. In other words, the mathematical truth is the disappearance of the dynamic space-matter mass at infinity, and the Universe disappears in time \( t_{l}(Y+ \to X) \to 0 \) with the acceleration same \((b = \text{const})\) of the entire space-matter. On the other hand, \( r_{l}(Y) \to 0 \) takes place \((\rho_{l}(X) \to 0) \to \infty \), and the beginning \((\lambda_{j}(Y) \to 0)\), \((\rho_{j}(X) \to \infty)\), such ("Explosion"), “instantaneous” \( T_{j}(Y) \to 0 \), period of the Universe dynamics. The quantum dynamics of the space-matter of the Universe in the quantum coordinate system, during the expansion of the Universe, is due to the primary "failure" of the densities \( \rho_{j}(Y = e_{j}) \) to near-zero mass \((\rho_{l}(Y = \gamma_{l}) \approx 0)\) density of the physical vacuum. In the axioms of dynamic space-matter:

\[
\Omega_{l} = \{X(Y = X+ \to 0)\} \quad \Omega_{l} = \{m(X = m)\} = 1 ,
\]

each \((X)\) and \((X, Y)\) quantum \((\Omega_{j}(m))\) of the spectrum corresponds to the dynamic conditions

\[
\cos^{2} \varphi_{X} \cos^{2} \varphi_{Y} = 1 \quad \text{and} \quad 0 \leq \varphi < \varphi_{\text{max}} \quad \varphi \neq 90^0 \quad \text{ch}(Y/X_{0}) \ast \text{cos} \varphi_{Y} = 1 \quad \text{ch}(X/Y_{0}) \ast \text{cos} \varphi_{X} = 1 ,
\]

with Interaction constants: \( \cos^{2} \varphi_{X} = G = 6.672 \times 10^{-8} \), and \( \cos \varphi_{Y} = \alpha = 1/137,036 \). This means that with a decrease in the angles of parallelism \( \varphi_{l}(Y) \to 0 \) with the disappearance of fields, the angles of quanta \( \varphi_{l}(X) \to \varphi_{\text{max}}(X) \) increase, and vice versa. In this case, matter does not disappear, but passes from one type to another, in the form of a change in dominant fields along their \((\Omega_{j}(m))\) spectrum.

4. Properties of indivisible quanta in the quantum coordinate system.

We can determine the limiting parameters of the space-matter dynamics of the entire Universe, in a quantum coordinate system. Speaking about the space of velocities \( e_{j}(Y) \) and \( \gamma_{l}(Y) \) of quantum’s \( \Omega_{j}(m) \) of the quantum coordinate system, by analogy with the velocities of an electron and a photon: \( w_{e} = a^{N = 1} \ast c \), we can say about the speeds \( w(e_{j}) = a^{N} \ast c \), macro electrons \((\Omega_{l})\) levels and \( w(\gamma_{l}) = a^{-N} \ast c \), already superluminal sub photons \((\Omega_{l})\) physical vacuum levels. We will define limit values \((N)\). For the \((\Omega_{l})\) level \((p, e, v_{\mu}, \gamma_{0}, v_{e}, \gamma_{e} = c)\) the Planck length and time are defined:

\[
l_{p} = \sqrt{\frac{G}{c^{3}}} = \sqrt{G} \quad T_{p} = \sqrt{\frac{G}{c^{5}}} = \sqrt{G} \quad T = \sqrt{\frac{G}{c^{7}}} = \sqrt{G} \quad T = \sqrt{\frac{G}{c^{9}}} = \sqrt{G} 
\]

These limit values of length \( l_{p} \) and time \( T_{p} \) are calculated with the constant \( \sqrt{G} \), and refer to the limit quantum \((X = v_{i})\) of the level \((\Omega_{l})\) of the physical vacuum. From the relation

\[
T_{p} = \sqrt{G} \quad \text{for the period} \quad T_{l} = 1.35 \times 10^{-43} s ,
\]

In the spectrum of \((\Omega_{l})\) levels, \( N = 12 \) corresponds to the sub neutrino quantum \((v_{2})\) with the isopotential of the sub photon quantum \((\gamma_{\text{sub}} = a^{-12} \ast c)\). By analogy with the emission of a photon by an electron
(e → γ) similarly to a neutrino (p → ν_e [N = 0]) proton, we are talking about radiation in (O Li) levels of the physical vacuum:

(γ → γ_2[N = 1], (γ_2 → γ_4[N = 2]), (γ_4 → γ_6[N = 3]), (γ_6 → γ_8[N = 4])... (γ_22 → γ_{24}[N = 12])... and (ν_e → ν_2[N = 1], (ν_2 → ν_4[N = 2]), (ν_4 → ν_6[N = 3]), (ν_6 → ν_8[N = 4])... (ν_{22} → ν_{24}[N = 12]).

In the axioms of dynamic space-matter, HO L = KΩ(m)KΩ(n) = 1, we obtain for the masses (M) of indivisible quanta in (O Li) levels:

\[ \text{HO L} = M(e_1 = 1,15 E4 ) (k = 3.13) M(γ_0 = 3.13. E - 5 ) = 1 \]
\[ \text{HO L} = M(e_2 = 3.5247 E7 ) (k = 3.13) M(γ = 9.07 E - 9 ) = 1 \]
\[ \text{HO L} = M(e_3 = 5.755 E11 ) (k = 3.86) M(γ_1 = 4.5 E - 13 ) = 1 \]
\[ \text{HO L} = M(e_4 = 1.15 E16 ) (k = 3.13) M(γ_2 = 2.78 E - 17 ) = 1 \]
\[ \text{HO L} = M(e_5 = 3.97 E19 ) (k = 3.13) M(γ_3 = 8.05 E - 21 ) = 1 \]
\[ \text{HO L} = M(e_6 = 6.48 E23 ) (k = 3.83) M(γ_4 = 4.03 E - 25 ) = 1 \]
\[ \text{HO L} = M(e_7 = 4.47 E31 ) (k = 3.14) M(γ_6 = 7.13 E - 33 ) = 1 \]

\[ \text{HO L} = M(e_26 = 9.1 E103 ) (k = 3.14) M(γ_{24} = 3.5 E - 105 ) = 1 \]

Obviously, we are talking about vortex mass (Y -) trajectories: \( c * \text{rot}_e M(Y - = γ_i) = e_e * \frac{\partial G(X+)}{\partial T} + λ * G(X+) \)
eq

of dynamics in a circle (\( k = 3.14 = \pi = \frac{2\pi R = \pi}{2R} \)) in each (O Li) level of the physical vacuum.

Therefore, we are talking about exactly such radiations already in (O Li) levels of the physical vacuum:

\( e_e → \gamma [N = 0] \), because: \( w(γ) = α^N = \alpha * c \) = c, \( w(e) = α^N = \alpha * (γ = c) \) and further:

\( (e_2 → e[N = 2]), (e_4 → e_2[N = 3]), (e_6 → e_4[N = 4])... (e_{26} → e_{24}[N = 14]), \) likewise:

\( (p_2 → p[N = 2]), (p_4 → p_2[N = 3]), (p_6 → p_4[N = 4])... (p_{26} → p_{24}[N = 14]). \)

We are talking about the space-matter of the entire Universe, defined by constants: (h, c, G, α). The radiation itself in (O Li) levels of the physical vacuum is caused by acceleration (b) in the relativistic dynamics of the entire space-matter: \( b^2(R \uparrow) - b^2 c^2 (t \uparrow) = (c^4 = F) \) giving the potentials:

\( b = \frac{k}{T} \) \( (R = K) K^2 = \frac{k^2}{T} = T, \) "dark energy:

\( (\Pi^2 - \Pi^2) = (\Pi_1 - \Pi_2) K(\Pi_1 + \Pi_2) = (\Delta \Pi_1)(X = + Y = -) K(\Delta \Pi_2)(X = - Y = +) \)

\( \uparrow = FK = U \)

For all quanta (O Li) of the spectrum, the period of dynamics (0 → T → ∞) takes place has a different "scale", but always for (T = 1) the wavelength \( \lambda(e_j) = \lambda(γ_j) * (T = 1) = α^N * c * (T = 1) \) for macro electrons, and \( \lambda(γ_j) = \lambda(γ_j) * (T = 1) = α^{-N} * c * (T = 1) \) for sub photons. In the Planckian length limits in the axioms of dynamic space-matter: \( (R_j) * (R_i = 4 * 10^{-33} sm) = 1 \) we have limiting \( (R_j) = 2.5 * 10^{32} sm, \)

sizes with near zero mass densities: \( (p_{(Y -}) = 0 \), in (O Li) levels of the physical vacuum.

The dynamics of matter (φ ≠ const) is fixed in the Euclidean (φ = 0), (φ = const), axiomatic of the Evolution Criteria formed in the space \( (K^\pm N T^\mp N) \) of time. To each (φ = const) fixed state corresponds to its own space-time, as well as the Criteria of Evolution, in accordance with the Theories of Relativity. In the Indivisible Area of Localization,

\[ \text{HO L} = M(e_26 = 9.1 E103 ) (k = 3.14) M(γ_{24} = 3.5 E - 105 ) = 1 \]

the exoquasar quantum (Y ± = e_26) corresponds to the speed \( w(e_26) = α^{N_2} = c \) In the coordinate system of atomic (p/e) structures \( O L \) of the level of ordinary atoms, where \( w_e = α * c \) is the electron velocity, there is a relation relative to the electron \( N = 13 \) in the form:

\[ \text{HO L} = w_j(e_{26}) * w_i(γ_{24}) = (α^{13} w_e) * (α^{-13} w_e) = w_2 = Π_e = 1 \]

In this case, the wavelength \( \lambda(e_{26}) = α^{13} \lambda(e_26) = 1 \) is calculated, through the electron wavelength, \( \lambda(e) = \frac{h}{m_e c} = \frac{6.626*10^{-27}+137.056}{9.1*10^{-26}+3.10^{10}} = 3.32 * 10^{-9} sm \), \( \lambda(e_{26}) = α^{13} \lambda(e) = 5.5 * 10^{-36} \)

And the first emitted quanta, \( (e_{26}) → α(e_{24}) \), have: \( 2λ(e_{24}) = 2α^{-1}λ(e_{26}) = 1.5 * 10^{-33} \) dimensions in circles corresponding to the Planckian dimensions \( (λ_p = 4 * 10^{-33} sm) \) calculated in (h, c, G) constants.

From the experimental data, for the minimum \( (λ_i = 10^{-16} sm) \) distances are measured by \( (Y ± = γ) \) quanta, with the dynamics period: \( T = \frac{λ_i}{c} ≈ 10^{-26} s = α^{N_Ti} \), value \( (N) \) for period: \( (T_i = 1) \) of dynamics, calculated: \( 10^{-26} = α^{N}(T_i = 1) \), \( N = 26 logga 10 = 26^{ln10}_{lna} ≈ 12, N = 12 \). This order \( (O L_i) \) of the spectrum corresponds to \( (Y ± = γ_{24}) \) a sub photon quantum. It corresponds to the quantum \( (Y ± = e_{26}) \), with wavelength \( \lambda(e_{26}) = T_{26} = 5.5 * 10^{-36} sm \), within the entire Universe: \( \text{HO L} = R_{26} = 1 \) or \( R_{26} = \frac{1}{r_{26}} = 1.8 * 10^{35} sm \) in radius sphere: \( R = \frac{1.25 T_{(T = 1)}}{2π} = \frac{4.3855*10^{25}3*10^{10}}{6.28} \approx 2.1 * 10^{35} sm \), (1 light year=365.25*24*3600*3*10^{10}=9.5*10^{17} sm). In both cases, we are talking about sizes of the order
by analogy with the core (\(p/e\)) of ordinary atoms, we are talking about quanta (\(p_\gamma/e_\gamma\)) of the nucleus of a star. Stars with such a core have a limiting energy level of the physical vacuum, at the level of \((\gamma)\) photon. Below the energy of a photon, in the physical vacuum, the star does not manifest itself. Like proton radiations (\(p^+ \rightarrow \nu_\gamma\)) antineutrinos, we are talking about radiations of antimatter matter and vice versa. That is: (\(p_\gamma^+ \rightarrow p_\gamma^-\)), (\(p_\gamma^- \rightarrow p_\gamma^+\)), (\(p_\gamma^+ \rightarrow p_\gamma^-\)), (\(p_\gamma^- \rightarrow p_\gamma^+\)), with the corresponding atomic nucleus: (\(p^+/e^-\)) substances of an ordinary atom, (\(p_\gamma^+/e_\gamma^-\)) antimatter of the nucleus of a "stellar atom", (\(p_\gamma^+/e_\gamma^-\)) the matter of the galaxy core, (\(p_\gamma^-/e_\gamma^+\)) the antimatter of the quasar core, and (\(p_\gamma^+/e_\gamma^-\)) the matter of the core of the "quasar galaxy".

Further, we proceed from the fact that the quantum (\(e_\gamma^+\)) of matter \((Y_e = p_\gamma^+/n_\gamma^+ = e_\gamma^+\)) of the core of planets emits a quantum (\(e_\gamma^+ = 2 \ast \alpha \ast (p_\gamma^+/1.532E7MeV) = 223591MeV\), or: \(223591 = e_\gamma^+ = 238.3 \ast p\) Uranium nuclei. This «antimatter» \((e_\gamma^+ = 238^{92}U = Y_e\)) is unstable, and exothermically decays into a spectrum of atoms, in the core of planets.

In the superluminal level \(w_\gamma(\alpha^{-N}(\gamma = c))\) of the physical vacuum, such stars do not manifest themselves. Further, we are talking about the substance (\(p_\gamma^+/p_\gamma^-\)) of the core \((Y_e = p_\gamma^+/n_\gamma^+ = e_\gamma^+\)) of "black spheres", around which, in their gravitational field, globular clusters of stars form. Similarly, below, we are talking about radiation of antimatter by matter and vice versa: (\(p_\gamma^+/p_\gamma^-\)), (\(p_\gamma^-/p_\gamma^+\)), (\(p_\gamma^+/p_\gamma^-\)), (\(p_\gamma^-/p_\gamma^+\)), (\(p_\gamma^+\rightarrow p_\gamma^-\)), (\(p_\gamma^-\rightarrow p_\gamma^+\)), (\(p_\gamma^+/p_\gamma^-\)), (\(p_\gamma^-/p_\gamma^+\)), (\(p_\gamma^+/p_\gamma^-\)) ....

Further: \(HOI = M(e_\gamma = 1.15E16)\) \((k = 3.13)M(\gamma_e = 2.78E-17) = 1\). These quanta \((p_\gamma/e_\gamma)\) of galactic nuclei are surrounded by individually emitted quanta \((p_\gamma/e_\gamma)\) of stellar nuclei, and are the reason for their formation. Such nuclei of galaxies, in the equations of quantum gravity, have spiral arms of mass trajectories narrower: \(w_\gamma(\gamma_e = \alpha^{-1}c) = 137 \ast c\), in superluminal velocity space. Below the energy \((w_\gamma = 137 \ast c)\) of light photons in the physical vacuum, galaxies do not manifest themselves. Outside galaxies, we are talking about core quanta \((Y_e = p_\gamma^+/n_\gamma^+ = e_\gamma^+)\) of mega stars. They generate \((e_\gamma^+ = 2 \ast \alpha \ast p_\gamma^- = e_\gamma^+ = 290p_\gamma^-)\) set of galactic nucleus quanta. Similarly next: \(HOI = M(e_\gamma = 6.48E23)\) \((k = 3.83)M(\gamma_e = 4.03E-25) = 1\). We are talking about quanta \((Y_e = p_\gamma^-/n_\gamma^- = e_\gamma^+)\) of the core of quasars, which also individually emit \((p_\gamma/e_\gamma)\) quanta of the nucleus of galaxies. In other words, the core of a quasar is surrounded by quanta of the core of a galaxy. They say that the quasar is the physical vacuum of the galaxy. Such quasars plunge into the physical vacuum level up to superluminal speeds \(w_\gamma(\gamma_e = \alpha^{-2}c)\) \((137^2 \ast c)\). This is deeper than the physical vacuum level of the galaxy. These are completely different objects. In other words, quasars bend space-matter at the level of \(10^4\) quanta. Further, we are talking about quanta of matter of the nucleus \(Y_e = p_\gamma^+/n_\gamma^- = e_\gamma^+\) of "black spheres", around which clusters of galaxies form in their gravitational field, and Further: \(HOI = M(\gamma_e = 4.47E31)\) \((k = 3.14)M(\gamma_e = 7.13E-33) = 1\). We are talking about quanta \((p_\gamma/e_\gamma)\) of the nucleus of quasar galaxies, which also individually emit quanta \((p_\gamma^-/n_\gamma^- = e_\gamma^+)\) of the nucleus of quasars. Such quasar galaxies plunge into the physical vacuum level up to superluminal speeds \(w_\gamma(\gamma_e = \alpha^{-3}c) = 137^3 \ast c\). Similarly next.

In the axioms \(HOI = K\Theta(m)K\Theta(n) = 1\), or \(M(X +) \ast M(Y-) = 1\), dynamic space-matter, we are talking about the source of gravity of the gravitational mass \(M(X +)\) in \(OJI\) levels and inertial \(M(Y-)\) masses in \(OJI\) levels of the physical vacuum, with their Einstein equivalence principle in a single gravitational \((X+ = Y-)\) mass field. These masses: \(M \ast M = (M = \Pi K)^2 = 1\), in the form of a quadratic form, are represented in the quantum fields of their interaction:

\[ h = Gm_\alpha dGm_\rho(1 - 2\alpha)^2 = GM_\alpha dGm_\rho(1 - 2\alpha)^2 = \frac{6.67 \ast 10^{-6}}{9 \ast 10^{10}} \]  

in quantum: \(G(X+) = \frac{\Psi}{h} GdGdRgik(X+)\) \((1/2)\), gravity \((X+ = Y-)\) mass fields. Thus, the limiting mass \(M (X +)\) of the source of gravity is determined by \(M (Y-)\) inertial mass of mass \((Y = \gamma)\) fields in \(OJI\) levels of the physical vacuum, as an object \(OJI(n)\) of convergence or:
The physical reality is the different space of the velocities of the Sun and the Earth. Without any fuel engines, the Earth flies in the space of the physical vacuum at a speed of \(30 \text{km/s} \), and the Sun at a speed of the order of \(265 \text{km/s} \). We are talking about the main property of space-matter - movement. The mass flow \((Y^-)_{\lambda} \) of the apparatus is created by the fields of Strong and Gravitational Interaction of energy quanta \((X^\pm = p_1), (X^\pm = p_2), \) \(OL_\lambda \) the level of indivisible quanta of the space-matter of the physical vacuum, interconnected by the same \((X^\pm)\) fields on the trajectories \((X^-)\) of the module, without an external energy source.

Consistently including the space of velocities, the apparatus \((Y^-)_{\lambda}, (X^-)_{\lambda}\) in the level of the singularity of the physical vacuum, the apparatus goes along the radial trajectory from the level of the singularity of the physical vacuum of the quantum \((X^\pm)\) of the space-matter of the planet, \((Y^\pm)\) the space-matter of the star, \((X^\pm)\) the space-matter of the galaxy, \((Y^\pm)\) the space-matter of the cluster of galaxies, to other clusters and galaxies in field of the Universe, with reverse inclusions when returning to the planet of one's own or another galaxy.

\[
\text{HOL} = OL_{ji}(n) = M_j(X^+) \cdot M_i(Y^- = y_i) = 1. \text{ Thus, we obtain the limiting masses in the Universe: for example, for a star } M_j(X^+) = M_2(p_2^+ / n_2^+)^{1/(y)} \text{ under the conditions } (e_2^+ \cdot (k) \cdot y) = 1. \text{ Similarly: }
\]

Limit mass of planets, for \(1M_{\text{ev}} = 1.78 \times 10^{-27} \text{g} :\)

\[
\frac{1}{y_0} = 3.13 \times 10^{-5} M_{\text{ev}}+1.78 \times 10^{-27} = M_i(p_i^+ / n_i^+) \approx 1.8 \times 10^{33} g \approx \frac{M_s}{100}, \text{ where } (M_s = 2 \times 10^{33} g) \text{ is the mass of the Sun.}
\]

Further, the limiting mass of stars, with a nucleus of antimatter:

\[
\frac{1}{y_0} = 9.07 \times 10^{-5} M_{\text{ev}}+1.78 \times 10^{-27} g = M_2(p_2^+ / n_2^+) \approx 6.2 \times 10^{34} g \approx 31 M_s, \text{ or ranging from } \frac{M_s}{100} \text{ to } 31 M_s \text{ mass.}
\]

Similarly, the limiting mass \((p_1^+ / n_1^+ = e_1^+)\) of "black spheres", with a nucleus of matter:

\[
\frac{1}{y_1} = 4.5 \times 10^{-5} M_{\text{ev}}+1.78 \times 10^{-27} g = M_3(p_3^+ / n_3^+) \approx 1.25 \times 10^{39} g \approx 625220 M_s, \text{ from } 31 M_s \text{ to } 625220 M_s \text{ mass.}
\]

limiting mass of a galaxy, \((p_4^+ / n_4^+ = e_4^+)\) with a nucleus of matter:

\[
\frac{1}{y_2} = 2.79 \times 10^{-3} M_{\text{ev}}+1.78 \times 10^{-27} g = M_4(p_4^+ / n_4^+) \approx 2 \times 10^{10} M_s, \text{ from } 625220 M_s \text{ to } 10^{10} M_s \text{ mass.}
\]

limiting mass of an extragalactic mega star, \((p_5^+ / n_5^+ = e_5^+)\) with an antimatter nucleus:

\[
\frac{1}{y_3} = 8.05 \times 10^{-23} M_{\text{ev}}+1.78 \times 10^{-27} g = M_5(p_5^+ / n_5^+) \approx 7 \times 10^{46} g \approx 3 \times 10^{13} M_s, \text{ from } 10^{10} M_s \text{ to } 3 \times 10^{13} M_s \text{ mass.}
\]

limiting mass of an extragalactic mega star, \((p_6^+ / n_6^+ = e_6^+)\) with an antimatter core:

\[
\frac{1}{y_4} = 1.03 \times 10^{-25} M_{\text{ev}}+1.78 \times 10^{-27} g = M_6(p_6^+ / n_6^+) \approx 1.4 \times 10^{51} g \approx 7 \times 10^{17} M_s, \text{ from } 3 \times 10^{13} M_s \text{ to } 7 \times 10^{17} M_s \text{ mass.}
\]

Each kernel of such objects \(OL_{ji}(n)\) of convergence generates a set of corresponding quanta

\[
(2 \times \alpha \times p_j^+ = e_j^+ = N \cdot p_j^-) \text{ specified in table, and emits } (p_j^+ \rightarrow p_{j-2}^+), \text{ This is a set } (N) \text{ of quanta of the nucleus of planets, stars, galaxies, quasars... For example, the core of the Sun, like a star, emits hydrogen nuclei } (p_2^- \rightarrow p^+ \rightarrow v_\mu^-) \text{ and electron antineutrino, but generates } (2 \times \alpha \times p_2^+ = e_2^+ = N \cdot p_2^-) \text{ quanta of, shall we say, "stellar matter" } (p_2^+ / e_2^-), \text{ in the solid state of a star. This "stellar matter" } (p_2^+ / e_2^-) \text{ cannot interact with hydrogen } (p^+ / e^-), \text{ but it can emit muonic antineutrino } (p_2^- \rightarrow v_\mu^-), \text{ and positron, which forms muons: }
\]

\[
(Y^\pm = \mu) = (X^- = v_\mu^-)(Y^+ = e^+) \times (X^- = v_\mu^-), \text{ in the Earth's atmosphere. Or, the core quanta of a mega star with } (p_5^+ / n_5^+) \text{ matter quanta, but generate core quanta galaxies } (2 \times \alpha \times p_5^+ = e_5^+ = N \cdot p_5^-). \text{ We see, as it were, the "surface" of the galaxy, but the core of such an object } OL_{ji}(n) \text{ convergence, has a mass ranging from } (10^{10} M_s) \text{ to } (3 \times 10^{13} M_s) \text{ solar masses.}
\]

We are talking about admissible objects \(OL_{ji}(n)\) of convergence, in the dynamic space-matter of the Universe. At the same time, the calculated causal relationships are indicated.
Thus, it is necessary to create full periods of quanta \((Y_\gamma = \gamma_j)\), the space of velocities by the fields
\[(Y^-)_{A} = (X^- = p_j) + (X^- = p_j)\] of "heavy" quanta as a "working substance", closed on the trajectory \((X^-)\) of the "ring" of the apparatus with Indivisible Localization Area \(\text{HOIL} = (e_j)k(Y_j) = 1\). From the ratios for quanta, \(T_j(X^- = p_j) \rightarrow \infty\), \(\lambda_j(X^- = p_j) \rightarrow \infty\), the greater the quantum mass \((X^- = p_j)\) formed \((p_j = 2(e_j-1)/G)\) by quanta \((e_j-1)\), the greater \(\lambda_j(X^- = p_j)\), the greater the diameter of the "ring" \(D\) of the device. For ratios 
\[(E = \Pi^2 K_x)(X^-)(E = \Pi^2 K_x)(X^-) = \text{HOIL}(X^\pm = p_j),\]
there are ratios
\[\uparrow E(X^-) \downarrow E(X^+) = \text{HOIL}(X^\pm = p_j),\] or \(\uparrow K_x(X^-)K_x \downarrow (X^+) = \text{HOIL}(X^\pm = p_j),\) as well as for masses
\[\uparrow (m = \Pi K_x)(X^-)(m = \Pi K_x) \downarrow (X^+) = \text{HOIL}(X^\pm = p_j).\] The entire mass is concentrated in the field
\[(X^- = p_j)\] formed by the electric fields \((X^- = p_j) = (Y^- + e_j-1)(Y^+ + e_j-1)\) of mass \((Y^- = e_j-1)\) trajectories, in the form
\[m(X^- = p_j) = 2m(Y^- = e_j-1)/G\] of mass fields. It means that in the created quanta
\[\text{HOIL} = \lambda(Y^- + e_j-1)\lambda(Y^- = e_j-1) = 1\] it is enough to know the wavelength
\[\lambda(Y^- + e_j-1) = \frac{1}{\lambda(Y^- = e_j-1)},\] to calculate the order of the quanta \(N(e_j)\) that form the trajectory of the "working substance" quanta
\[(X^- = p_j)\].

For example, if for you need a "ring" of diameter \(D = \frac{2\lambda(X^- = p_j)}{(\pi \approx 3)}\), \(D = 10m\), then
\[\lambda(X^- = p_j) = 15m = \lambda(Y^- = e_j-1).\] That is, there is a quantum length. This corresponds to the relations
\[\lambda(Y^- = e_j-1) = 6.67 \times 10^{-3} \text{cm},\]
where
\[\alpha^N = 2 \times 10^{-5} \text{ for } (J-1)\] gives \(N = \log_\alpha 2 \times 10^{-5} = \frac{\ln(2 \times 10^{-5})}{\ln(\alpha = 1/137)} = -10.82 \approx -4.92 = 2.2 \approx 2\). Then \((N_j = 3)\)
corresponds to the order of quanta \((\alpha^2 c = W(e_j))\) of the working substance \((X^- = p^+_j)\), in a "ring" with a diameter of 10m. Such "rings" give an intergalactic apparatus. The speed of an intergalactic apparatus with such a "working substance" \((X^- = p^+_j)\), at the singularity level \(\text{HOIL} = m(e_j) \times m(\gamma_2) = 1\), is
\[V(Y^- = \gamma_j) = \alpha^- \times c \approx 137 \times c.\] For Earth time of 10 years, you can fly \((r = 10.\text{lym} \times \alpha^- \times c)\) or \((r = 10 \times 365,25 \times 24 \times 3600 \times 137 \times 3 \times 10^5 = 1.3 \times 10^{16} \text{km} = 8.8 \times 10^{7} \text{ a.e.} = 425,8\text{ly} \text{.})\). That is, our galaxy (30 kpc), the device will fly by in about 705 years. For the crew of such a vehicle, the proper time is \(T = \alpha(705.\text{lym}) = 5,14\text{ly} \text{,}\) the singularity \((\gamma^j)\) level time. The greater the mass of the quantum \((p_j)\), the greater the length of its "wave"
\[\lambda(X^- = p_j).\] For \((N_j = 4)\) quasar core matter \((X^- = p^+_j)\) quanta, have \((N_j = 3)\). Then from the relation
\[2\pi^\alpha^N(\lambda_\alpha) = \lambda(Y^- = e_j-1) = 6.28(1/137)^3 \times 3.3 \times 10^{-9} \text{cm} = 8.14 \times 10^{-15} \text{cm},\] and we calculate
\[\lambda(Y^- + e_j-1) = \frac{1}{\lambda(Y^- = e_j-1)} = 8.14 \times 10^{-15} \text{cm},\] and we calculate
\[\lambda(Y^- + e_j-1) = \frac{1}{\lambda(Y^- = e_j-1)} = 8.14 \times 10^{-15} \text{cm}.\] This is
\[1.2 \times 10^{14} \text{cm} \approx 10^9 \text{ km} = 8.2 \text{ a.e.}\] the diameter of the core \((X^- = p^+_j)\) of an extragalactic quasar with core quanta. The "working substance" of such quanta \(\text{HOIL} = m(e_j) \times m(\gamma_2) = 1\) is given by flights already outside the galaxies in the Universe. For 10 years of Earth time, you can fly in the Universe, \((r = 10.\text{lym} \times V(\gamma_4) = \alpha^- \times c = 1.78 \times 10^{18} \text{ km})\) or 183 500 light years. For own time \(t = \alpha^- \times (10.\text{lym})\) in the device or 4 hours 40 minutes. This is the time for \((Y^- = \gamma_4)\) quanta, in the intergalactic level of the singularity of the physical vacuum.