UNIVERSE - THE LARGEST
BALL LIGHTNING OBJECT IN THE WORLD

by Dr Kiril Chukanov, February, 2015, Tianjin, China

I. UNIVERSE

As we know from already published (mostly in my personal site www.chukanovenergy.com) books and articles, light photons are moving with constant Velocity $\vec{C}$ on the curved closed *1-D* (one-dimensional) spherical line "υ" . See Figure I-1.
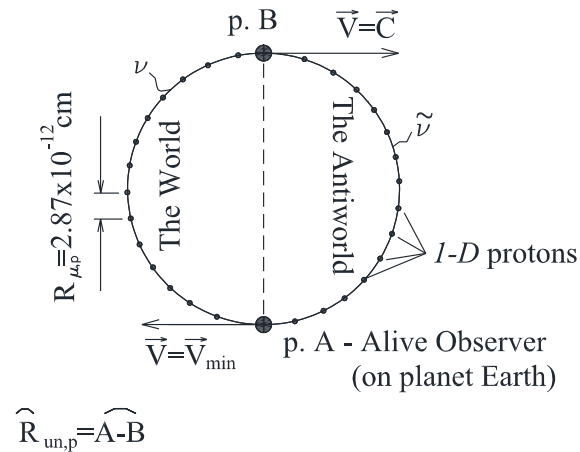

Fig. I-1

Point "*B*" is the furthest point in the universe (from the point "*A*" - the location of the Alive Observer on the planet Earth). Here is located the "End of the World".

The number of protons (elementary particles of the "Proton Matter" universe), which occupy every single quantum (minimum possible) spatial cell on this *1-D* curved line is equal to:

$$N_{pr} = A_{e,p} = \frac{e^2}{G \times m_e \times M_p} = 2.27 \times 10^{39}$$

$$\widehat{R}_{un,p} = A_{e,p} \times \widehat{R}_{\mu,p} = 2.267 \times 10^{39} \times 2.87 \times 10^{-12} = 0.65 \times 10^{28} \; cm$$

Total mass of the *1-D* protons on this line is:

$$M_{pr,v} = A_{e,p} \times M_{pr} = \frac{e^2}{G \times m_e} = 3.79 \times 10^{15} \, g$$

As was mentioned before, this mass $M_{pr,v}$ is the total mass of the civilized human beings from the last Period of Life on planet Earth. About 6,000 years is the duration of this period (see GQM-IV, V, VI).

Quantum mass $M_x = \dfrac{e}{\sqrt{G}}$ is the mass of average bio-cell in the human organism. See GQM-V.

$$M_{cell} = \frac{e}{\sqrt{G}} = \frac{4.8 \times 10^{-10}}{\sqrt{6.68 \times 10^{-8}}} = 1.86 \times 10^{-6} \, g$$

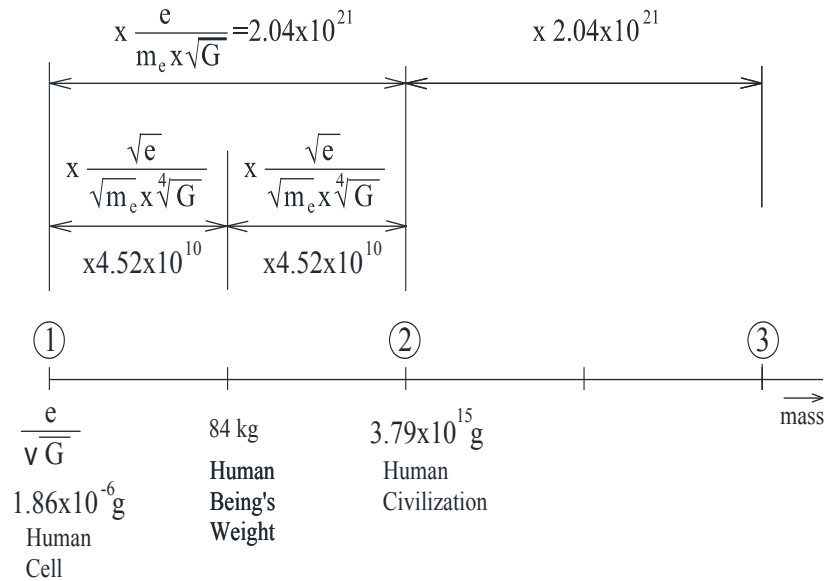On Figure I-2 is presented Quantum Sequence (Spectrum) of Masses.

Fig. I-2

$$A_e = \frac{e^2}{G \times m_e \times m_e} = 4.19 \times 10^{42}$$

$$\sqrt{A_e} = \sqrt{\frac{e^2}{G \times m_e^2}} = \frac{e}{\sqrt{G} \times m_e} = 2.046 \times 10^{21}$$

$$\sqrt{2.046 \times 10^{21}} = 4.52 \times 10^{10}$$

These are Quantum Coefficients of Proportionality.

Some formulae:

$$\widehat{R}_{un,p} = \overset{\frown}{AB} = \frac{\hbar_p^2}{G \times M_p^2 \times m_e} = 0.654 \times 10^{28} \; cm,$$

Where,

$$\hbar_p = 1.05 \times 10^{-27} \; (GCS)$$

$$G = 6.68 \times 10^{-8} \; (GCS)$$

$$M_p = 1.67 \times 10^{-24} \; g \text{ - mass of proton}$$

$$m_e = 0.911 \times 10^{-27} \; g \text{ - mass of electron}$$

$$\widehat{T}_{un,p} = \frac{\hbar_p^2}{c \times G \times M_p^2 \times m_e} = 6.9 \, billion \; yrs.$$

$$\overline{R}_{un,p} = \overline{A}\,\overline{B} = \frac{\widehat{R}_{un,p}}{\pi/2} = 0.416 \times 10^{28} \; cm,$$

$$\overline{T}_{un,p} = \frac{\overline{R}_{un,p}}{c} = \frac{0.416 \times 10^{28}}{3 \times 10^{10}} = \ldots = 4.395 \; billion \; yrs.$$

This number is the "geological" age of the Universe (and the age of the Earth.)

$$\frac{\widehat{R}_{un,p}}{\widehat{T}_{un,p}} = \frac{\dfrac{\hbar_p^2}{G \times M_p^2 \times m_e}}{\dfrac{\hbar_p^2}{c \times G \times M_p^2 \times m_e}} = c - speed \; of \; light!!!$$

$$\widehat{V}_v = \widehat{V}_{o,v} + \widehat{a}_{o,p} \times \widehat{T}_v,$$

Where,

V_o - minimum quanta velocity, world constant, very small

$$\hat{V}_v \approx \hat{a}_{o,p} \times T_v$$

$$\hat{a}_{o,p} = \frac{c^2 \times G \times M_p^2 \times m_e}{\hbar_p^2} = 1.373 \times 10^{-7} \, cm/s^2,$$

$$\bar{a}_{o,p} = \frac{\hat{a}_{o,p}}{\pi/2} = 8.744 \times 10^{-8} \, cm/s^2$$

This value of $\bar{a}_{o,p}$ is observed by astronomers!

The value of the gravity radius of the universe is equal to:

$$r_{g,un} = \frac{G \times M_{un,p}}{c^2} = \frac{G \times \hbar_p^2 \times c^2}{c^2 \times G^2 \times M_p^2 \times m_e \times \pi/2}$$

$$r_{g,un} = \frac{\hbar_p^2}{G \times M_p^2 \times m_e \times \pi/2} = 0.416 \times 10^{28} \, cm$$

$$r_{g,un} = \bar{R}_{un,p} \, !!!$$

The universe, as whole unit, is the ONLY material formation in the World (Universe) in which spatial dimension is equal to its gravity radius. Coincidence in the chaos of expanding universe?

Spherical curvature and quantification of the world parameters determines peculiarities in the behavior of light and other bodies with mass in rest in the universe:

1. The 'red shift' of the light photons in the spectra of far distant (especially in far distant) objects in the universe (galaxies, galaxy clusters, quasars). Conventional scientists-cosmologists explain this effect as a result of expansion of the universe. In fact, our universe is stationary, not expanding in time. While moving from one elementary spatial cell to the next one light photon 'accumulates' in its spectra the effect of the quanta min velocity $\vec{V}_{min}$. Such a way it reddens. See GQM I-V.

2. The effect of 'accelerating universe'. There exists no such thing as 'accelerating universe' because of the existence of some mysterious (not detected) 'dark energy'. This effect in the spectra of light photons coming from very far cosmic objects, as explained in GQM-IV, is due to the spherical curved path (line "υ") in which light photons follow during their long journey to the Alive Observer (on Earth). It is just an effect of geometry, not effect of 'dark energy'.

3. Effects due to the quantum constant acceleration $a_{o,p}$. This effect is especially observed for cosmic bodies moving in a weak gravity field (far away from sizable gravity attractors).

4. Many other unusual (from point of view of contemporary accepted scientific dogmas.)

Now, about 'proton matter' substance (material substance with mass in rest.)

As was explained in GQM-I, neutrons are in fact 'reformed' protons, i.e. the same 'proton matter' substance.

In GQM-VI. I explained the double nature (duality) of every material object (and not only material). Every material object represents unit of couples (two elements) in which are in perpetual 'fraternal' cooperation, and, at the same time, in perpetual fighting. This is the famous philosophical Principle of Unit and Struggle of Opposites. In fact, both elements are the same object but with two different faces of presentation. Like Mr. Jekyll and Mr. Hyde from the novella of Scottish author Robert Stevenson. One and the same person has a 'split' personality: in some circumstances this person behaves as Mr. Jekyll (good person) in another as Mr. Hyde (bad person.)

One of such 'split' of personality is the existance in every material object two opposite sides:

1. individual object,
2. part of several quantum objects of higher level of accumulation of considered matter (inanimate or animate.)

Actually, 'part' is not the right word in this case, because quantum objects (unique) have no parts. A quantum face of the object is an integral, common, quantum image of many individual objects-elements which are 'dissolved' into one material continuum where these elements lost their individualities. Example for such 'split' personality is the Solar System. The sun, the planets, the asteroids, are those individuals, while the common quantum image of the Solar System is a quantum *2-D* material spheroid with no individual elements in it.
Planet Earth is an individual object and the Solar System itself is a *2-D* quantum image. As an individual, Earth interacts with other bodies in the Solar System (and not only) obeying all natural laws in the universe (gravity, etc.). Time-duration of these interactions is limited by the
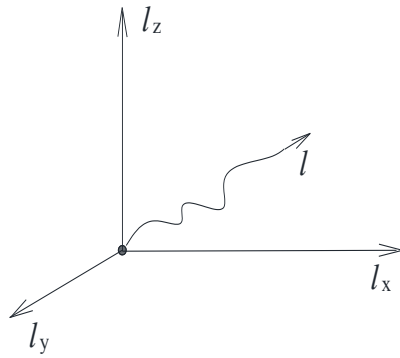
speed of light. In the state of its common quantum image (*2-D* Solar System) Earth interacts with the whole Solar System in a quantum way - instantaneously (not limited by the speed of light), without material carriers of these interactions, and in a statistical/probability way. Main amount of its internal energy Earth receives in a quantum way from the whole Solar System (mostly from the heaviest element of this system - the Sun). Much weaker (less probable) are quantum ties of Earth with quantum objects from higher levels of mass accumulation (Milky Way Galaxy, local galaxy cluster, super-galaxy cluster COMA, and the whole universe). If something happens in the core of the Sun (the heaviest body in the SS) planet Earth feels it instantaneously. The same we, the human beings, feel instantaneously every change in solar activity.

Alive Observer (Life on the planet Earth, unique in the whole universe) is located in the center of the Universe (*p.A*). Or, we could say: in the very beginning of the universe. All 'observable', 'measurable', material bodies in the universe are located somewhere between the Alive Observer and the End of the Universe $\alpha_{un,p}$. All points "*B*" are located on the *2-D* quantum manifold-spheroid "$\alpha_{un,p}$". Tis *2-D* spheroid represents the boundary of the universe. See Figure I-3.

1 - Solar System

2 - Local Star Pile

3 - MWG

4 - Local Galaxy Cluster

5 - Super Galaxy Cluster Coma

Fig. I-3

The *3-D* space "/" encompassed between *p. A* (Alive Observer) and the *2-D* boundary of the 'proton matter' universe $\alpha_{un,p}$ is flat (almost.) See Figure I-4.

Fig. I-4

The *3-D* space "*l*" is not an empty geometrical recipient of material bodies located in it. It is a material continuum which can be deformed by these individual material bodies. The *3-D* space "*l*", and "proton matter" bodies in it, is what we, individual human beings, perceive around us. And we think that that's all which is real in the universe. We, the individuals, do not see the second, 'hidden', face of the universe - its common quantum image. But we perceive it, anyway. We perceive this mysterious *2-D* face of our universe as gravitation and as 'background' radiation (*T*= 2.74 °K). See Figures I-5 and I-6.

Fig. I-5

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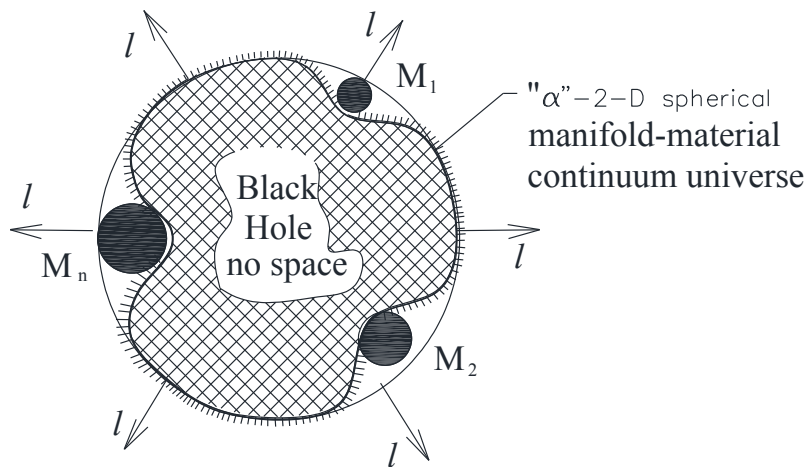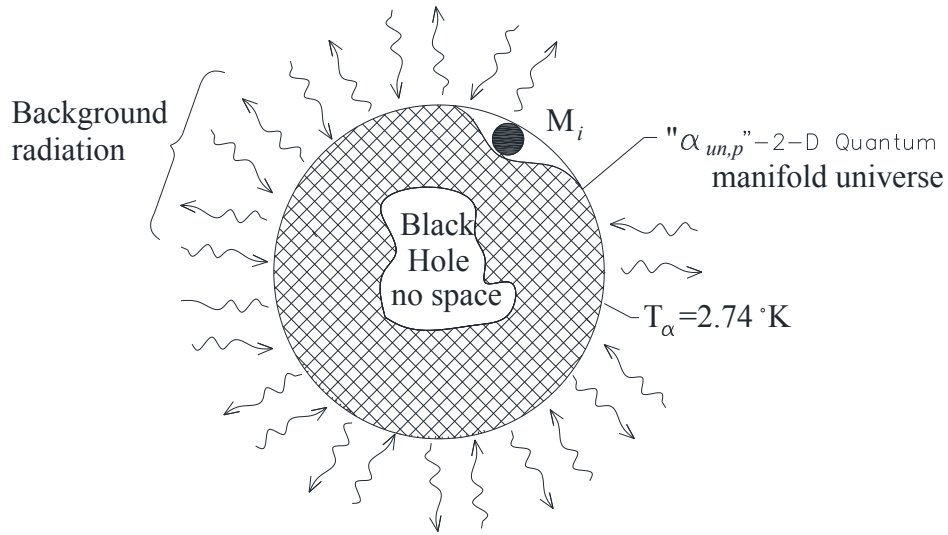
Fig. I-6

Energy of the 'background' radiation is a 'free energy' - it has no primary energy source. This radiation is a two-way radiation (positive and negative). Background radiation of the universe is too weak to be used as practical source of free energy.

Because the *2-D* face of the universe " $\alpha_{un,p}$ " is a quantum object (no parts, no distinguished points and zones on its surface/body), this radiation must be very homogenous (equal in energy intensity in all spatial directions of the *3-D* space "*I*"). However, it is not the case. Local deformations of the *2-D* manifold-universe "$\alpha_{un,p}$" caused by very heavy material cosmic formations (galaxy clusters and super galaxy clusters) disturb locally this 'perfect' homogeneity.

On another consideration, the residence of the Alive Observer is located in the middle between the "Greater World" and the "Lesser World". See Figure I-7.
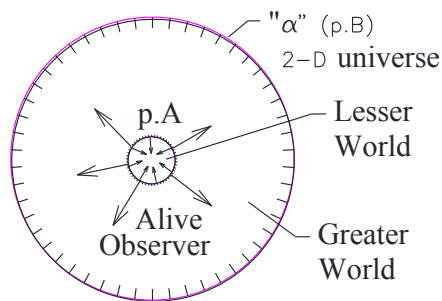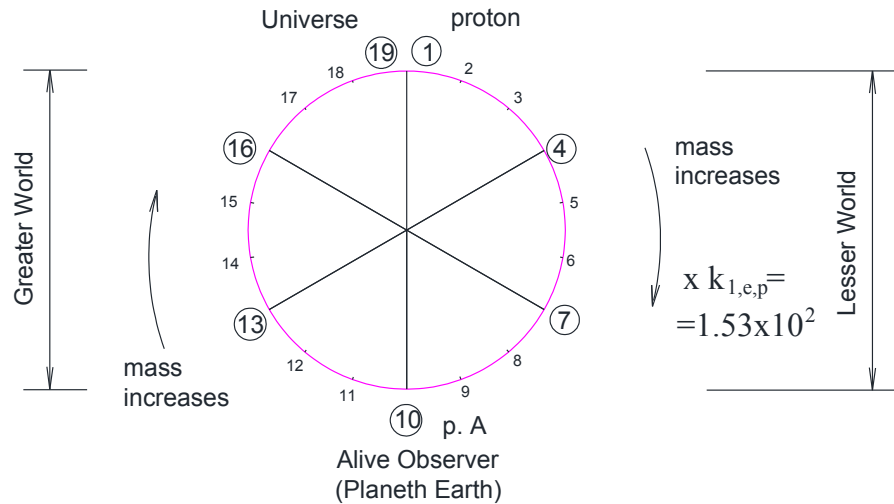

Fig. I-7,a

Fig. I-7,b

The "Greater World" starts from the *2-D* spatial manifold of the Alive Observer (on the surface of planet Earth) and goes outward to the bigger in mass and spatial dimension material formations in the universe (Solar System, star piles, galaxies, cluster of galaxies, super galaxy clusters, the whole universe). The "Lesser World" starts from the same place (the *2-D* residence of the Alive Observer) and goes in deep - to the smaller in mass and spatial dimensions material formations (geological formations, molecules, atoms, nuclei). In the "Lesser World" are located quantum material formations of the Universe of Life. See Figure I-7 and Table I.

Accumulation of material substance brings to life new quality material formations. This happens on the quantum knots (levels) in the Quantum Sequence (Spectrum) of Proton Matter Substance. A planet is not a galaxy. A grain of sand is not a rock. Biological tissue is not an organ.

On the highest quantum level/knot "19" some very dramatic things happen:

1) Individual face of the "Greater World" (planets, stars, star piles, galaxies, galaxy clusters, super galaxy clusters, the whole universe of smaller things) acquires new quality - "Quantum Integral *2-D* Material Manifold-Continuum". What we can see in our far-reaching observables instruments as farthest material formation in the universe is this *2-D* material continuum. If, of course, we can see it.

2) Further accumulation of material substance is impossible - here is the End of Quantum Sequence of Matter, here is the End of the Material World. But there exists another Philosophical Principle which governs the organization of matter: Principle of Inexhaustibility of Matter. On the highest quantum level "19" cannot totally stop the formation of larger mass and larger spatial dimension material objects. On this quantum

level universe is transformed into a new quality - the single proton (or hydrogen atom.) And, evolution in mass substance (accumulation of material substance) starts again following the same scenario. All protons in the universe (neutron is a 'reformed' proton) are the same Unique Proton multiplied in many images-manifestations by the symmetries governing our world.

Quantum Spectrum of "Proton Matter"
Substance (R Spatial Quantum Dimensions)

Table 1

$k_{1,e,\overline{p}}=1.53\times10^2$

$\overline{R}$, cm

(19)	The Whole Universe	$\overline{R}_{un,p}= 0.416\times10^{28}$ cm
18	biggest galaxy formations COMA	$\overline{R}_{18} = 2.72\times10^{25}$ cm
17	normal galaxy cluster (system)	1.78×10^{23}
(16)	small galaxy; galaxy nucleus	1.16×10^{21}
15	star piles	0.77×10^{19}
14	normal star systems	5.1×10^{16}
(13)	small star systems; red giants	3.33×10^{14}
12	red stars	2.18×10^{12}
11	sun; normal planet system	1.42×10^{10}
(10)	Alive Observer's Residence	0.93×10^{8}
9	city; goological formation	6.05×10^{5}
8	small human communities	$4\times10^{3}=40$ m
(7)	human being torso	26 cm
6	embryone	0.17 cm
5	human cell	1.08×10^{-3}
(4)	DNA, genes	0.7×10^{-5}
3	atom	4.46×10^{-8}
2	λ_e	2.8×10^{-10}
(1)	2-D proton	1.83×10^{-12} cm

Greater World

Lesser World

p.A

Matter is inexhaustible in both directions: to the larger material formations and to the smaller material formations (in 'deep'). On the highest (last) quantum level (knot) '19' the biggest material formation in the world (the whole universe) is transformed into the smallest material formation - the proton. Such way the Principle of Inexhaustibility of matter is observed. So, the largest *2-D* material manifold-continuum (universe) is transformed into the smallest *2-D* material manifold-material continuum the proton ($\widehat{R}_{p,2-D} = 2.87 \times 10^{-12}$ cm). This 'reformed' (original) proton is Unique in the Universe! World symmetries multiply this Unique Proton into multiple of other individual protons which possess absolutely the same characteristics like the 'original proton'. Because of that, all protons in the universe feel each other (instantaneous correlation) no matter how far are they each from another.

All elementary spatial cells ($\widehat{R}_{p,2-D} = 2.87 \times 10^{-12}$ cm) on the *2-D* material manifold-continuum are occupied by *2-D* protons. Of course, these are 'dissolved' (lost their individuality) protons in the *2-D* universe - material continuum.

These *2-D* protons are like stickers on the *2-D* surface "$\alpha_{un,p}$". See Figure I-8.

2-D protons-stickers

"$\alpha_{un,p}$" – 2-D universe manifold-material continuum

$\overline{R}_{un,p}$ p.A

$\overline{R}_{un,p}$
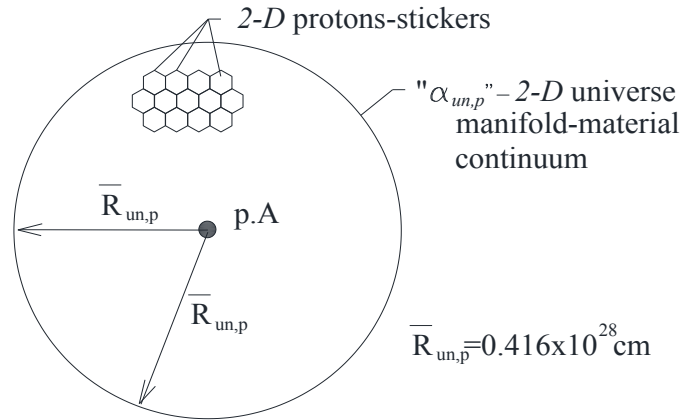
$\overline{R}_{un,p}$=0.416x10^{28}cm

Fig. I-8

The surface value of the semi-sphere " $\alpha_{un,p}$ " (Only the World) is equal to (see also Figure I-9):

$$S_{un} = 2 \times \pi \times \overline{R}^2_{un,p} = 2 \times 3.14 \times \left(0.416 \times 10^{28}\right)^2 = 1.086 \times 10^{56}, cm^2$$

The value of the *2-D* surface of the proton is equal to:

$$S_p = \frac{\pi \times \widehat{R}^2_p}{4} = \frac{3.14 \times (2.87 \times 10^{-12})^2}{4} = 0.6465 \times 10^{-23} \, cm^2$$
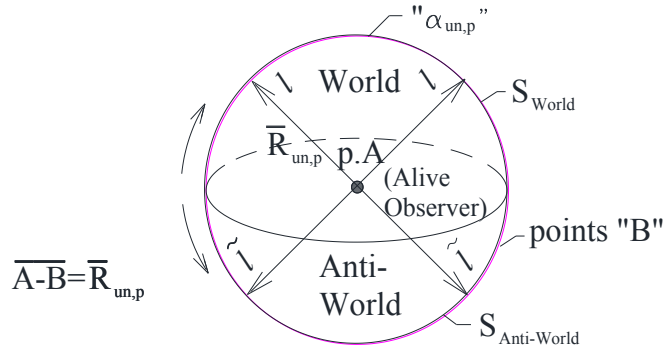
Fig. I-9

The number of *2-D* quantum spatial cells (or the number of protons) on the *2-D* surface "$\alpha_{un,p}$" is equal to:

$$N_{cells} = N_{protons} = \frac{S_{un,world}}{S_p} = \frac{1.086 \times 10^{56}}{0.6465 \times 10^{-23}} = 1.68 \times 10^{79} \text{ !!!}$$

The above number is the total number of protons (nucleons: protons and neutrons, actually) in the universe!!!

This number looks like to have common roots with the world constant $A_{e,p} = 2.27 \times 10^{39}$.

$$A_{e,p}^2 = 5.14 \times 10^{78} = 0.514 \times 10^{79}$$

Or,

$$\frac{1.68 \times 10^{79}}{0.514 \times 10^{79}} = 3.27 \approx \pi = 3.14!$$

Coincidence!?

The total mass of the "proton matter" universe is equal to:

$$M_{un,p} = N_p \times M_p = 1.68 \times 10^{79} \times 1.67 \times 10^{-24} = 2.8 \times 10^{55} \, g$$

The above calculated mass of the universe perfectly coincides with the mass of the universe calculated in another way (stability of the universe.) See Figure I-10.
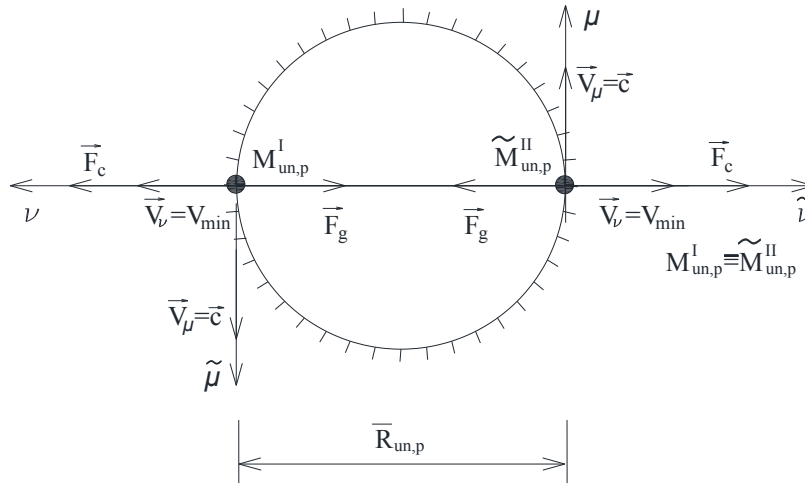
Fig. I-10

$$\vec{F}_c - \vec{F}_g = 0 \quad \text{(stability of the universe)}$$

$$\frac{M_{un,p} \times c^2}{\overline{R}_{un,p}} = \frac{M_{un,p}^2 \times G}{\overline{R}_{un,p}^2}$$

$$M_{un,p} = \frac{\overline{R}_{un,p} \times c^2}{G} = 2.8 \times 10^{55} \ g! \quad \text{The same!!}$$

Or,

$$M_{un,p} = \frac{\hbar_p^2 \times c^2}{G^2 \times M_p^2 \times m_e \times \pi}$$

Can this fact be a lucky coincidence? Can it be a lucky coincidence that the value of the gravity radius of the universe $r_{g,un}$ is the same as the spatial dimension of the universe ($r_{g,un} = \overline{R}_{un,p} = 0.416 \times 10^{28} \ cm$)? And many other 'lucky' coincidences which we observe in the construction of the universe (see volumes of GQM)?

Can you still support existing now conventional theory of the Big Bang beginning of the universe and following random expansion of the universe like expansion of a simple mechanical system obeying only blind physical laws given to us by Providence (God, or something else) at the moment of the Big Bang explosion? Is it possible in such an expanding mechanical system conservation of the values of all world constants during very long period of time? Is it possible

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in such perfect symmetry and harmony in the construction and organization of the universe created in the chaos of the Big Bang explosion? Is it possible so perfect correlation between the values of all world constants and the values of all parameters of the universe in a changing (expanding) universe?

No, but conventional scientists tend to hold on to outdated cosmological dogmas born in the first half of XXth century. Unfortunately, this happens now and again and the main cause for such dogmatism in Fundamental Science is the existing now System of Capitalism. Like everything in our capitalist society Official (Conventional) Science is plagued by the viruses of corruption, protectionism , plagiarism, dishonesty, national chauvinism, money replacing morality, ignoring real, original inventors from countries not belonging to the powerful (controlling the world) Western Evil Empire (mostly USA). All important (influential) international organizations (UN, WHO, NATO, International Criminal Court, UNESCO, World Bank, International Monetary Fund, Nobel Prize Organization, others) are located on the territory of this new Roman Empire and are controlled by it. In Science the time of honest Nobel prizes is over long time ago. With massive advertisement, fat bribes to the Nobel prize nominators, plagiarism, ignoring original inventors of scientific or technological important discoveries, wrong scientists from this ruling World Empire become Nobel prize winners. Almost all of them are Americans. All are from G-7 countries. Except for the Nobel prize for literature (which is art, not science).

GREAT SCIENTIFIC REVOLUTION is coming!

Let's consider now how the Great Philosophical Principle of the Unit and Struggle of Opposites affects the structure of the Solar System. See Figure I-11.
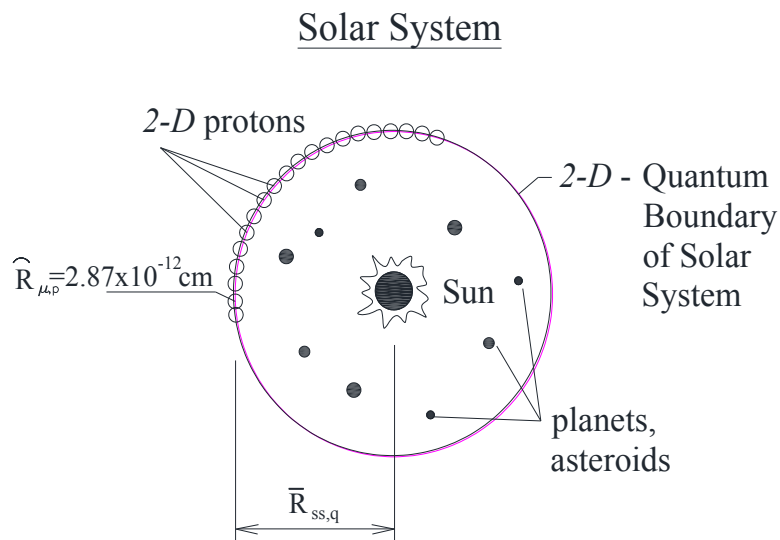
Solar System

Fig. I-11

Quantum boundary of the *2-D* Solar System (quantum unit) is for surface density equal to the surface density of the proton.

$$M_{SS} = 2.2 \times 10^{32}\ g \quad \text{(Sun + Planets + Asteroids)};$$

$$\overline{R}_{p,2-D} = \frac{\hat{R}_{p,2-D}}{\pi/2} = 1.83 \times 10^{-12}\ cm$$

$$\overline{R}_{SS,q} = \overline{R}_{p,2-D} \times \sqrt{\frac{M_{SS}}{M_p}} = 1.83 \times 10^{-12} \times \sqrt{\frac{2.2 \times 10^{32}}{1.67 \times 10^{-24}}}$$

$$\overline{R}_{SS,q} = 2.1 \times 10^{16}\ cm = 1{,}400\ A.U.$$

All bodies in this area are elements of the Quantum Unit "Solar System". They are permanently interconnected in a quantum way (statistically, without material carriers, instantaneously). Beside known planets and asteroid belts, there must exist other (not discovered yet) planets and asteroid belts in this quantum zone. More than 25 years ago I predicted the existence of such extra-large bodies in the Solar System (see GQM-I). Some of them are quite heavy (heavier than Jupiter).

Gravity boundary of the Solar System is a little bit smaller.

$$g_{SS} = \overline{a}_{o,p} = 8.744 \times 10^{-8}\ cm/s^2$$

$$g_{SS} = \frac{G \times M_{SS}}{R_{SS,g}^2} = \overline{a}_{o,p} = 8.744 \times 10^{-8}\ cm/s^2$$

$$R_{SS,g}^2 = \frac{G \times M_{SS}}{8.744 \times 10^{-8}} = \frac{6.68 \times 10^{-8} \times 2.2 \times 10^{32}}{8.744 \times 10^{-8}} = 1.68 \times 10^{32},\ cm^2$$

$$R_{SS,g} = 1.296 \times 10^{16}\ cm = 864\ A.U.$$

I suppose that planets (heavier bodies) and the asteroid belts of 'destruction' are located in the zone of $R_{SS,g}$ =864 a.u., while the zone between 864 a.u. and 1,400 a.u. is reserved for last asteroid belt of 'destruction' in the Solar System.

Milky Way Galaxy (MWG)

$$M_{MWG} = 3 \times 10^{44} \, g$$

$$\overline{R}_{MWG.q} = \overline{R}_{p,2-D} \times \sqrt{\frac{M_{MWG}}{M_p}} = 1.83 \times 10^{-12} \times \sqrt{\frac{3 \times 10^{44}}{1.67 \times 10^{-24}}}$$

$$R_{MWG.q} = 2.45 \times 10^{22} \, cm$$

The observed diameter of the spiral *MWG* is 100,000 - 120,000 light years, or approx. $D_{MWG} \approx 10^{23} \, cm$.

$$R_{MWG.g} = \sqrt{\frac{G \times M_{MWG}}{\overline{a}_{o,p}}} = 1.5 \times 10^{22} \, cm$$

The distance to the *Large Magellan Cloud* (satellite of the *MWG*) is approx. 1.61 x 10^{23} cm.

Human Being

If accept:

$$\overline{M}_{H.B.} \approx 70 \, kg = 7 \times 10^4 \, g, \text{ we have:}$$

$$\overline{R}_{H.B..q} = 1.83 \times 10^{-12} \times \sqrt{\frac{7 \times 10^4}{1.67 \times 10^{-24}}} = 3.75 \, m$$

This spatial dimension determines the zone of quantum contact around a human being. Couples who spend a lot of time together in this quantum zone become very much quantumly connected. They even start to resemble each other physically.

Human Civilization

$$M_{H.C.} = 3.8 \times 10^{15} \, g \text{ (see above about this quantum mass.)}$$

$$\overline{R}_{H.C.,q} = 1.83 \times 10^{-12} \times \sqrt{\frac{3.8 \times 10^{15}}{1.67 \times 10^{-24}}}$$

$$\overline{R}_{H.C.,q} = 1.873 \times 10^{8} \, cm$$

$$\overline{D}_{H.C.,q} = 1.74 \times 10^{8} \, cm$$

$$\widetilde{D}_{H.C.,q} = 2.73 \times 10^{8} \, cm$$

Human Biological Cell

$$M_{cell} = 1.86 \times 10^{-6} \, g$$

$$\overline{R}_{cell,q} = 1.83 \times 10^{-12} \times \sqrt{\frac{1.86 \times 10^{-6}}{1.67 \times 10^{-24}}} \approx 2 \times 10^{-3} \, cm$$

In first place (with strongest quantum ties) human cell is in quantum contact with its identical cells from the tissue (higher quantum level) to which it belongs. In biology tissue is a cellular organizational level intermediate between cells and a complete organ. A tissue is an ensemble of similar cells from the same organ. Organ is the next quantum level in the organization of the human organism.

II.   PROTON-ELECTRON DUALITY

From all published books and articles about GQM, it is clear that the proton (M_p) and the electron (m_e) are the basic elements of our inanimate universe. All other elementary particles are their derivatives. In the atom the "electron matter" component plays the role of a "electron space - material continuum". The pair "proton-electron" is the most elementary brick that builds up all of the material formations in the universe (for low temperatures). This pair is the beginning of the "Quantum Sequence of Masses / Spatial dimensions."

The world (universe) is very simple in its base and very complicated in its upper building construction (material formations of the higher level...). To understand how the universe is built and how it works, we must first understand its very base. To understand this foundation we must know the philosophy of the world. As we know from the history of science, real natural science started in ancient Greece and was primarily based on philosophies, not necessarily on experimentation, observation, and theory. Much later, mostly in our époque

with Newton, Kepler, Einstein, etc., did physics start forgetting the basic philosophy and became purely mathematical. I call this deformed science and coin it as "Math-physics." Mathematics became an excuse for ignorance, in my opinion.

In GQM, I returned to the very source of real science based philosophy. There I presented an elementary theoretical model of the very basic pair "electron-proton." See Figure II-1.
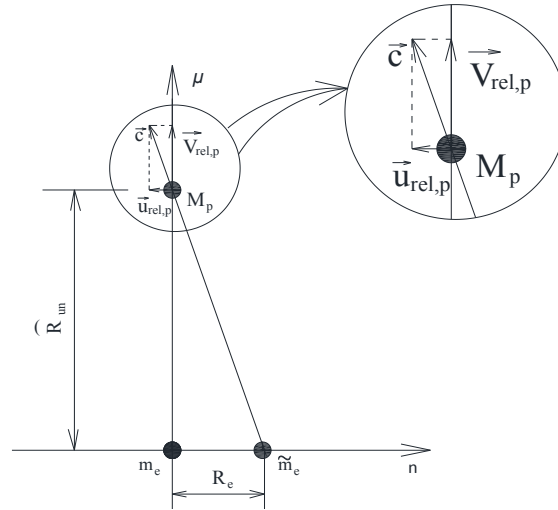

Fig. II-1

The *I-D* line "μ" is the line of existence of the proton (M_p); the line "v" is the line of existence of the electron "m_e."

The philosophical principle of "Unit and Struggle of Opposites" determines the existence of a basic pair-unit "Electron-Proton." To be different, independent in some aspect, they must exist on two different, mutually orthogonal, *I-D* closed lines "v" and "μ" ($v \perp \mu$). See Figure II-2.
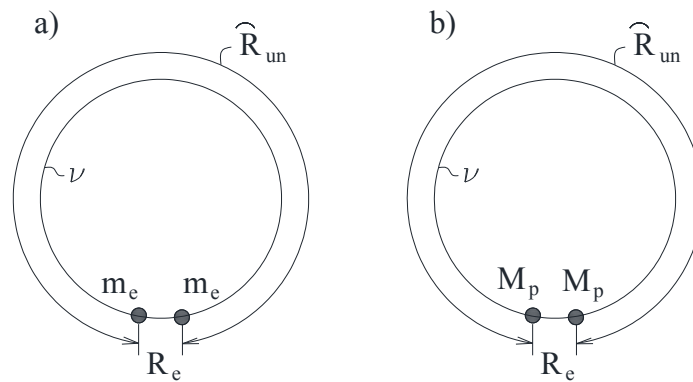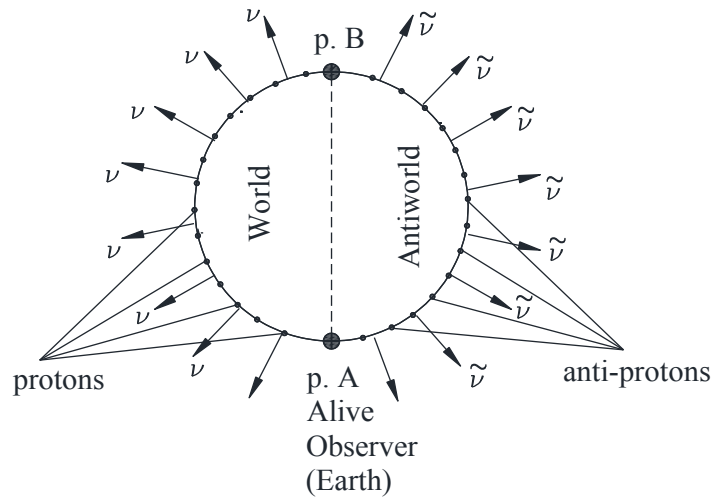

Fig. II-2

Fig. II-3

We, the individuals of the "Alive Observer", are built up of a Proton Matter substance We are located on the line "μ." However, the line *I-D* space is not a compatible space for our existence. The Philosophical principles of the "Unit of Opposites" and "Economy" determine the existence of *2-D* closed space for a "Proton Matter" universe- quantum material continuum "$\alpha_{un,p}$" and the *3-D* space around it. "υ" is the *3-D* "Electron Matter Space-Material Continuum."
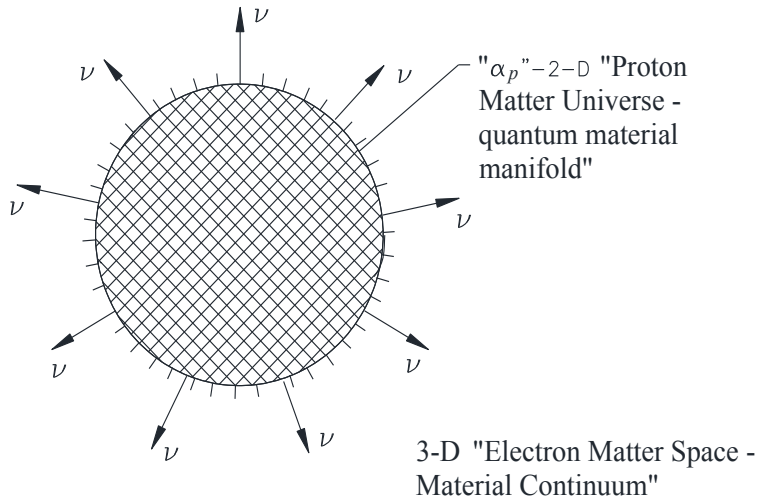
See Figure II-4.

Fig. II-4

From GQM-II we know that the "Proton Matter" material formations are open to the 'outside' while the "electron matter" is open to the 'inside'. The most basic combinations of the unit of opposites "proton matter" and "electron matter" is the hydrogen atom. See Figure II-5.
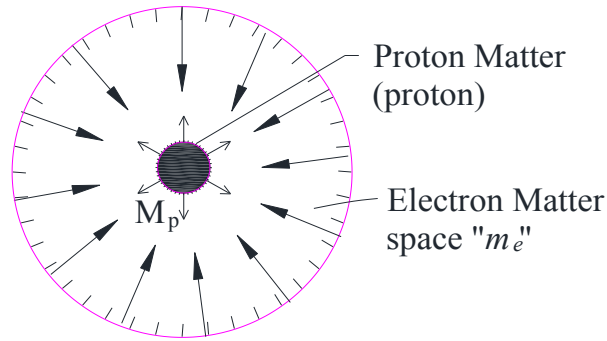
19

Fig. II-5

The "proton matter" body (the proton, M_p) is open to the 'outside'. On the 'inside' is a black hole (no space at all). The "electron matter" body (the electron, m_e) is open to the 'inside'. In fact, the "electron matter" substance is a space (receptacle) for "proton matter" bodies.

Besides the "quantum sliding" due to the minimum quantum velocity $\vec{V}_{\min}$, there is another global shift of velocity due to "relative motion" of the "proton matter" *2-D* continuum with regard to the "electron matter" space "*l*". See Figure II-1 above.

$\vec{u}_{rel,p}$ manifests itself as "velocity shift" of the so-called "background radiation" with regard to all systems of reference connected to the individual "proton matter" material objects. Such "velocity shift" was measured on the earth – the "velocity shift" been $\approx 3 \times 10^7 \ cm/s$. The shift of relict emission in the spectrum lines is: $Z \approx 1,000$.

$$Z = \frac{1}{\sqrt{1 - \dfrac{V_{rel,p}^2}{c^2}}} - 1 = 1,000;$$

$$1,001 = \frac{c}{\sqrt{c^2 - V_{rel,p}^2}} = \frac{c}{u_{rel,p}} \qquad \Rightarrow \qquad u_{rel,p} = \frac{c}{1,001} = 3 \times 10^7 \ cm/s$$

The "quantum sliding/dragging" of the individual "proton matter" bodies (with speed V_{min}) with regard to the *2-D* "proton matter" manifold – universe "$\alpha_{un,p}$" is not measured yet.

An interesting fact is that nature's fundamental world constant "*e*" (elementary electrical charge) and "*h*" (Planck's constant), both related to the electron and proton, form a combination, the established velocity of which is:

$$u = \frac{e^2}{h} = \frac{(4.8 \times 10^{-10})^2}{6.62 \times 10^{-27}} = 3.5 \times 10^7 \; cm/s$$

On another hand,

$$M_p = \frac{m_e}{\sqrt{1 - \frac{V_p^2}{c^2}}}; \qquad \frac{M_p}{m_e} = \beta = \frac{c}{u} \qquad \Rightarrow \qquad u = \frac{c}{\beta} = \frac{3 \times 10^{10}}{1.836 \times 10^3} = 1.63 \times 10^7 \; cm/s$$

Close results!

Every "proton matter" individual body is 'stuck' (glued) forever on the *2-D* "proton matter" universe-manifold $\mathbf{a}_{un,p}$. No motion on this manifold is allowed. Hence, the Law of Conservation of Motion (Impulse) is strictly observed for every single individual "proton matter" body. Motion in the "I - space" is possible ONLY if the "proton matter" body is destroyed into smaller fragments flying in different directions, or, if there is impact of other bodies upon considered body. In both cases the Law of Conservation of the Impulse is observed:

$$\sum_{i=1}^{i=n} \overrightarrow{m_i \times V_i} = \overrightarrow{m_0 \times V_0},$$

Where,

m_i, V_i - after the impact,

m_0, V_0 – before the impact.

It is wrong to believe that flight of a rocket with acceleration (other than gravity) is possible without use of propellant (material substance going in opposite direction with regard to the rocket). Some researchers wrongly believe that MW propulsion is possible without use of propellant, or, propulsion due to the impact of imaginary 'virtual particles'. The Law of Conservation of the Impulse NEVER can be violated!

The Philosophical Principle "Unit of Opposites" obliges every material body to have internal "split personalities." In other words, to have two opposite elements or images. See Figure II-6.
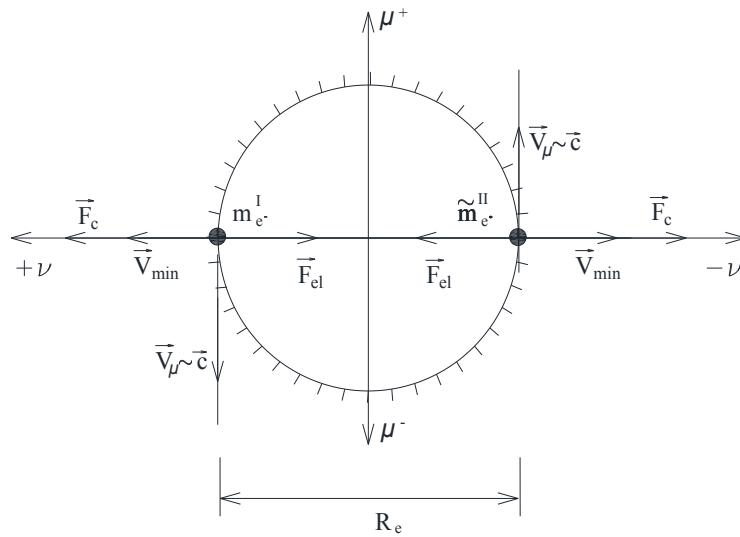
<u>Electron</u>

μ^+

$\vec{V}_\mu \sim \vec{c}$

$\vec{F}_c$ $m_{e^-}^I$ $\widetilde{m}_{e^-}^{II}$ $\vec{F}_c$

$+\nu$ $\vec{V}_{min}$ $\vec{F}_{el}$ $\vec{F}_{el}$ $\vec{V}_{min}$ $-\nu$

$\vec{V}_\mu \sim \vec{c}$

μ^-

R_e

Fig. II-6,a

Let's consider now the 'inside' duality of the proton. M_p^I and M_p^{II} are the two opposites of the proton. The proton exists in the "world" (+μ). We live in the world and we see the proton.

The "outside" of the proton is the axis "ν," the "inside" is the axis "μ." We don't see the "inside."
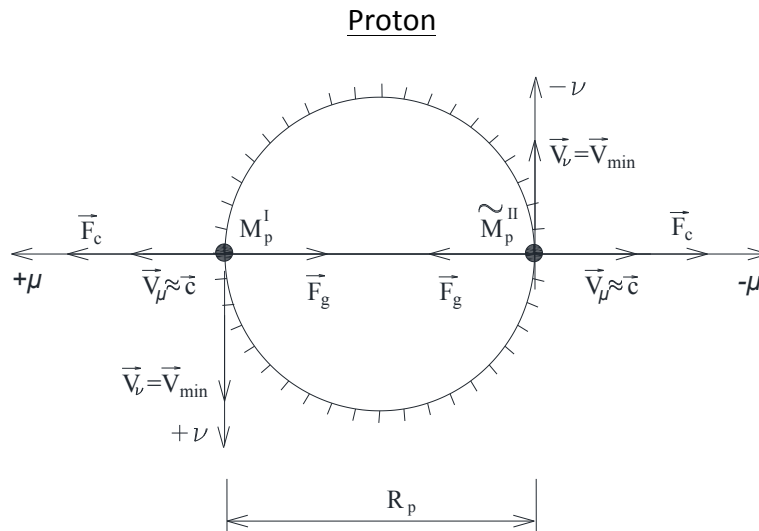
Proton

$-\nu$

$\vec{V}_\nu = \vec{V}_{min}$

$\vec{F}_c$ M_p^I $\widetilde{M}_p^{II}$ $\vec{F}_c$

$+\mu$ $\vec{V}_\mu \approx \vec{c}$ $\vec{F}_g$ $\vec{F}_g$ $\vec{V}_\mu \approx \vec{c}$ $-\mu$

$\vec{V}_\nu = \vec{V}_{min}$

$+\nu$

R_p

Fig. II-6,b

"Proton matter" bodies (that includes us) move on this axis **υ** (or on the *2-D* surface $\alpha_{un,p}$) with speed $\vec{V}_{min}$. All material bodies with mass in rest are stuck forever on the *2-D* surface of

the "proton matter" universe "$\alpha_{un,p}$". Actually, there exists some very little motion (dragging) on this surface. Material particles without mass in rest (massless particles like photons and neutrinos) move on this '2-D manifold-universe' with constant speed – the speed of light. All experiments to discover relative motion of "proton matter" bodies with regard to this 'aether' (some universal material space) are unsuccessful. Such is the famous experiment 'Morley - Michelson'. Now we understand why light photons are moving with the same speed $\vec{c}$ in all systems of reference connected with "proton matter" bodies. These bodies are, in fact, individual elements (in the 3-D space "/") of the unique (just one) 2-D "proton matter" universe (first face of the universe). Hence, photons (neutrinos too) that are moving on the curved 2-D universe-manifold with constant speed $\vec{c}$ do not feel any motion of individual "proton matter" bodies in any system of reference in the 3-D "electron matter" space "/". Such is the explanation of the postulate "light is moving with constant speed $\vec{c}$ in any system of reference." This postulate was taken as granted by A. Einstein and others in their theories.

Internal stability of the "Unit of Opposites" means neutralization of all forces in the unit (zero total force upon the body).

$$\vec{F}_c - \vec{F}_g = 0,$$

Where,

$\vec{F}_c$ - centrifugal force,

$\vec{F}_g$ - gravity force

$$\frac{M_p \times V_{min}^2}{R_p} = \frac{G \times M_p^2}{R_p^2} \qquad \Rightarrow \qquad R_p = \frac{G \times M_p}{V_{min}^2}$$

$$V_{min} = \frac{c}{\sqrt{A_{e,p}}}$$

$$R_p = \frac{G \times M_p}{\dfrac{c^2}{e^2} \times G \times M_p \times m_e} = \frac{e^2}{m_e \times c^2} = R_e$$

$$R_e = \frac{(4.8 \times 10^{-10})^2}{0.911 \times 10^{-27} \times (3 \times 10^{10})^2} = 2.82 \times 10^{-13} \ cm \ !$$

For internal stability of the electron see Figure II-7.
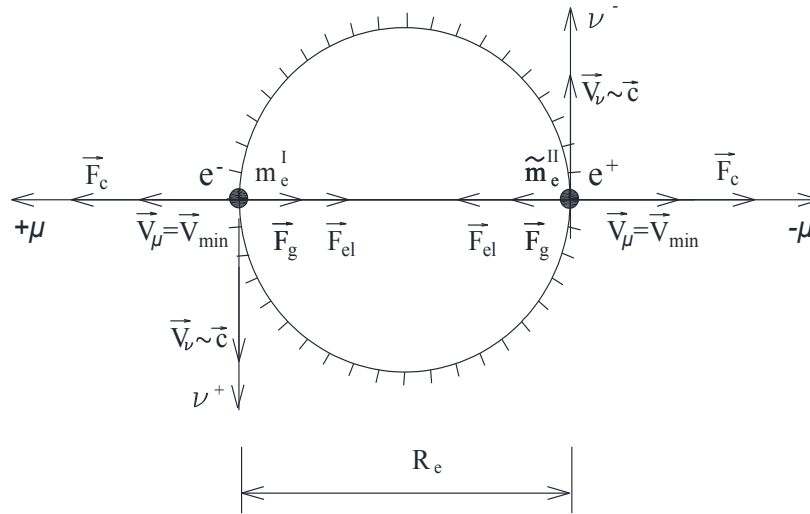
Electron

Fig. II-7

Stability:

In the case of the internal stability of the electron, the force of gravity is too weak to compensate the very strong centrifugal force $\vec{F}_c$. And, God invented "woman!" God invented an electrical charge "e" which is much stronger (in short micro-distances) than the force of gravity.

Then,

$$\vec{F}_c - \vec{F}_{el} = 0 \quad \rightarrow \quad \frac{m_e \times c^2}{R_e} = \frac{e^2}{R_e^2}$$

$$R_e = \frac{e^2}{m_e \times c^2} = 2.82 \times 10^{-13} \ cm \ !$$

Any doubts?

As we know from GQM-I, a photon is a combination of an electron (m_e, e^-) and its anti-particle the position ($\tilde{m}_e^+$, e^+). See Figure II-8.
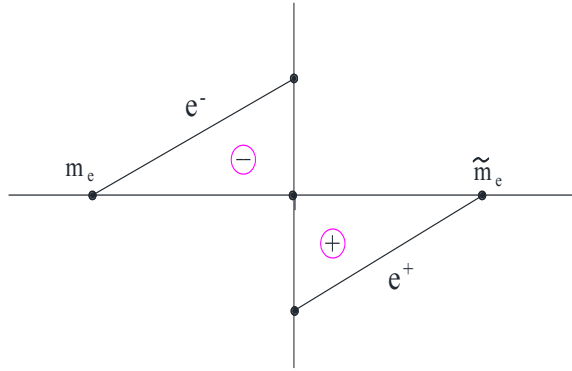
Fig. II-8

In the system of reference connected to the "proton matter" *2-D* quantum material manifold "$\alpha_{un,p}$," "electron matter" moves with constant speed $\vec{c}$. The unit of the two opposites m_e and $\tilde{m}_e$ (the photon) move with constant speed in this system too.

There is a contradiction here. Why can individual electrons with mass in rest move with different speeds in the *3-D* space of individual things "l" ($l_x \perp l_y \perp l_z$)? I think that when individual electrons are not serving as space-continuum for the "proton matter" material objects (like in the atoms), then, they behave as individual particles in this space, i.e. they can move with any speed between $\vec{V}_{min}$ and $\vec{c}$.

We cannot see the *2-D* "proton-matter" quantum material manifold-universe "$\alpha_{un,p}$". But, we can perceive it throughout the effect of deformation (gravity) of its very, very big surface density ($\gamma_{2-d,\,p} = 0.2$ g/cm^2) surface-membrane.
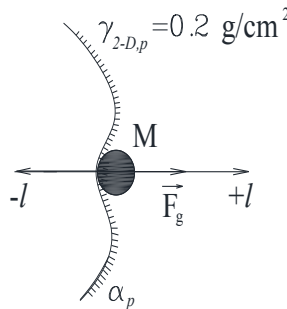

Fig. II-9

When moving in the *3-D* space "*I*" (electron material continuum) individual bodies "*M*" feel resistance in this material media. The *3-D* space is composed of multiple *2-D* "electron matter" layers (like onion shells). See Figure II-10.
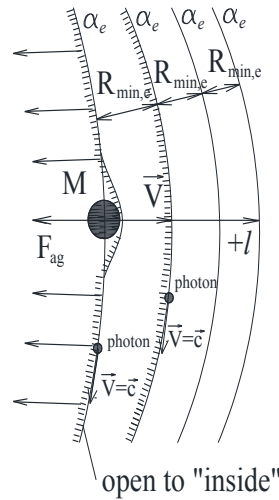

Fig. II-10

The resistance to deformation from these "electron matter" *2-D* membranes "α_e" is very weak. It is very easy for individual material bodies with mass in rest to go forward "*+I*." The surface density of these *2-D* membranes is very small.

Photons are moving on the curved line/surface $\alpha_{un,p}$ with the speed of light $\vec{c}$. Individual bodies with mass in rest can move with any speed between $\vec{V}_{min}$ and $\vec{c}$ in the "straight" (almost) *3-D* space "*I*".
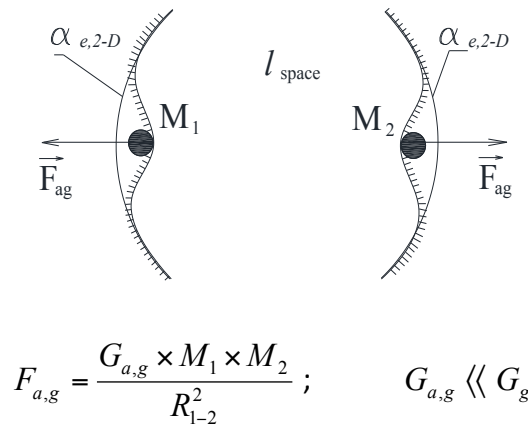

$$F_{a,g} = \frac{G_{a,g} \times M_1 \times M_2}{R_{1-2}^2} \; ; \qquad G_{a,g} \lll G_g$$

Fig. II-11

III.   "ELECTRON MATTER" SPACE

Actually, the *3-D* "electron matter" space "*I*" is not absolutely flat (with zero curvature). The spatial dimension of the "electron matter" *2-D* quantum manifold (universe) is equal to:

$$\widehat{R}_{un,p} = A_e \times R_{atom} = \frac{e^2}{G \times m_e^2} \times \frac{\hbar_p^2}{m_e \times e^2} = \frac{\hbar_p^2}{G \times m_e^3},$$

Or,

$$\widehat{R}_{un,p} = 4.19 \times 10^{42} \times 0.529 \times 10^{-8} = 2.21 \times 10^{34}\, cm$$

Where R_{atom} is the spatial dimension of the 'elementary building brick' of the "proton matter" universe ('proton matter' nucleus plus 'electron matter' halo around it.)
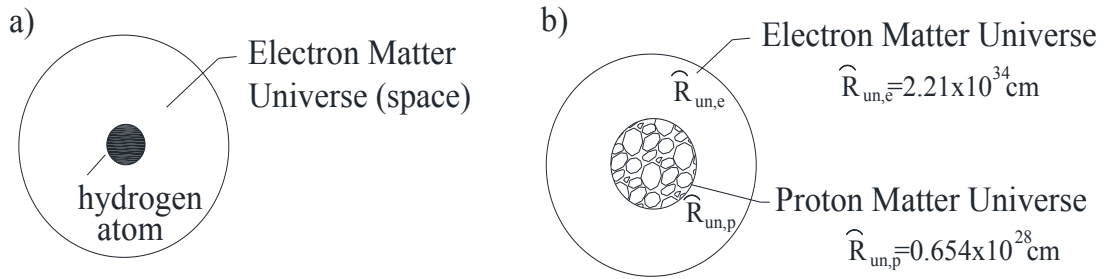
See Figure III-1.

Fig. III-1

Our "proton matter" world (everything existing and perceived by the Animate Observer) is confined within the boundary $\widehat{R}_{un,p}$. Nothing from our determined (real) world can escape this limited quantum zone; nothing real can exist out of this zone. Here is the boundary of the real world.

On the other hand, as we know from the previous publications of General Quantum Mechanics, the value of the *2-D* spatial dimension of the "Proton Matter" universe $\widehat{R}_{un,p}$ is equal to the value of its 'gravity' radius:

$$\overline{R}_{un,p} = r_{un,p,g}\,!$$

Our "proton matter" universe is, in fact, 'black hole'. Nothing can escape this 'black hole'. Everything real is inside this zone.

The second, 'individual image' of the "proton matter" universe, is composed by a myriad individual material formations/objects. However, to be individuals (distinctive from each other), these objects must be separated from each other in the "electron matter" space. However, the *2-D* space of the "proton matter" universe is absolutely packed by the *2-D* elementary 'proton matter' objects (the protons/neutrons). There is no free space between them. Mother Nature found a solution for this difficult situation. New fundamental spatial dimension were invented. All individual material objects exist as 'individuals' in the *3-D* "electron matter" space "l" ($l_x \perp l_y \perp l_z$). Extra (four, or more) fundamental spatial dimensions are not needed. Philosophical Principle of Minimum Elements/Effects limits the number of fundamental spatial dimensions to three. See Figure III-2.
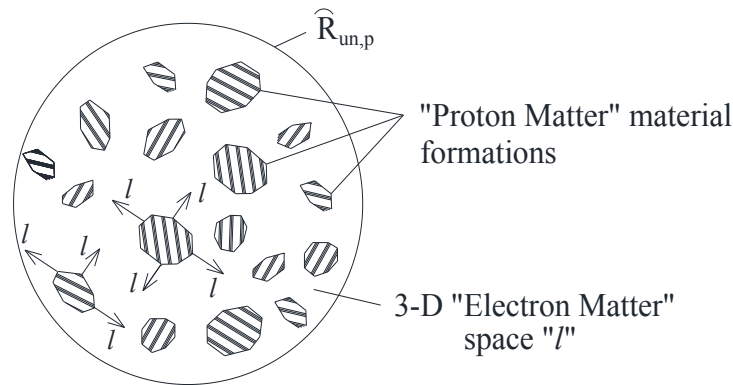

Fig. III-2

The *3-D* image of our "proton matter" universe is composed by individual "proton matter" material bodies. These bodies are separated by "electron matter" space-material continuum "l" which curvature is $R_{un,e} = 2.21 \times 10^{34}\, cm$.

The hydrogen atom is the smallest "proton matter" object in our world. This elementary material object is surrounded by "electron matter" halo. See Figure III-3.
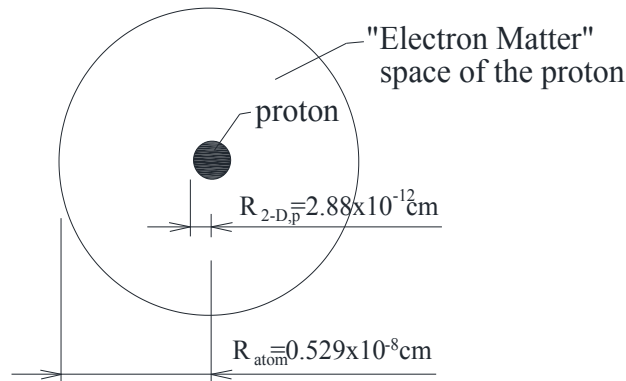

Fig. III-3

The "proton matter" nucleus of the hydrogen atom is a 'black hole' – no space, no material substance exists beneath its *2-D* surface ($R_{atom} = 0.529 \times 10^{-8} cm$).

Atom represents a 'circumpunct' – circle with physical point in its center.

On all quantum levels in the 'proton matter' universe there exist such 'circumpunct' material formations. See Figure III-4.

a) atom

atom

atomic nucleus

b) living cell

cytoplasm

nucleus

c) Human Being

body

brain

d) Solar System

Solar System

Sun

e) Galaxy

Galaxy halo

galaxy nucleus

Fig. III-4

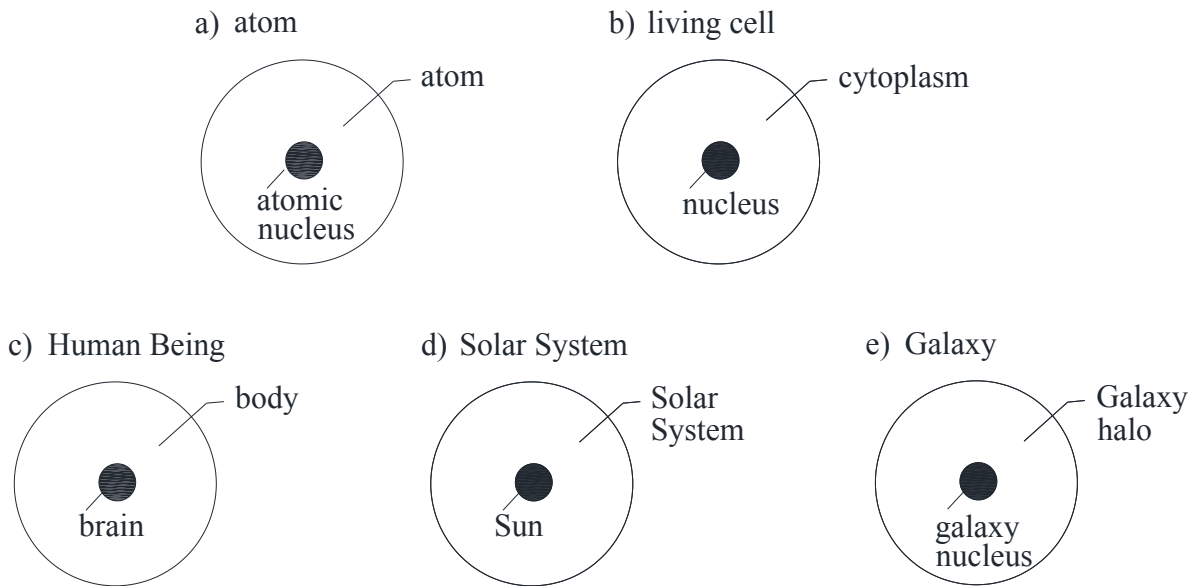On Table 2 is shown the "Quantum Spectrum of Spatial Dimensions in the Proton Matter Universe".

The position of the Animate/Alive Observer is central in the "electron matter" universe too.

$$\overline{R}_{Obs} = \frac{R_{un,e}}{\sqrt{A_e}} = \frac{2.21 \times 10^{34}}{\sqrt{4.19 \times 10^{42}}} = 1.085 \times 10^{13} cm$$

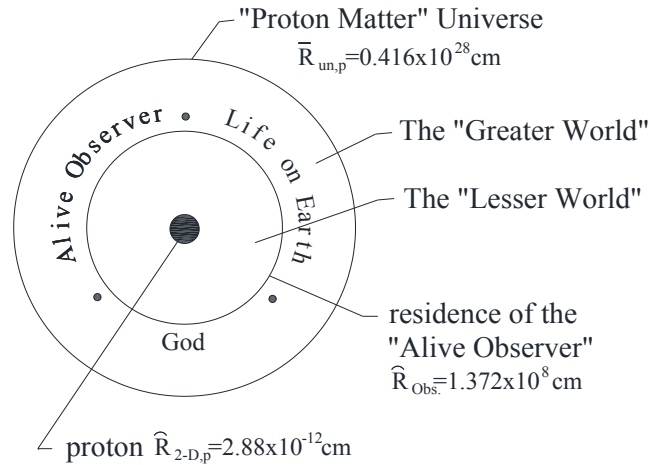This result is very close to the real radius of the Earth's orbit. See Figure III-5.

"Proton Matter" Universe
$\overline{R}_{un,p}=0.416 \times 10^{28}$ cm

The "Greater World"

The "Lesser World"

residence of the "Alive Observer"
$\widehat{R}_{Obs.}=1.372 \times 10^{8}$ cm

proton $\widehat{R}_{2\text{-}D,p}=2.88 \times 10^{-12}$ cm

Fig. III-5

Because the radius of curvature of the "electron matter" universe' $R_{un,e}$ is β^2-times (3.37 x 10^6) bigger than the radius of curvature of the "proton matter" universe, in fact, this space is practically flat in the zone of existing of our "proton matter" universe.

As was explained above in this article, the resistance of the "electron matter" media (space) against moving in it individual material bodies is very negligible. This resistance creates 'antigravity' (very small compared with normal "proton matter" gravity). See Figure III-6.

Individual electrons when separated from atoms move on this practically flat *2-D* surface $\alpha_{un,p}$ ($\widehat{R}_{un,p} = 0.654 \times 10^{28}\, cm$) with speeds between $\vec{V}_{min}$ and $\vec{c}$.

Quantum Spectrum of "Proton Matter"
Spatial Dimensions - β symmetry

Table 2

$$\overline{R}, cm; \quad \frac{\overline{R}_n}{\overline{R}_{n-1}} = 1,836$$

$$:\beta = \frac{M_p}{m_e} = 1,836$$

$R_{un,e} = 2.21 \times 10^{34} cm$

15 —————————

14 —————————

$:\beta^{12}$

$:\beta^6$

⑬ Proton Matter Universe — $\overline{R}_{un,p} = 0.416 \times 10^{28} cm$

12 — Super Galaxy Cluster (COMA) — 0.227×10^{25}

11 — Galaxy nucleus — 1.234×10^{21}

⑩ Star systems — 0.67×10^{18}

9 — giant stars — 3.66×10^{14}

8 — stars — 2×10^{11}

⑦ Alive Observer — $1.085 \times 10^{8} cm$

6 — small town (village) — $0.59 \times 10^{5} cm$

5 — Human Being (Torso) — $32.2 cm$

$:\beta^6$

④ Alive cell — 0.75×10^{-2}

3 — DNA, giant molecule — 0.9547×10^{-5}

2 — atom — 0.529×10^{-8}

① *2-D* proton — $2.88 \times 10^{-12} cm$

parton — $1.5 \times 10^{-15} cm$

IV.   BALL LIGHTNING OBJECT

In my article "Philosophy of Ball Lightning" I've asked a question: What is the difference and the similarity between ball lightning object and the universe. The difference is that ball lightning (appearing in our close environment) is a macro *2-D* quantum object, while the universe is a mega *2-D* quantum object. The similarity is that they are the same ball lightning *2-D* quantum object, but existing on different quantum levels the Quantum Sequence of Masses/Spatial Dimensions.

Universe is the biggest ball lightning object in the world, unique (just one), its surface temperature is constant and equal to 2.74 ^{o}K.

Regular (macro) ball lightning object - natural or artificial - is much hotter than its mega counterpart (the universe) - hundreds, or thousands, or much more, ^{o}K. Ball lightning represents 'giant atom' with positively charged nucleus and electron shell around this nucleus. The ball lightning atomic system obeys all quantum laws including the Pauli's exclusion principle.

In the early 1990's I was working (in Silicon Valley, California) on my ball lightning project in a small high-tech company (producing robots for semi-conductor industry) owned by my friend Genko Genov – an immigrant, like me, from Bulgaria. In the very heart of the USA high-tech industry I was working on the problem of generation of quantum free energy (QFE) from artificially created ball lightning object. My R&D was unique in the world at that time. It is unique also now - 25 years later. I started this work 28 years ago in my native country Bulgaria. To investigate unusual quantum features (characteristics) of this quantum macro object, and especially - generation of free energy from it, I needed an apparatus on which I could create artificial ball lightning and to maintain it in a continuous regime (non-stop) for a long time. We built robotic machine equipped with 6 KW KHz generator, big quartz bell jar (used as vacuum chamber), robotic hands that allowed me to manipulate the very hot ball lightning from outside of the quartz bell jar, and all needed observable and measuring equipment. See Figure IV-1.

On this amazing machine I was able to investigate unusual physical and energy characteristics of the ball lightning object. I've been creating ball lightning object between two round flat electrodes. These electrodes were connected to 6 KW KHz generator with coax cable. In these conditions (air and KHz field) ball lightning exist only in a vacuum. For air-pressure a little bit smaller than normal atmospheric pressure ball lightning disappears and in its place appears regular arc-discharge (regular plasma).

Years later, in Salt Lake City (Utah), I've created ball lightning objects with the help of GHz generators. In GHz field ball lightning can exist (in stable regime) for atmospheric pressure and more. Now, in China, I produce stable ball lightning objects in high-pressure environment.

```
1-Quartz Bell Jar
2-Upper round electrode
   (water cooled)
3-Down round electrode
   (water cooled)
4-Ball Lightning Object
5-6 KW, KHz Generator
6-Matchic Network
7-KHz Power Meter
8-Coax Cable
9-Rotary Wacuum Pump
10-Robotic Hands
11-Water Cooling
```
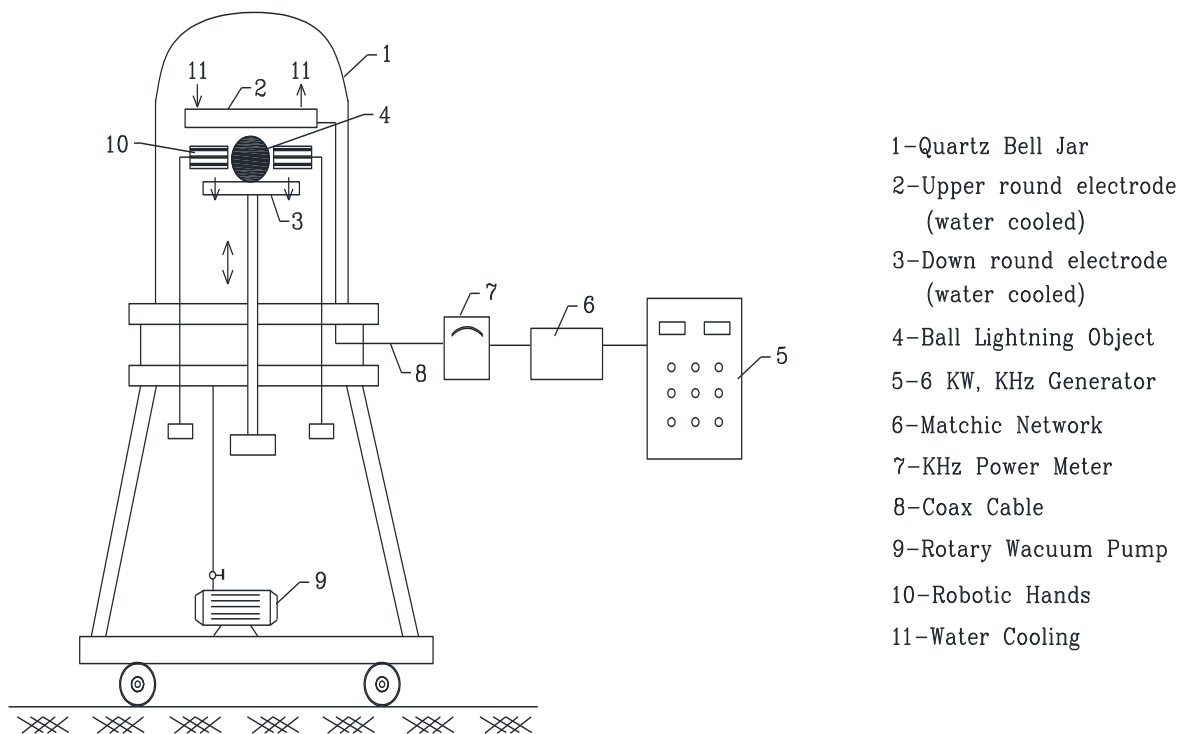
``   Fig. IV-1.

On the robotic machine I could change diameter of the ball lightning object for the same input KHz power. Moving closer each to other both electrodes I was creating ball lightning objects smaller - like Ping-Pong balls (about I" in diameter). For shorter distances between both electrodes ball lightning object disappears and again regular arc-discharge appears in its place.

Despite the fact that ball lightning object (spherical in shape) was existing in the media of very rarified air (vacuum), ball lightning object was behaving like very elastic solid body. Like rubber ball. The smallest ball lightning balls (about 1 " in diameter) were very strong mechanically - like built from metal. It was impossible to deform them even with the help of robotic metal rod.

No doubt (at least for me) that ball lightning is anything but plasma or chemical formation. Ball lightning object is unknown by conventional scientists form of matter - *2-D* quantum object - material continuum!

Over the next 25 years, in the USA, Canada, Bulgaria, and now in China, I built many experimental (and industrial now) machines (generators) on which I performed detailed research of quantum characteristics of ball lightning object and how to produce abundant free energy from it. My work is known in the Western Empire (mostly in North America), but I'm

ignored and not funded there anymore because I refused to reveal for free the secrets of my long research. They think that we, the slaves from the outer world, must give them 'just for food' secrets of our fundamental scientific discoveries, and be happy to be robbed by the 'chosen by God' nations. No Passeran with me, gentlemen! I'm proud to be one of the scientific/technological prophets of God. General Quantum Mechanics (GQM) – The Theory of Everything and Quantum Free Energy are gifts of God for the whole Human Kind. QFE is for the survival of the Human Kind in the conditions of the Great Tribulation which is not too far from our Present. All great theories and technological discoveries are God's discoveries (inventions).

Ball lightning appears as a result of very fast ionization of some gases and in liquid media also. Here, in this article, I don't want to present this theory. I described this theory in my published books and articles. See Figure IV-2.
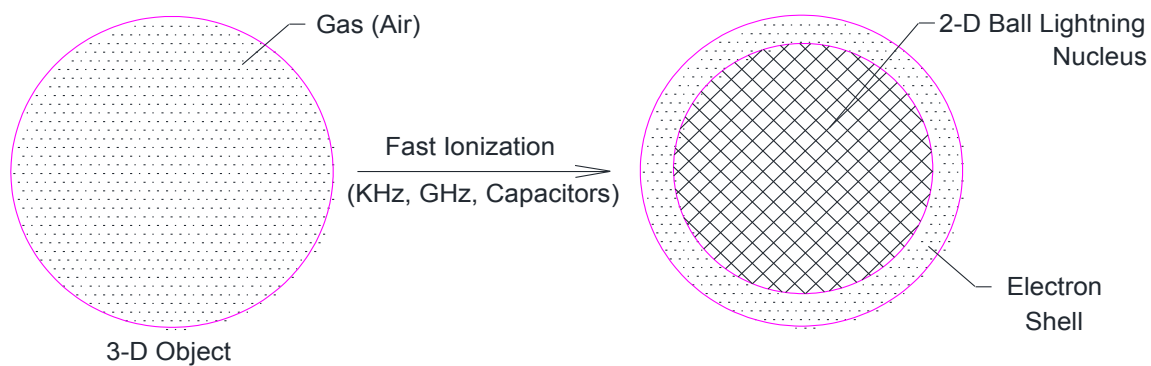

Fig. IV-2

Because of fast (and throughout the whole volume of air at the same time) ionization the assembly of positively electrically charged ions 'cross' one of the quantum boundaries of the world (described in my books). Such way this assembly becomes immediately *2-D* quantum material continuum - ball lightning nucleus. Around this nucleus electrons form electron shell. Ball lighting is a giant macro-atom that obeys (as quantum object) to all quantum restrictions (principles and world constants).

Let's perform some calculations for some real cases. In spherical volume (D = 20 cm, the most used by Mother Nature size of ball lightning object) the weight of air at normal atmospheric pressure is G, g. See Figure IV-3.
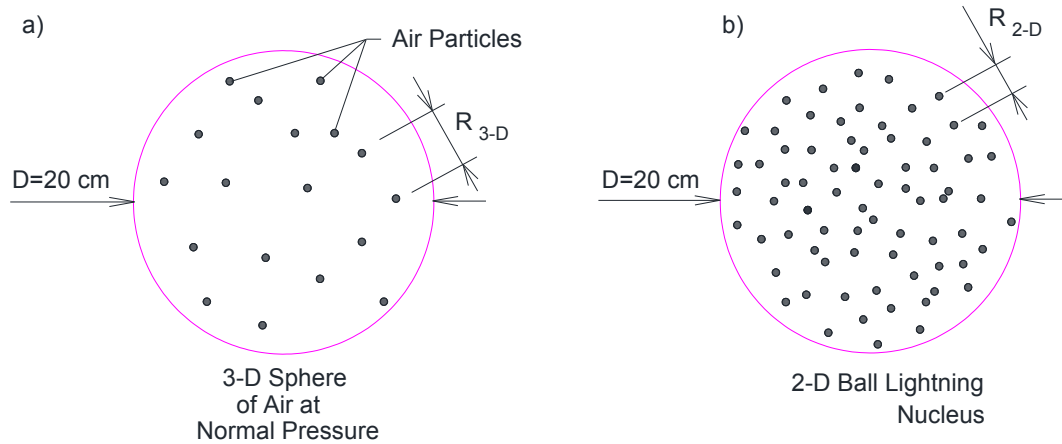
a) Air Particles

R 3-D

D=20 cm

3-D Sphere
of Air at
Normal Pressure

b) R 2-D

D=20 cm

2-D Ball Lightning
Nucleus

Fig. IV-3

Of course, *2-D* particles on the *2-D* surface of the ball lightning nucleus are imaginable (they are 'dissolved' in the *2-D* material continuum).

1 m^3 air weights (in normal conditions) about 1.5 kg = 1.5 x 10^3 g.
Sphere of air with diameter 20 cm weights:

$$V_{Air} = \frac{4}{3} \times \pi \times R^3 = \frac{4}{3} \times 3.14 \times 10^3 = 4.19 \times 10^3 \, cm^3$$

$$G_{Air} = 6.29 \, g$$

If accept the mass of an average air-particle to be 10^{-23} g, we have:

$$n_{particles} = \frac{6.29 \, g}{10^{-23} \, g} = 6.23 \times 10^{23} \, particles$$

$$\Delta V_{particles} = \frac{4.19 \times 10^3 \, cm^3}{6.23 \times 10^{23}} = 0.67 \times 10^{-20} \, cm^3 / part.$$

$$\Delta V_{particles} = \frac{4}{3} \times \pi \times R_{part.}^3 = 0.67 \times 10^{-20} \, cm^3 / part.$$

$$R_{\substack{part. \\ 3-D}} = 1.2 \times 10^{-7} \, cm;$$

$$D_{\substack{part. \\ 3-D}} \approx 2.4 \times 10^{-7} \, cm$$

35

$D_{part.} = R_{3-D}$, distance between two neighbor particles in the *3-D* sphere air.

The number of positively charged ions (building material for the ball lightning nucleus) depends in the first place on the power of ionizing factor (MW, for example). If accept that only 5% of the total number of air-particles are ionized, we have:

$$n_{ions} = 5 \times 10^{-2} \times 6.23 \times 10^{23} = 3.1 \times 10^{21} \ ions$$

$$\Delta V_{ions} = \frac{4.19 \times 10^3 \ cm^3}{3.1 \times 10^{21} \ ions} = 1.35 \times 10^{-18} \ cm^3 / ion$$

$\overline{R}_{3-D} \approx 10^{-6} \ cm$ - distance between two neighbor ions in the *3-D* sphere of air

$$S_{B.L.} = 4 \times \pi \times R^2 = 4 \times 3.14 \times 10^2 = 1.256 \times 10^3 \ cm^2$$

$$d_{2-D} = \frac{3.1 \times 10^{21} \ ions}{1.256 \times 10^3} = 2.47 \times 10^{18} \ ions / cm^2$$

$$R_{2-D} \approx 10^{-9} \ cm \ !$$

Average distance between two neighbor ions ('dissolved', of course, in the *2-D* continuum) is about 10^{-9} *cm*! This mass density is a density of solid body, very much compressed, actually. We see now why ball lightning object is so strong mechanically (very difficult to be deformed), even though in much rarified gas media (air under vacuum.)

When I was approaching both electrodes at distance 1" (25 mm) each from another, in vacuum chamber with little amount of air left, the ball lightning object was behaving like metal ball. It was impossible to be deformed with the help of sharp metal rod.
The extreme value of surface mass density D_{2-D} is the surface density of the proton
($\widehat{R}_{\mu,p} = 2.87 \times 10^{-12} \ cm$.) This mass surface density is also world quantum constant. No bigger mass surface density is possible. As was considered above in this article, the *2-D* universe - material continuum - manifold possesses this extreme density.

From the above considerations we could conclude that there exist some limits which restrict formation of very dense, powerful, ball lightning. There is limit of the power of ionizing factor which can be used for creation of ball lightning in given volume of gas. We cannot create super-dense ball lightning just increasing the power of ionizing factor.

What is the correlation between *3-D* mass density of ions and the *2-D* surface mass density for the same power of ionization per 1 cm² air and different diameters of the ball lightning object?

We suppose that the number of positive ions that build up the ball lightning nucleus depends only on the applied power of ionizing factor per unit volume (1 cm³.)

$$d_{\substack{ionizing \\ power}} = \frac{kW}{cm^3}$$

Let's consider two different diameters of the zone of ionization (diameter of the future ball lightning). Let's accept also that only 5% of air particles are ionized. For the case of small ball lightning $R_{B.L.} = 10\,cm$ we calculated already $\overline{R}_{2-D} \approx 10^{-9}\,cm$.

Now the same for ball lightning with diameter $R_{B.L.} = 10\,meters$. See Figure IV-4.

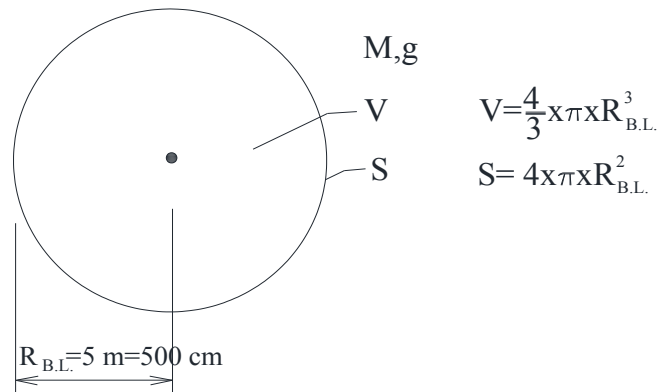$$V = \frac{4}{3} \times \pi \times R_{B.L.}^3$$

$$S = 4 \times \pi \times R_{B.L.}^2$$

$$R_{B.L.} = 5\ m = 500\ cm$$

Fig. IV-4

$$d_{3-D,ions} = \frac{n_{ions}}{V}\ ions/cm^3,\ \text{the same as for } R_{B.L.} = 10\,cm.$$

Suppose $d_{3-D,ions} = const$ for every diameter ball lightning nucleus

$$n_{ions} = const \times V = const \times R_{B.L.}^3$$

$$d_{2-D,ions} = \frac{n_{ions}}{S_{B.L.}} = \frac{const \times R_{B.L.}^3}{4 \times \pi \times R_{B.L.}^2} = const \times R_{B.L.}\ ions/cm^2$$

$$R_{2-D} = \frac{1\,cm}{\sqrt{d_{2-D}}} = \frac{1}{\sqrt{const \times R}} = \frac{1}{\sqrt{R}} \times const$$

$$\frac{R_{2-D}^{II}}{R_{3-D}^{I}} = \sqrt{\frac{R_{B.L.}^{I}}{R_{B.L.}^{II}}}; \qquad R_{2-D}^{II} = R_{2-D}^{I} \times \sqrt{\frac{R_{B.L.}^{I}}{R_{B.L.}^{II}}}$$
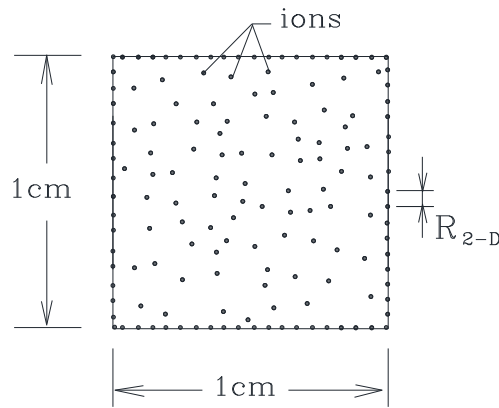

Fig. IV-5

I, II -two different diameters ball lightning objects with the same value of power of ionization per 1 cm^3 volume.

If, R^{I} = 10 cm, R^{II} = 500 cm, we have:

$$R_{2-D}^{II} = R_{2-D}^{I} \times \sqrt{\frac{10}{500}} = R_{2-D}^{I} \times \sqrt{\frac{1}{50}} = \frac{R_{2-D}^{I}}{7.1} = \frac{10^{-9}}{7.1} \approx 10^{-10}\,cm$$

Second ball lightning object looks impossible.

Conclusion: bigger diameter ball lightning objects, for the same degree of ionization per 1 cm^3, have bigger surface mass surface density than smaller ones. They have much bigger surface resistance for outside intruders.

The biggest known natural ball lightning object ever observed in our époque (1908) - the so-called "Tunguska Meteorite" (my opinion) - was born in the upper layers of the Earth's atmosphere as result of very active solar activity. It is hard to imagine its power of potential destruction. Fortunately for the Human Kind this apocalyptic even happened in a remote area in Siberia.

The biggest artificial ball lightning was created as a result of the explosion of the most powerful nuclear bomb built to date *Czar Bomb* (King Bomb, former Soviet Union). The monstrous fireball roared almost three hours instead of tens of seconds if it was plasma formation.

In artificial conditions we could create (I know how) ball lightning objects of fantastic strength (surface mass density) of their surface never possible for normal *3-D* bodies. Such ultra-dense *2-D* bodies cannot be deformed destroyed, even though by cannon projectiles. Applications? A lot!

FINAL CONCLUSION

The *2-D* face of our universe (material continuum - "$\alpha_{un,p}$") is presented at any point in our *3-D* space "*l*". Every material body with mass in rest is attached (nailed) forever on this universal invisible by us (individual humans) universal surface, it deforms this surface in the place of contact (gravitation effect), it doesn't move on this surface. Every individual body with mass is in rest doesn't move with regard to this *2-D* universal background material continuum. Actually, it is not in absolute rest with regard to this universal surface, because there exists no absolute rest in the world. "Absolute rest" means death, non-existence. Material bodies with mass in rest are moving with different speeds ONLY in the *3-D* space "*l*". Individual material bodies with mass in rest 'slide' slowly on this *2-D* surface with the quantum min speed $\vec{V}_{min}$. This effect is measurable. Material particles without mass in rest (photons, neutrinos, of any kind) are moving with the speed of light $\vec{c}$ on this surface forever. They feel the effect of curvature of this *2-D* space: 'red shift' in the spectra of light photons, 'accelerating universe', light age of the universe (13, 82 billion years), maybe something else.
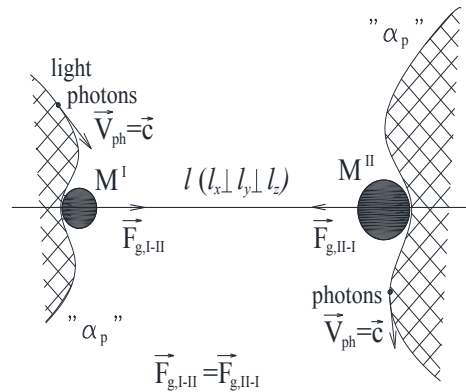See Figure IV-6.

Fig. IV-6

Epilogue

Our capitalist society is plagued by the viruses of: unlimited exploitation of human labor, corruption of the rich class, profit at any price, lack of moral, unfair human relations, wars for political and economic dominance, and more.

Official science possesses the same problems along with its own unique issues. Like Dante's Inferno, scientific inferno is constructed (by my own imagination) in several distinct levels, or rings of hell, into which sinner scientists must be cast in accordance to the depth of their sins. The upper levels of the pit-hell must be reserved for sins like: envy, careerism, making easy money, haughty, etc. The lower levels of hell are reserved for more serious sins like: negative advertisement and creation of negative image, massive expensive advertisement in media on behalf of scientists from "our circle of interest," and chauvinism. The last two rings in the scientific hell must be reserved for the most dangerous sins of science: plagiarism and ignoring original inventors.