

About Dark Universe and Origin of Life

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We consider our results about the evidence of antimatter core in the center of galaxies, about the main origin of life from galactic centers, about the nature of life, about nature of dark matter and acceleration of expansion, about neutrino oscillation and momentum displacement, about the origin of spin, about oscillation of matter between visible and dark universes and predict our new results about Higgs emission from galactic centers, origin of monochirality of living objects, about openness of Einstein Rosen Bridges and measurements of enhanced apoptosis in case of breast cancer.

1. INTRODUCTION

Our considerations show interesting meeting (crossing) on the Mars where we predict nanobacteria on two very different ways: on one hand through Quasars and the other hand through the cancer state of living cells.

2. EVIDENCE OF ANTIMATTER CORE IN THE CENTER OF EXTENDED EINSTEIN ROSEN BRIDGE BLACK HOLES

2.1.

We have pointed out [1-7] and [8] that Dark Universe is an other universe, in that sense that extended Einstein Rosen Bridges connect the visible and Dark Universes. The extended Einstein Rosen bridges are in fact Schwarzschild Wormholes with the given by us metrics and topology [8]. At the beginning of the Big Bang the Matter and Antimatter well separated that way that Antimatter consists recently the Dark Universe and ordinary matter the visible one.

2.2.

In the $D \sim 0$ dimensional central region dimension fluctuations happen permanently which results that permanently the positive dimensional region is filled with antiparticles. Normally when an antiparticle comes through the $D \sim 0$ "surface" it changes its particle parity so appears as ordinary particle in the visible universe, e. g. in the quasar matter emission processes.

This antiparticle core of the Black Holes can manifest itself in different ways. The outer region of the fluctuating antimatter core permanently annihilates by collisions with the particle current orbiting towards the center of the Black Hole. This produces annihilation phenomena which can be measured. So we have found the antimatter (well separated in the Dark Universe) and even we can see it in the central core region of Black Holes. In the WMAP experiment [9] the radiation excess from the central galactic region of our Milky Way (WMAP haze) has been measured and D. Hooper and D. Finkbeiner [10], [11] with

brilliant analysis have show that it is the Dark Matter e+e- annihilation synchrotron radiation. We propose the above mechanism for it and this means that in the WMAP experiments antimatter has been seen. Also in PAMELA [12] experiment have found that much more positrons measured than it comes from cosmic ray interstellar medium interactions and in the VERITAS [13] high energy Dark Matter annihilation gamma-ray cross section measurements can be such effects. To generate the observed intensity of the WMAP haze, the antimatter (dark matter) annihilation cross section is required to be approximately equal to the value needed for a thermal relic, 3×10^{-26} cm³/s. This is the amount of antimatter which we have seen in the WMAP haze experiment. The Bridge can be opened by the effect that in Dark Matter there are developed Aggregations of matter which opens bridges (Schwarzschild Wormholes).

In Schwarzschild coordinates, the Schwarzschild metric has the form:

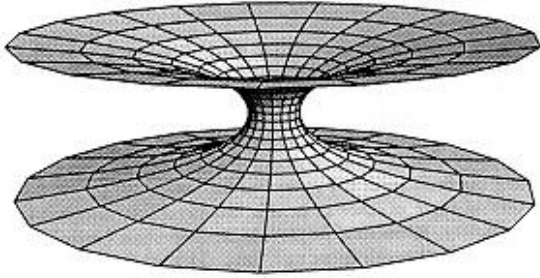
$$c^2 d\tau^2 = \left(1 - \frac{r_s}{r}\right) c^2 dt^2 - \left(1 - \frac{r_s}{r}\right)^{-1} dr^2 - r^2 (d\theta^2 + \sin^2 \theta d\varphi^2)$$

2.3.

When white source Quasar stops activity the Quasar turns to be a massive central blackhole which by accreting the surrounding matter mainly from the generated galactic ring pushes back some matter permanently through the extended Einstein Rosen Bridge to the Dark Matter Universe. This way supermassive central Black Holes accelerate the expansion of Universes. Through the lifecycle of quasars matter oscillates between Visible and Dark Matter Universes decelerating (in the quasar era) and later accelerating (in the galaxy era) the expansion.

We have worked out a mathematical model for the extended wormhole which provides these effects. This is in case of a white source jet emitting Quasar +3D white hole mouth metrics connected in the throath with a +1- 1 dimensional gradient spacetime multifractal in the center coupled to the end mouth with a -3 D Hopf fibration. Einstein has found that the black holes contained a singularity at its centre; this is a point of infinite density. We can suppose that this yields at $D \sim 0$ that negative vacuum energy density resulting from the cosmological

constant implies a positive pressure. The exotic dark matter at the $D < 0$ region [6] can have negative mass and positive surface pressure. The negative mass ensures that the throat of the wormhole lies outside the horizon, so that particles can pass through it, while the positive surface pressure prevents the wormhole from collapsing..



3. LIFE ON MARS ORIGINATES FROM THE GALACTIC CENTER OF MILKY WAY

We suppose that Dark Matter is an other Universe, so we identify Dark Matter as the other Universe. On the base of this we predict that extended Einstein Rosen Bridges can develop between the Dark Matter Universe and the visible Universe. The extended Einstein Rosen Bridges are realized by Schwarzschild Wormholes.

The Bridge opens by the effect that in Dark Matter there are developed Aggregations of matter which opens bridges (Schwarzschild Wormholes).

$$c^2 d\tau^2 = \left(1 - \frac{r_s}{r}\right) c^2 dt^2 - \left(1 - \frac{r_s}{r}\right)^{-1} dr^2 - r^2 (d\theta^2 + \sin^2 \theta d\varphi^2)$$

Via these channels large intensity matter can come through as white source and form jet emission of matter into the Visible Universe. Such an object we can identify as Quasar. There is no time and energy constraint for such and effect, so it can happen already 1 billion year after Big Bang and can be extremely energetic, also it can carry definite momentum.

During this process quasars populate with additional matter their galaxies. Also the jet axis is mainly responsible for disc shape of galaxies. This way Quasars decelerated the expansion of Universe. We have worked out a mathematical model for the extended wormhole which provide these effects. This is in case of a white source jet emitting Quasar +3D white hole mouth metrics connected in the throat with a +1- 1 dimensional gradient spacetime multifractal in the center coupled to the end mouth with a -3 D Hopf fibration.

In case of an accreting Supermassive Central Black Hole +3D black hole mouth metrics connected in the throat with a +1- 1 dimensional gradient spacetime multifractal in the center coupled to the end mouth with a - 3 D Hopf fibration.

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We can suppose that this yields at $D \sim 0$ that negative vacuum energy density resulting from the cosmological constant implies a positive pressure. The exotic dark matter at the $D < 0$ region [6] can have negative mass and positive surface pressure. The negative mass ensures that the throat of the wormhole lies outside the horizon, so that particles can pass through it, while the positive surface pressure prevents the wormhole from collapsing.

Quasars as extended Einstein Rosen bridges are only able to produce fully connected (having established collective small scale state space) particle clusters which are the basic entities of origin of life. The cluster entities can start living and evolve after interacting with appropriate (temperature, more phases) Mendeleev environments produced by Supernovas. We predict the existence of nanometer size living organisms on the base of above considerations as the most probably produced connected clusters have this size. We state that the meteorite [15] ALH84001 contains fossil of a nanobacteria which is a nanosize living organism and so empirical signal of the life on Mars. We have described some of basic life criteria in our publication [16] presented at GTC oncology conference on 27 February 2012. According to this total connectivity is one of the key characteristics of a living object.

For the question whether our Milky Way galaxy center is the source of the fully connected particle cluster flow answer gives the recent result of Su and Finkbeiner, who pointed out that the measured Fermi Bubbles [14] and jet structures indicate the remnant of former jet, which we accept as indication of that Sagittarius was active quasar before. This way Milky Way was able to produce the fully connected cluster flow later entering the appropriate Mendeleev environment of Mars and most probably the Earth, too. We can state that the origin of life is from the other world, but started to develop on the Mars and Earth.

4. ABOUT THE NATURE AND ORIGIN OF LIFE

We have developed the Extended Quantum Mechanics based Molecular Recognition and Control Model, which introduces the notion of Connectivity and defines the healthy (non cancer) living state of a cell when Connectivity is above the life criteria, ~ 0.3 . Connectivity provides total control over all processes in a cell using the native highly intact memory which store the triple structured „life info“. Criteria for life are: a) Overall connectivity defined above b) Intact memory – given above c) Spin-chirality – important tool in self identity preserving for living objects d) Connectivity rising principle – in extended thermodynamics for Fully Connected Clusters (FCC) e) FCC objects start live by interacting with appropriate Mendeleev environments. Objects having features up to d) are incipient living ones.

We have pointed out that Dark Universe is an other universe, in that sense that extended Einstein Rosen

Bridges connect the Visible and Dark Universes. Quasars as extended Einstein Rosen bridges are only able to produce fully connected (having established collective small scale state space) particle clusters which are the basic entities of life. The (up to 5-10 nm size) particle clusters can start live and evolve after permanently interacting with appropriate Mendeleev environments (temperature, more phases) produced by Supernovas. We predict the existence of nanometer size living organisms on the base of above considerations as the most probably produced connected clusters have this size. We state that the meteorite ALH84001 [15] contains fossil of a nanobacteria which is a nanosize living organism and so empirical sign of the life on Mars. Among other effects our model describes the so called Connectivity deficit state of the cell which can be identified with the cancer state. Our measurements show rising apoptosis in cancer cell lines applying our A+C molecular mixture. This measurement [17] supports drug action mechanism, Mars Life prediction and quasar origin of life – based on the same theoretical model.

Dox uM	0	0,01	0,05	0,1	0,25	0,5	1	2,5	5
RPM I	100, 0	101, 9	101, 5	90,6	75,0	73,3	61,7	31,1	30,2
Dev.. %	2,0	5,6	7,6	6,8	5,4	9,4	14,5	4,3	5,1
A+C mix	100, 0	89,1	90,2	87,0	74,6	71,1	61,0	26,4	17,0
Dev.. %	1,8	8,2	5,8	6,6	5,6	4,6	6,8	7,7	1,3

5. ACCELERATION OF EXPANSION AND NEUTRINO MOMENTUM DISPLACEMENT

5.1. Dual World Theory (DWT)

We have developed the Dual World model, based on our dimension dynamics principle [4].

We have introduced the net total quark/baryonic matter [2] current α , which flows from the Universe part towards the other one, the Inversum part of the Dual World. This matter flow is generated in the singularity region of the supermassive black holes of the galaxy centers and produces a continuous matter loss of the Universe, so the current α has negative value.

According to our model the growing matter content of Inversum (with a $-\alpha$ value) causes a higher expansion rate of it and hence the acceleration of expansion of the Universe, too. This effect manifests itself as Dark Energy and negative pressure in our Universe. It is based on the weak „semipermeable” spacetime connection between the two worlds. We have made a guess for the quark/baryonic matter loss current α/A (where A is a normalization factor), which has values in the range: $-1.45 < \alpha/A < -0.55$. The cosmic microwave background anisotropy

measurements of Planck Mission will provide more accurate value for α/A . This way first we will measure directly a physical parameter ($s = -\alpha$) of the Inversum, the existence of which is predicted by the Dual World model.

We predict the occurrence of matter in unusual location and origin time in the Universum.

This material comes from Inversum. New results from ESO about presence of very young stars in the closest vicinity of the central blackhole of the Milky Way can be interpreted as such an effect. Experimental: Additional population of expansion of Inversum which leads to acceleration of expansion of it and because of the spacetime gravitational connection it manifests itself as acceleration of the Universe. This is the mechanism behind the Dark Energy. WMAP measures it, Planck Mission will measure more precisely.

5.2. Finite mass particle momentum displacement

We are giving a model for the description of the Dual World Theory in the Dimension Gradient Space and also an integrated model for more specific matter-spacetime structures. We extend our Hopf fibration model of quantum particles for negative spacetime dimensions. We can see, how in the model **appears** the explored Dark Matter and Dark Energy. We get place for primordial antimatter and answer why fundamental physical parameters are constants overall. The acceleration of expansion is also discussed.

In our EQP (Extended Quantum Particle) model [5] the mechanism of zero mass photon spin correlations – are based on connectivity overlap. In case of emerging photon pairs at one geometrical point it has been well measured that the physical property of one particle can be translocated to the other one. It happens in 0 time and it can happen infinite space interval, because of 0 photon mass. The physical property is the spin of photons. Interesting and important question whether similar teleportation process can happen between independently formed particles and even at relatively high energies.

Neutrinos are good candidates for such a process because the high background flux is given and a newly formed high energy neutrino has good chance to transfer its momentum to another independent neutrino. This effect can be accompanied with neutrino flavour oscillation so the detector placed at 730 km distance to their source can detect a neutrino with identical physical properties as the original was. The 18 meter momentum relocation distance is determined by a specific mixture of internal and external phenomena as mass, kinetic energy, along the scale propagation times, background neutrino flux density, connecting cross section and we can make considerations back to the underlying processes from such a measurement, e.g. performed in the recent OPERA experiments.

It is a very interesting question if the particles have nonzero mass - instead of zero time interval and correspondingly infinite space range - the physical property teleportation characteristic time and space range what finite value takes. The case of neutrino can be interesting to test this question. One can expect finite space range for the teleportation. The recent OPERA measurement can be the first real measurement of this phenomenon. In our model the measured superluminal neutrino velocity comes from a forward 18 m jumping relocation of the muon neutrino momentum with a simultaneous lepton flavour teleportation by induced oscillation of the electron neutrino from background flux.

The specific value of 60 nanosecond or corresponding 18 m can be a result of combination of the finite value underlying effects: 17 GeV kinetic energy, muon mass, along the scale propagation times, zero connecting time, cross section of connecting, background neutrino flux density. We will investigate the role of the mentioned underlying effect. In our model the OPERA superluminal neutrino effect can be interpreted as in fact the neutrinos not exceed the light speed and the detector not the same neutrino detects with the same momentum.

The final conclusion is that not the original neutrino has been measured and all participating neutrinos not exceed the velocity of light.

Neutrino oscillations may oscillation effects along self scale.

Structures and oscillations between visible and dark matter in the framework of the Dual World Theory model

We are giving a model for the description of the Dual World Theory in the Dimension Gradient Space and also an integrated model for more specific matter-spacetime structures. We extend our Hopf fibration model of quantum particles for negative spacetime dimensions. We can see, how in the model appear the explored Dark Matter and Dark Energy. We get place for primordial antimatter and answer why fundamental physical parameters are constants overall. The acceleration of expansion is also discussed..

5.3.

In our Dual World Theory and Extended Quantum Particle models we have described the quantum particles by Hopf fibrations. A natural extension with cosmological importance we can get when in the -1 dimensional region the small particles we represent with $D < 0$ Hopf fibrations. Up to -3 D we can get objects by integration over particle numbers and structures. We can describe the negative dimensional object by projecting them onto positive dimensional spaces, but we should follow the scales changes. In our DWT model [4] we described the origin and structure of Universe. In this study we extend the description and discussed phenomena occurring in the framework of the model The original antiparticles have antiparticle parity/flavour which changes when they go through the zero dimensional surface.

5.4.

The structure of spacetime below the entity scale „surface” is a multifractal. The most stable and characteristic dimension region is $d=1$, which is the fix point of the linear and volume scale relation transformation. The one dimensional fiber like spacetime parts can effectively be the component of the higher Hausdorff dimension spacetime objects and also can represent generators of small dimensional (<1) objects. The generator of the non differentiable multifractal spacetime we represent with the differentiable $S3 - S2$ Hopf fibration. The Hopf fibration can be partitioned into two opposite orientations which is the origin of the spin of the particle. The extended quantum particles fill the Hopf fibration generated spacetime regions and span the entity phase space of the particle states. The particle objects' entity part we represent with the structure function.

5.5.

Hopf fibration structure of cosmic spacetime filled with matter-energy. We show in the framework of the EQP model, that physically the spin is the manifestation - in the large scale region - of the matter flow in the low scale fractal space-time part of the extended quantum particle.

Mathematically we represent the spin of an extended quantum particle with the quantum observable \cdot which is the image of the inverse stereographic projection $s^{-1} : R3 - S3$ of inverse Hopf map $h^{-1} : (S2 - S3)$ of the small scale part's matter space-time fibre-knot fractal generator embedded in $R3$.

According to the EQP model [3] itself the small and large scale matter of the same quantum particle together provides the physical appearance, the source and origin of the single particle Galilean spin, where we state that the Galilean spin observable is generated by the entity part matter structure of the same extended quantum particle. The considerable difference between the two part's behaviour suggests the above description of the spin. Definition: The spin of a single extended quantum particle is the Galilean observable (with measurable expectation value $\frac{1}{2}$) which is the **operator in the image of the inverse Hopf map $S2 - S3$ generated by the inverse stereographic projection $R3 - S3$ of the entity part's matter-space-time fibre-knot** fractal generator **argument**. Shortly: **Spin observable is generated by the matter-space-time fibre-knot and the spin state /space/ is extended by the structure function state /space/**. We extend the Fubini -Study metrics with the structure functions. In case of a single quantum particle with spin $\frac{1}{2}$ the state in.

$$S^2 \text{ is } \Psi = a |0\rangle + b |1\rangle \text{ and } S^3 \text{ is generated by} \quad (1)$$

$$x_i = \langle \Psi | \sigma_i | \Psi \rangle \quad i=1,2,3. \quad (2)$$

The assignment $\psi - x_i$ defines an inverse Hopf map. Features of spin: we have shown that the spins of two Galilean interacting or even non-interacting particles can be in specific connection, which means they can influence each others, this effect can be identified as the entanglement of the two spins. **The entanglement appears as modification/deformation of the superposition coefficients of the free particle spin states by entity space part structures. This can be described in terms based on the extended Fubini – Study metrics.** Entanglement in this sense can appear in a single particle too, which means mutual effects can appear between the Galilean and the entity parts of a particle. **Inversely we can state that by stereographic projection of spin Hopf fibration one generates (lights into) the Entity space of small scale matter-space-time region. We can get the particle content of the positive and the negative dimension part's by integrating the one particle Hopf fibrations over the particle number - taking into account the structures formed – of the two parts.** Dimension gradient space diagram of the structure of Universe and Inversum (the +3 and -3 dimensional parts of Cosmos) has been introduced to describe the geometric structure of objects aggregated between +3 and -3 dimensions in the frame of Dual World Theory model. Along the scale, propagation of effects can happen.

5.6.

Integrated Hopf fibration matter content of dual World model

Oscillation of matter content can occur between two parts of Dual World model. The particles crossing the zero dimensional „surface region” probably change their matter-antimatter parity depending on which dimension parity side they are permanently.

Matter and antimatter parity is related to the feature that primordial antiparticles have negative dimensionality in Inversum.

5.7.

Physical constants

The separated matter and antimatter keep the fundamental constants to be fixed, but they can have different values in different segments of Universe, because ultimately they should have the same absolute value in the two parts. (Proton mass, number of space dimensions, etc.)

5.8.

Dark Matter

Dark Matter origin and creation could happen at the formation of the Dual World. Dark Matter can be identified as the primordial antimatter.

Asymmetry of the amount of dark and visible matter (4-5 times more dark matter) can be interpreted different ways: 1. this big amount of dark matter can be a misinterpretation of measurements, 2. Dark Matter contains other matter than the primordial antimatter, 3. at the origin asymmetric separation occurred so during aggregation processes in Inversum large amount of dark matter could come into the Universe for complete annihilation, it could happen already more times through the “0-dimension surface” oscillation transfers of matter between the two worlds and the recent state is asymmetric by the measured ratio (without particle parity change, probably this process is a dark matter-visible matter ratio keeping one). 4. Centers of galaxies have been feeding dark Matter after the Quasar area till nowadays. (During the quasar area via the double parity changing particle transfer the amount of visible matter has been grown against the Dark Matter.)

At the beginning the inflationary expansion could be the result of the large number of inversely scaling particles in the negative dimensional space. The particles in the Inversum are expanding with very high speed because they have been formed in an infinitely small volume. Smaller or larger matter transport oscillations can happen through the 0-dimension region. Originally the separation of the matter could be asymmetric and later the equilibration already was impossible.

5.9.

Dark Energy

Expansion-Contraction of space-time is a natural state of Inversum. Acceleration of expansion can be fired by central Black holes of Galaxies [6]. Black Hole sink means a Matter transport to negative dimensional part of Dual World. White Source fountain means that antigalaxy formation is present in Inversum and scattering of two antigalaxies can provide the White Source effects as Small, Medium and Big Bang in the Universe. Schwarzhild wormhole Einstein-Rosen Bridge (ERB) can be the channel between the Universe and Inversum. Dark energy can be a spacetime effect between the antimatter and matter filled parts of the Dual World.

CONCLUSIONS

Recent Planck Mission and LHC measurements can provide interesting experimental support for the model. Soon we will publish our further results about ERB openness, Higgs emission from galactic centers, origin of Chirality, measured enhanced apoptosis of cancerous cells and considerations about habitability in Milky Way.

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