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LIFE IN THE FUNDAMENTAL NOTIONS OF THE PHYSICS OF THE ALIVE

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In the notions of the physics of the alive the self-functioning living objects* are the entirety quantum-mechanical systems occupied the fourth step of the quantum ladder of nature - after nuclear, atomic and molecular ones (the Weisskopf's classification [1]). The self-consistent potentials of living objects, ensuring the quantum-mechanical scenario of the life, are realized in accordance with a genome as the coherent eigenfields in mm-range of electromagnetic waves. Such a fields – electromagnetic models of the alive (specificly human being) due to force of coherence possess of the superstability, which permits them to check and maintain the retranslation of genome on organism permanently through the standard mechanisms of biochemical heredity. The stability of organisms in the variable environment (temperature, pressure, humidity and so on) is achieved in nature by existence in the superconductivity (due to coherence) electromagnetic, framework of the alive the “normal threads” (trajectories of Poincare's limit eyes – Chinese meridians), ensuring the superconductivity just the second type [2]. The diseases which cannot be overcome by organism itself arise exclusively through the deformation of self-consistent potential which retranslates the genome, i.e. by means of creation of metastable states. Elimination of these states, realized by solitary quanta with using of methods of nuclear, atomic and molecular spectroscopy, is ensured with the technologies of the quantum medicine. As a result the sciences about the alive – and, in the first place, biology and medicine – have being received the possibility to become the fundamental sciences.

Key words: physics of the alive, quantum medicine, synergetics, quantum mechanics, fundamental entity of life, Weisskopf's quantum ladder of nature, limit cycles of Poincare, the nature of Chinese meridians and points of acupuncture, electromagnetic model in the problem of realization of genome.

We are witnesses of the strange situation : nobody doubts that the alive differs from the dead, life - from death, but, at the same time, dozens of biological and medical sciences, the task of which must have been the support of life in its opposition to death, were not imbued with the phenomenon of life, considering it as a singularity which is beyond the limits of science. It is absurdity and, in reality, such type of activity cannot be considered as scientific one, at any rate, as occupation of fundamental science. It's expedient to remind here, that nowadays there exists distinctly defined notion of fundamentally in the natural sciences. They are the sciences based on quantum mechanics, principles of which - identity and discreteness – ensure the discrete spectrum of characteristic eigenfrequencies of the objects studied into these sciences. V.Weisskopf [1] was the first one who drawn attention of the scientific world community to this fact, having emphasized, that just the noted principles ensure diverse differential stability of the nature at nuclear, atomic and molecular levels. Weisskopf introduced the notion about three stages of quantum organization of nature or, as it often said, three steps of Weisskopf's Quantum Ladder. Guided by the well –

known facts of the overlapping levels in the energy spectra of manymolecules structure (due to the screening mechanism and strong couple in solid state and liquids), Weisskopf has guessed that the third, molecular level was the last one of quantum organization of nature, and molecular physics was the third, and the last fundamental science, respectively. At the same time in nature, besides nuclei, atoms and molecules, there is also at least one more class of objects which are characterized by diverse differential stability as well. There are the living being.

Life is not a substance that constantly varies its form and structure as «the ocean of life» in the well-known film «Solyaris». The earth, water, air are inhabited by quite discrete representatives of flora and fauna.

We, I mean the humans, are also much alike to each other, but each of us has individual features of appearance which remain unchanged so that we recognize ourselves (in a mirror) and our acquaintances when we see them. Thus there arises a temptation to explain diverse differential stability of the alive by the same principles – identity and discreteness – and, accordingly, to consider the living systems as the whole quantum-mechanical entities.**

* in their fundamental entity; ** We must do justice to Weisskopf: drawing schematically his quantum ladder, he has also drawn the fourth step with discrete energy levels – the step of life – as early as in 1972. With no comments, just a foresight of a genius.

Just therefore the discovered in 1982 «manifestation of characteristic eigenfrequencies of human organism»[3] was the drastic step to the forming of conception «life as the fourth level of quantum organization of nature»[4,5]. Moreover the discovery has been made through the experiments.

In the seventies of last century the radiophysics of the different countries were developing (and had developed) the mm-range of electromagnetic waves. The pioneer here was the Kharkov scientists (Ukraine). One of them, I.Zalyubovsky offered his wife, N.Zalyubovskaya (biologist, the post graduate of prof. V.G.Schahbazov (Kharkov university) to investigate the influence of artificially received mm-radiation on the living systems. I take the opportunity to note that the Earth is reliably closed for outside sources of mm-radiation (and first of all going from the sun) with the atmosphere: 1 mm of water decreases the intensity of this radiation in 1000 times.**

N.P.Zalyubovskaya had gathered the great experimental material by studying influence of frequency and power of this radiation on plants and protozoa and has come to conclusion (which was defended for degrees of D.Sc. and Ph.D.) about unexpected and sharp dependence of the vital activity of the alive from small changing of the frequency of radiation [7]. I am underlining once more, that from the point of view of the notions of that time it must not be because mm-range is out of area of molecular quantum transitions and in ordinary solid states and liquids such radiation cannot induce resonance type function of response.

A bit later two physicians (oftalmologists) from Odessa (Ukraine) – I.S.Cherkasov and S.V.Nedzvetsky – trying to treat eye with the standard technologies of skin-effect, used as a generator of high frequency, generator mm-range (instead of the generator of plants device which gone bad) and revealed that in time of treatment of the eye the gastric ulcer of the patient which cannot be overcome with the ordinary medicine during some tens years, disappeared without trace [8].

And, at last, we have succeeded in showing that therapeutical effect on some frequencies (called with therapeutic, or resonance ones) in case of acting on special biology active points BAT (they coincide with the points of acupuncture) realizes using the intensity of influence in hundreds billions times smaller than before used in medicine, i.e. on the intensity, compared with separate quanta $\sim 10^{-21}$ W/Hx cm² [3].

So, what we have?

From one side, a kind of indisputable revealing of the quantum-mechanical nature of the alive, but, from other side, the centuries –old scientific tradition beginning from the atomistic ideas of Demokritus and included the revolution of the nature in the beginning of the last century, which, has no doubts that fundamental scenario

of the nature, guided to the new quality, put on an act exclusively on the microscopical level.

But the events of the second half of XX century, connected with the creation of two sciences of self organization with local decrease of entropy – synergetics (G.Haken) and theory of dissipative structure (I.Prigogine) – have shaken this assurance.

I have analyzed the regulations of quantum mechanics and come to conclusion that microscopicality of the objects is not a criterion of its application. Actually the necessary condition for quantum-mechanics application is existence of entire self-consistent potential created by the structures with identity spectral characteristics of every. The premises for creation of such potential in a human organism exist.

Indeed:

1. in every from 10^{18} cells of living organism there is total and exhausted information about whole body – total genome;

2. eigenvibrations of cytoplasmic cell's membranes of all living systems, as was shown by Frohlich [9] lie within ($10^{10} - 10^{11}$) Hz range;

3. Mitchell has been awarded Noble prize for revealing [10] that most part of the metabolism energy cells spend not on storage of chemical energy (cycle ADF – ATF) as there is considered before, but on the creation and constantly maintaining of the great tension of electric field on cytoplasmic membranes, up to 10^5 V/sm, that is the limit even for today modern technologies.

So, there are all grounds to guess that cell's membranes could quit well play the role of active centers in creation of laser type self-consistent potential, in which the genome is retransmitted on the language of characteristic eigen-frequencies of organism. This potential on the 14th week of development of embryo initiates «the spontaneous breaking» of initial symmetry of the mother's organism in the embryo volume (the first birth) and from this time the future organism begins to form himself in selfconsistence with formation of its coherence eigenfield in mm-range of electromagnetic waves [11].

The other definition of this fundamental structure of the alive in its distinction from the dead, which created during the different lighting of the problem: the God's defence, electromagnetic framework, electromagnetic model.

The self-consistence between electromagnetic model of organism and body continues after the official second birth of child, keeping in control the retranslation of genome and ensuring the restoring of the disturbed structure of body (wounds, fractures and other) during the whole life. Such approach permits to refuse from the deadlock (from the point of view of science) seeking of genes, which ought to respond for something, reviving the anthropomorphism in the III millennium. **Genes are the place of storage hereditary information, but its realization goes on by the creation, in accordance with genome, the electromagnetic model on the mighty**

** Not accounted the window of transparency for relict irradiation which just lies in the range of (50-60)HZ and reaches the Earth. This fact has induced me together with academician M.Lisitcha to publish at that time the suitable article [6].

coherence field of laser type, on which the outward world could not affect.*

And our body (being vulnerable enough) whole time compares with this model. This correction is realized by the standard mechanisms of biochemical heredity: DNA replication, RNA transcription, protein translation. Thus, if self-consistent potential is symmetrical, i.e. electromagnetic model tunes to genome totally, body also matches to genome and does not need in outside correction. With the exceptions of extreme situations – necessity to put out bullet from a body, to sew up the deep wound or to put together bones after accident. All others organism makes itself. But the picture changes if (due to special reasons, to which we shall come back other time) the self-consistent potential gets deformation, there creates in it supplementary metastable well, which is fulfilled by the levels according to the quantum mechanics laws, between levels there creates transitions, frequencies (and energies) of which has no relation to genome. From this moment the electromagnetic framework is formed by the false program and in the body there creates diseases which relate to the category of "hard" or "incurable" onses. Naturally that in such situation it is useless the efforts of doctors the same as healers and specialists of spiritual and mentality practices – after all the deformation of the framework has occurred on the quantum-mechanical level and therefore the restoration of its symmetry could be ocured only on the same level. Luckily, nuclear, atomic and molecular spectroscopies have in their arsenal the methods of the resonant gone out system from metastable state. Quantum medicine uses these approaches developing its technologies which were named Microwave Resonance Therapy (MRT) [12,13].

But, is there exist more direct than therapeutic canal for receiving information about coherence eigenfield of organism?

If turus out, that yes exist. And we have received helping in that from Ancient Chinese Medicine. In accordance with it human body is penetrated by the 26 channels, or meridians (12 paired and 2 unpaired) internal tracks of which are going through the main organs of a man (stomach, liver, heart and so on), and external tracks are situated at the surface of a body in the acupuncture points (in terminology of modern medicine – biologically active points – BAP). Metrics of Ancient Chinese Medicine was out of standart: distances between points of acupuncture and distances between organs of body had been measured in the units, which themself were defined by anatomic characteristic of a particular organism. This unit was called «cun» and more often it is approximately the width of a thumb in the plane a nail in the joint, that is this value for the grown-up person with

common anatomic proportions constitutes approximately 2.5sm. Moreover, as things turned out that 11 from 12 paired meridians begin or finish on the tips of fingers or toes in area of nails [14]. Once more peculiarity of the meridian- acupuncture network, covering an organism and had left to us as the heritage by Ancient Chinese wiseacres is the obligatory existence of BAP in the center of flexions of each joint of the limbs.

The official West medicine sceptically related and, I dare say, now relates to the notions of Ancient Chinese men of wisdom in spite of undeniable achievements of their medicine. The point is, that the West medicine based on the so-called chemical paradigm adheres to the visualization principle claiming that there actually exists and can be an object of scientific research in an organism only something that can be seen directly by an eye or with the help of a microscope. But neither meridians nor points of acupuncture satisfy this criterion...

We have succeeded in proving of reality of the meridian-acupuncture network, and in showing that she is an element of electromagnetic framework – coherence eigenfield of organism, about which I wrote upper and forming of which begins, as I noted, on the 14-th weeks of the development of embryo in the result of spontaneous breaking of symmetry. At the beginning there create the running waves which moving along the body of embryo initiate the hardening of cartilages of the limbs (turning them into the bones) and hardening of the nails. In the result, the running waves move along the arms and legs to put from inside on the skin at angle of the complete internal reflection, forming in such a way points of acupuncture. The running waves are reflected from the nails and in result of summing direct and reflected waves on the concave screens of the soft flesh of the tips of fingers and toes of the limbs creates the dynamic interferential images of eigen-waves of organism which could be seen as papilar patterns by everybody. These pictures are the universal passport of the future person. The overlapping of the reflected wave on the direct one on all other places forms the meridian as a dynamic waveguide, filled by the standings waves, though which the lightexitons are moving ensuring coherence of the whole electromagnetic framework [15,16]. Such an interpretation gives good reason to apply the electrodynamics laws in the attempts to understand the peculiarities of the metric scale used in Ancient Chinese Medicine, and the peculiarities of the trajectories of the meridians themselves as well. Starting from the experimentally measured diameter of cylindrical waveguide (at least at the spots of their nearing the surface in acupuncture points)(3-5) mm and the refraction index inside the channel $n=1$ (the same as in atmosphere, but not (5-6) as in the body outside the channel areas) the solution of axially symmetric problem in cylindrical coordinates with using the first root approximation in cylindrical Bessel function of the first degree and zero order, gives for wave length in waveguide λ_z :

* Let's recall the famous experiments of 1963 on appraising of the 'force' of coherence, when the spreading of laser bean which has been send to the Moon was, by different evaluations, from 6 to 100 metres!

$$\lambda_z = \frac{\lambda_0}{\left[1 - \left(\frac{\lambda_0}{1,3 \cdot d}\right)^2\right]^{\frac{1}{2}}}$$

where $\lambda_0 = (5-6)$ mm – wave length in atmosphere and d – diameter of the waveguide (meridian) $d = (3-5)$ mm;

Putting in, we have $\lambda_z = (5-6)$ cm.^[5]

In a standing wave formation the distance between the maxima (and minima) equals the half of the wave length, i.e. (2,5-3) cm, that, as we see, conform the average meaning of a **cut**. Having received this result some years ago, I paid my attention that the value of λ_z given by this formula, was very sensitive to the relation $\frac{\lambda_0}{d}$.

Having discussed this fact I wrote: «...formation and support of the meridian proper in the body in accordance with genome, represents a self-consistent process, when **depending on the state of an organism the meridian diameter d can «breathe» by fractions of millimeter...**» [5]. Some later, analysing the peculiarities of the macroscopic quantum mechanics, I came to the conclusion that macroscopicity of the entire quantum-mechanical object means its superconductivity and presence inside of it the dynamic waveguides as a normal threads (in the terminology of physics of superconductivity) stabilizes the state of superconductivity in the variable outside world through the changing the of these threads diameters. So, the living systems (in their fundamental entity) are the

superconductors of the second type and entire quantum-mechanical objects simultaneously^[2]. Underline once more that under «fundamental entity» I mean the coherence eigenfield of organism, its electromagnetic framework. The human body is not a field and possesses of all features of substance: resistance to current, density, chemical composition, optical properties and so on.

Working with the great mass of patients of quantum medicine (some hundred thousands peoples), we met up with the extraordinary phenomenon, called by us the «Rudenko's effect». Due to this effect we have succeeded in visualization of the outside tracks of meridians for the first of our time. The effect was consisted in such, that in time of tuning on resonance (therapeutic) frequency acting (as I noted) on the point of acupuncture some of meridian with mm-radiation of intensity about 10^{-21} W/Hz•cm² the patient's (Rudenko) feet (he lies with the closed eyes) begin to jump on the high about (15-20)cm with the frequency about 1 Hz. The jumping was eliminated in two cases: gone out from the therapeutical frequency and in time of creation Zeeman's splitting with ordinary school-using magnet, bringing up to the any point of this meridian. In the result we have succeeded not only in tracing the outside track of the stomach meridian and compared it with the atlas pictures (fig. 1) [17], but there was opened the potential possibility in the macroscopical quantum-mechanical system to estimate the Lande's factor.

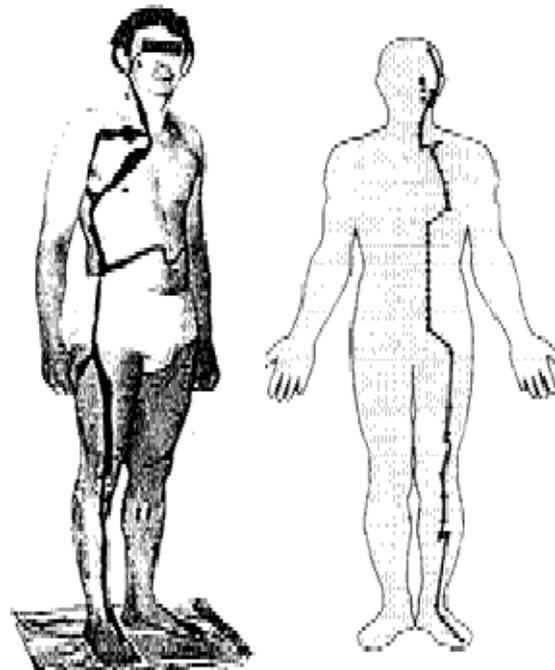


Fig.1. «Rudenko's effect»: **left** – image of the experimentally revealed outside track of the Stomack meridian; **right** – standart image of the Stomack meridian in an atlas of acupuncture.

I attract your attention that patient Rudenko some time ago came through an operation on the stomach – we can see that the meridian of stomach cannot move through the scar. This is the warning of the existing surgery about the

necessity to take info consideration the modern notions about life.

On the figure we can see also the experimentally estimated fragments of the other leg's meridians.

Unfortunately, these experiments exerted loading on the organism of patient. My doctor-assistants were compelled to cease the experiments and recovered Rudenko with the standart technologies of quantum medicine, but after this the « Rudenko's effect» had disappeared - now there remains only the documentary film about this...

Localization of the points of acupuncture on the arm's and leg's meridians, which has received on base of the notions about their formation in the result of moving the primary running wave between bone and skin with

reflection from skin at angle of the complete internal reflection in the forming in such a way points of acupuncture (fig.2) [11] which are conformity with atlas of acupuncture [14]. There is exist optical-physics explanation the obligatory presence of BAP in the center of flexions of each joint of the limbs. If it would be not so the any moving in the joint will induce the changing of the position of points of acupuncture on meridian or the opening of meridian to space. The first and the second will accompany by pains, especially, in area of joint, that indeed realized even on the first stage of its deformation.

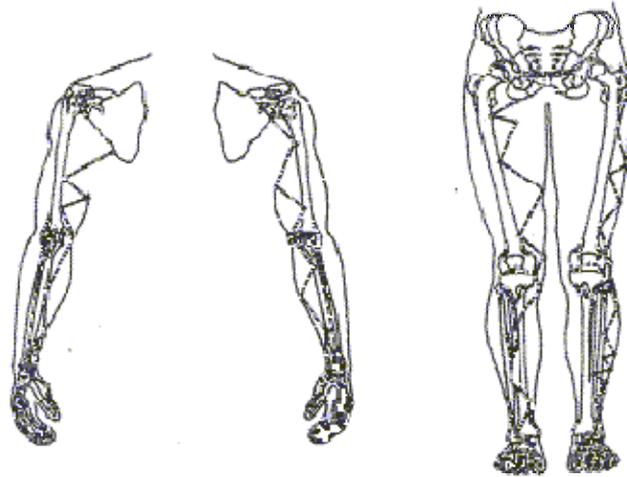


Fig.2. Localization of the points of acupuncture on the limbs of human body in the notions of physics of the alive.

By the way, experience of quantum medicine shows that pain is the reaction of organism on the deformation of electromagnetic framework, but not on the pathology of body itself.

And now once more essential remarks.

The formation of the alive as the entire quantum-mechanics entity goes through synergetics scenario, hierarchy succession of the dissipative structures. And here on the last stage of tuning synergetically and quantum-mechanically approaches there used the Poincare solutions of nonlinear differential equations around special points (other commen solutions of nonlinear differential equations are not exist). We have some typies of such solution (depending on value and sign of the determinant in the characteristical equations): knot, focus, saddle, limit sycle. The stable solution is the limit sycle. There is no real part of time and therefore it easy interpreted in the terminologies of quantum mechanics as orbitals (Bor's type), and in the notions of physics of the alive as their spatial solutions there exist meridians. "Special point" as in time of Poincare, now and in the future was, is and will be out of science and reflects God's in every living objects.

I realize that the real science about life is only beginning just now [18]. But it is beginning of the fundamental science [19] and medicine of the third millennium, without any discuss, ought to be based on it.

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