
КВАНТОВА ФІЗИКА ЖИВОГО ТА ЇЇ ТЕОРЕТИЧНІ ОСНОВИ

THE CRUCIAL EVIDENCE IN FAVOUR OF THE FUNDAMENTALS OF PHYSICS OF THE ALIVE

SERGEY SIT'KO

Scientific Research Centre of Quantum Medicine "VIDHUK", Kyiv, Ukraine

Abstract: There is the substantiation of the thesis that the direct detection of the non-equilibrium fraction of human body electromagnetic irradiation in mm-range is just that conclusive experiment which converts the working hypothesis about physics of the alive into the scientific trend "Physics of the Alive".

"On the 9th of December of 1997 at the Scientific Research Centre of Quantum Medicine of Ministry of Health of Ukraine with the aid of high sensitive radiometric system having noise level about $\approx 0.5 \times 10^{-22}$ W/Hz·cm², we registered non-equilibrium fraction of electromagnetic radiation of a human body in mm-range" (Physics of the Alive, v. 5, No.2, 1997, 60 p.)

This event has become a direct experimental confirmation of the reality of the conceptual notions of the Physics of the Alive and therefore could be considered as a last point of the some stage on the way to the creation of the modern Theoretical Biology and Medicine.

As it's known [1-4], the corner stone of notions of Physics of the Alive is the idea that any living object is macroscopic quantum-mechanics entirety, self-consistent non-local potential of which is formed through the mechanism of laser coherence in mm-range of electromagnetic radiation.

This model has given not only the principle explanation of the varied differential stability of the alive (existence of species, which manifest themselves through the separate specimens with their characteristic peculiarities) but also clarifies the therapeutical effects in case of curing of patients with the different methods of treatment. In particular the approach enables us to recognize the mechanism of affecting in time of healing with the MRT technologies [5]. I dare me to remind that in time of treatment of patients with the modern MRT technology ("Sit'ko-MRT") [6-8] the density of power of outward electromagnetic radiation in mm-range amounts only to $(10^{-20} \div 10^{-21})$ W/Hz·cm². It means that now we can treat "incurable" patients using only accounted number of photons (!) If besides this we notice that according to the MRT technology we never affect directly on the hurt part of a patient or on the skin projection of its damage organ, but on the maximum distal BAPs (Biology Active Points), it would be clear that in the scope of tradition point of view on an organism as on a classical object, we cannot do even one step in the direction of comprehension this phenomenon.

I should like also to underline that the existence of the coherence electromagnetic field of organism ("electromagnetic frame") provides the origin of the effective long-range interactions (forces) which are absolutely necessary addition to

the chemical ones for realisation of gene information on the level of entire macroscopic body.

Some facts stipulate formal possibility for existence of coherent field of an organism in mm-range.

The first one is the existence of huge electrical field $\approx 10^5$ V/cm on the protoplasmic membranes of every cell of any living organism, which is created and sustained due to proton transport through membranes.

The second factor is the physical properties of the stuff of cell's membranes that provide them possibility to oscillate with the eigenfrequency in the band of $(10^{10} \div 10^{11})$ Hz [9].

The third one is the existence of surface (body's skin) separating the volume with a great refractive index in which coherence occurs from surroundings with smaller refractive index.

At last the fourth factor stipulating possibility of existence of coherent field of organism is the identity of the genome of all cells of this organism. Hence these cells with their membranes could be regarded as an active centres of system in the regime of multimode laser's coherence. According to the idea of Physics of the Alive in such a way the information of gene is transformed into the spectrum of coherent electromagnetic radiation.

Of course, these arguments would have been left on the level of simple speculations if we had no had experimental evidences. Moreover, it is very desirable to have not only indirect but direct experimental evidence, because a priori we can say nothing about realisations in practice the mechanism of laser generation in an organism. In other words we cannot say in advance could the system pass through the threshold of non-equilibrium phase transition, because the level of absorption of mm-radiation in real stuff of a body is very high [5].

Besides thousands and thousands indirect evidence of existence of efficient long-range forces providing unity of organism on the level of its quantum-mechanics entirety (treatment of patients due to localised outward radiation of mm-band compared by intensity with the power of one photon [6-8,10] and so on), we wanted to have a direct experimental evidence. Nevertheless until 9 December 1997 we have got only one but moreover half-direct evidence in favour of our notions [4]. I mean Rudenko's effect, manifesting the electromagnetic nature of the Channels (meridians) of ancient-Chinese medicine: weak constant magnetic field (about 40 Oersted) can block the transmitting of information along the meridians, which according to our ideas are the trajectories of moving of light excitons having been formed as a result of stabilisation of the coherent field of organism [3,11].

But no one really direct experiment!

And it's despite of gigantic attempts directed to registrate any objective electromagnetic characteristic, which would be good enough for unambiguous distinguishing of the alive from the dead. Moreover, the moving down the Weisskopf's Quantum Ladder to the nuclear's, atomic's and molecular's steps had given base even for supposition, that the failure in the direct registrations of the characteristic eigenfrequencies of a human body has the principal nature. Indeed, it is well known that, as a rule, the spectroscopy in nuclear, atomic and molecular physics is connected with outward excitation of the objects of study. The

spontaneous irradiation exists as an exception and only in situations when the transmittings in the states with the larger binding energy are permitted.

Therefore when on 9 December of 1997 we registered non-equilibrium fraction of electromagnetic radiation of a human body in mm-range it was, to a great extent, the gift of the Nature.

Now I should like to say some words about the terminology. When we are talking of "equilibrium radiation", it means that there are only the radiation being in **thermo** equilibrium with the environment, according to the standard notions of the theory of radiation. In particular, an "absolute black body" is the source of thermo-radiation with the volume power spectrum density U_ω , which is given with the Plank's formula:

$$U_\omega = \frac{\hbar\omega^3}{\pi^2c^3} \cdot \frac{1}{e^{\hbar\omega/kT} - 1}$$

where: ω – is the circle frequency, c – light velocity, T – absolute (Kelvin) temperature, \hbar – Plank's constant, k – Boltzman constant.

In mm-band of radiation $\hbar\omega \approx 0.01 KT$ ($\hbar\omega \ll KT$) and therefore we could use Macloren expansion, which gives:

$$U_\omega = \frac{\omega^2 kT}{\pi^2 c^3}.$$

So, in a case when there is no any permanent outward heating, the middle level of the surroundings radiation in mm-range could be evaluated by the written above formula. For spectrum density of radiation from the unit of surface (in $W/Hz \cdot cm^2$) we derive:

$$S_\omega = \frac{cU_\omega}{4} = \frac{\omega^2 kT}{\pi^2 c^2}.$$

Thus for frequency $f = 60GHz$ ($\omega = 2\pi f$) and $T = 300^\circ K$ we have

$$S_\omega = 1.5 \cdot 10^{-20} \frac{W}{Hz \cdot cm^2}.$$

Of course in real conditions the "absolute black body" approximation in many respects is not fulfilled. However, in any case, in a state of thermo-equilibrium in the places far enough from mirror surfaces we could guess that the level of background lies in the above-indicated scope. In practice, however, it's not easy to detect this radiation even with the good radiometer, because being by the temperature of environment any receiver could not register of this temperature radiation because of principle considerations (Kirhgof law). To overcome this prohibition it is advised to down the temperature of the receiver's tract to the level of its self-noise (of course, if this level is lower than the level of Plank's distribution "tails" in mm-range).

Our former radiometric system [12] had had the level of self-noise about $4 \cdot 10^{-21} W/Hz \cdot cm^2$, i.e. a bit lower than the calculated level of the equilibrium radiation. However, on this level without cooling we had not noticed any distinguishing feature in the spectrum of radiation in mm-range from animate and inanimate objects...

Applying the new technical decision [13], the group of scientists and engineers headed by Prof. Juri A. Skripnick and Dr. Oleksiy P. Janenko Ph.D. had created the radiometric system of new generation with the level of self-noise in the range of (53 ÷ 78) GHz about $5 \cdot 10^{-23}$ W/Hz · cm². The reduction of the level of noise of the radiometer in 80 times has brought about to the conclusive results!

With the window which could be varied in range (200 ÷ 300) MHz it has been received the spectra from different objects, such as water, ice, lit cigarette, leather, skin of human body, heated or cooled to different temperature solids and so on. It revealed many quality new phenomena, among them “reverse flows” of electromagnetic radiation [14], which was predicted many years ago [15], high level of mm-range eradiation from lit cigarettes (especially from wormwood ones) and other [16]. But the most important result, which was succeeded is **unquestionable evidence of existence of non-equilibrium fraction of electromagnetic radiation of human body in mm-range**. The value of this fraction and the peculiarities in the spectra are different for different persons and depend upon their physiological states and places on the skin from which we detect the irradiation. It was tested (to the beginning of July 1998) about hundred patients and volunteers. In most cases the level of non-equilibrium component varied in the scope of

$$10^{-22} \div 10^{-21} \frac{\text{W}}{\text{Hz} \cdot \text{cm}^2}.$$

Of course, I recognise that the obtained results have got only quality character and could be considered not more than the precursor of the future spectroscopy of the Alive, but just this quality was necessary to metamorphose the working hypothesis about physics of the alive into the scientific trend “Physics of the Alive”.

ВИРШАЛЬНЕ СВИДОЦТВО НА КОРИСТЬ КОНЦЕПТУАЛЬНИХ ЗАСАД ФІЗИКИ ЖИВОГО

С.П.СИТЬКО

В статті обґрунтовується теза про те, що безпосередня реєстрація нерівноважної компоненти електромагнітного випромінювання людини в мм-діапазоні є тим вирішальним експериментом, який перетворює робочу гіпотезу про фізику живого в науковий напрямок “Фізика живого”.

РЕШАЮЩЕЕ СВИДЕТЕЛЬСТВО В ПОЛЬЗУ КОНЦЕПТУАЛЬНЫХ ОСНОВ ФИЗИКИ ЖИВОГО

С.П. СИТЬКО

В статье обосновывается тезис о том, что прямая регистрация неравновесной компоненты электромагнитного излучения человека в мм-диапазоне является тем решающим экспериментом, который превращает рабочую гипотезу о физике живого в научное направление “Физика живого”.

REFERENCES

- 1.* S.P. Sit'ko “Conceptual Fundamentals of Physics of the Alive”, “Physics of the Alive”, vol.1, No.1 (1993), p. 5-21.
- 2.* S.P. Sit'ko, V.V. Gizko “Towards a Quantum Physics of the Living State”, “Journal of Biological Physics”, vol.18, No.1 (1991), p. 1-10.
- 3.* S.P. Sit'ko, V. Tsviliy “Electromagnetic Model of the Humen Organizm’s Electromagnetic Frame”, “Physics of the Alive”, vol. 5, No.1 (1997), p. 5-8.

- 4.* *S.P. Sit'ko, E.A. Andreev and I.S. Dobronravova* The Whole as a Result of Self-Organization, "Journal of Biological Physics" vol. 16, (1988), p. 71-73.
5. *S.P. Sit'ko, L.M. Mkrtchian* "Introduction to Quantum Medicine", Kiev, "Pattern", (1994), p.126.
- 6.* *Sergej Sit'ko*, "Medical Aspects of the Quantum Physics of the Alive", "Physics of the Alive" vol. 4, No.1 (196), p. 5-10.
7. *С.П. Сітько* "Спосіб мікрохвильової резонансної терапії С.П. Сітька", Патент України No. 201,5 від 15.03.1994.
8. *S.P. Sit'ko* "Microwave Resonance Therapy", US Patent No.5,507,791, Apr. 16, 1996.
9. *Herbert Fröhlich* (Ed) "Biological Coherence and Response to External Stimuli", Springer-Verlag, 1988, p. 268.
- 10.* *Б.П. Грубник, С.П. Сітько, А.А. Шалимов* "Опыт применения технологии "Сітько-МРТ" для реабилитации онкологических больных III-IV стадии", "Physics of the Alive" vol. 5, No.1 (1997), p. 90-95.
- 11.* *S.P. Sit'ko*, "The Physical Sense of Schrödinger Equation in the Context of the Synergetic Conception", *Dopovidi AN Ukraine*, 10 (1993), p. 98-101.
- 12.* *Ю.А. Скрипник, А.Ф. Яненко* "Проблемы измерения низкоинтенсивного излучения миллиметрового диапазона" в Трудах I н/п конференции "СКНТ-97"-К-Мукачево, 1997, т. 1, стр. 153-157.
13. *Ю.А. Скрипник, С.Н. Перегудов, А.Ф. Яненко* "Радиометрическая система для исследования излучений биологических объектов" in "Physics of the Alive" vol. 6, No.1, (1998), p. 19.
14. *G.V. Ponezha, S.P. Sit'ko, Yu.A. Skripnik, A.F. Yanenko* "Regular and Reverse Fluxes of Microwave Radiation from Physical and Biological Objects" in "Physics of the Alive" vol. 6, No.1, (1998), p. 11.
15. *Б.И. Степанов* "Основы спектроскопии отрицательных световых потоков", Минск; изд-во Белгосуниверситета, 1961, стр. 124.
16. *S.P. Sit'ko, Yu.A. Skripnik, A.F. Yanenko* "Experimental Study of mm-Range Radiation from Certain Objects" in "Physics of the Alive" vol. 6, No.1, (1998), p. 15.