

New-Paradigm definition of energy

(Energy is the most important physical quantity. The traditional physics has not delivered any independent definition of energy. Below is the corresponding excerpt from the newest book by Peter Jakubowski "[Unified Physics; which Einstein & co. dreamed of and is finally realised now](#)".)

$R \setminus S$	-2	0	2	4
-2		$-4 \overset{\circ}{f}^2$ frequency square	$-2 \overset{=}{S}$ radiation intensity	$0 \overset{\circ}{P}$ power
-1		$-2 \overset{=}{f}$ frequency	$0 \overset{\circ}{\Phi}_f$ flux of frequency	$2 \overset{=}{W}$ energy
0	$-2 \overset{=}{\Delta}$ Laplace operator	$0 \overset{\circ}{1}$ universal unity	$2 \overset{=}{A}$ area	$4 \overset{\circ}{J}$ action
1	$0 \overset{\circ}{\sigma}$ electric conductivity	$2 \overset{=}{t}$ time	$4 \overset{\circ}{m}$ mass	
2	$2 \overset{=}{\epsilon}$ dielectric factor	$4 \overset{\circ}{\Phi}_\epsilon$ optical area		

Figure 18. Compact form of the Unified Family of all physical quantities.

After we have realised this fundamental overestimation of the Old-Paradigm physics, we can truly abandon all vector quantities from the basis of the Unified Physics.¹ The Unified Family "purified" from all vectors simplifies to its compact form presented in the diagram above

¹ This possibility is very advantageous when we are going (in Chapter 6) to formulate a new definition of consciousness, the probably most fundamental concept of our knowledge.

(Figure 18). Note that we are using now one of the equivalent physical quantities, the radiation intensity S , for the hitherto traditionally preferred quantum speed square c^2 . We immediately realise that all physical quantities traditionally considered as being important and used in definitions of different fields and forces (interactions), are no longer present in our "purified" Unified Family.

This means that gravity, electromagnetic force, nuclear weak and strong forces, are all just an illusion produced through our superfluous traditional definitions. All traditional concepts based on electric charges are an illusion too. They should have no influence on our scientific definitions of such fundamental concepts like matter, spirit, body, mind, soul, consciousness, and life itself. The single physically usable idea of an interaction in our Universe is that one based on the quantum energy transfer, which can be mathematically expressed with the simple equation resulting directly from the diagram above:

$$\Delta W = \Phi_f.$$

This is **the Quantization Rule of our Universe**, the single, long dreamed of equation describing how the entire Universe is organized.

How can we read this fantastic rule out of the diagram in Figure 18? The white color of the Universal-Unity field means its independence of a material state. We see that the same is true for the quantum flux of frequency Φ_f (or quantum of circulation), the quantum of power P , and the quantum electric conductivity σ . All those scalar quantities belong to the material class 0 (noted in red). At the beginning of this section (in Figure 8) we have learned that a relation of each quantity to the right of itself means a multiplication with area A , and to the left of itself - with Laplacian Δ , where $\Delta = 1/A$. Analogously, a relation to below of itself means a multiplication with time t , and to above - a multiplication with

frequency f , where $f = 1/t$. The previous relation, $\Delta = 1/A$, can be interpreted as a distribution of the Universal Unity over the quantum area A , $\Delta 1 = 1/A = d1/dA$. Analogously, the relation $f = 1/t$ can be interpreted as a distribution of the Universal Unity over the circulation period t , $f1 = 1/t = d1/dt$. Using this interpretation, the above Quantization Rule means that an arbitrary distribution of energy, ΔW , always equals the universal quantum of circulation Φ_f , whether it is an atom, a neuron, or a galaxy. This universal, material independent process of energy transfer tends to compensate all inequalities in energy distribution in the Universe. For example, we can only stay alive as long as we are able to accumulate energy in our body. If we stop this accumulation, the remaining natural tendency will "disintegrate" our body onto dusty nanoparticles. Which a wonderful (and tricky) property of Nature does prevent the entire Universe from a similar disintegration will be discussed in Chapter 5. Here we conclude some further relations concerning the universal energy transfer, maintaining the Universe and our life in it in a continuous activity.

We have already learned two fundamental relations of the Unified Physics, one defining the quantum circulation, $\Phi_f = f * A$, and second defining the quantum mass, $m = t * A$. Both are directly visible in Figure 18. But there are also some new relations included in this diagram. Firstly, we see once more that quantum power P is also a material independent constant of our Unified Physics¹. Its relation to the quantum radiation intensity S , $S = \Delta P$, defines this important physical quantity as a planar distribution of the quantum power P . That means, the more quanta on a given plane the higher the radiation intensity from that plane. Secondly, because of the obvious relation $f^2 = df/dt$, we read from the diagram the next sensational rule describing how the World works:

1 In Figure 16 we read that this value is 17.15 nano-Watt, whether an atom or a galaxy.

$$\Delta S = df/dt.$$

If the previous Quantization Rule explains, how our Universe is organized, the new rule explains how this organization is reached in practice. We can read it in its shortest form as follows:

Radiation becomes active when its frequency changes.

In a more extended version we read this rule as follows.

The single mutual interaction in Nature, the energy transfer (*or radiation*), is only possible (*becomes energetically active*), when the medium (*the environment through which the energy quanta propagate*) forces (*causes*) the radiation to change its frequency. Otherwise, the energy will propagate without any loss (*nothing else will change*).

This simple rule describes all activities in our Universe, including also all processes of conscious life, like thinking, feeling, or dreaming. In that way, we have reached the ultimate unification of our physical description of Nature.

New-Paradigm definition of life

(Definition of life is the oldest philosophic and scientific problem of humanity. New-Paradigm physics teaches us that life is a natural quantum process. Below is the corresponding excerpt from the newest book by Peter Jakubowski "[Unified Physics; which Einstein & co. dreamed of and is finally realised now](#)".)

After we have presented the main points of the New-Paradigm theory of life, we can try to define life itself. Such a definition can never replace a full theory, but it can be helpful in any scientific discussion comparing different theories to the same topic. A definition of life is probably the oldest philosophic, and currently also scientific problem of humanity. What is life? As we already know, life is a process, more exactly - a quantum process. So we can ask the following, more scientific question: What a process is life?

The Unified Physics gives us the first since ever realistic possibility to answer the question in a strict scientific way, beginning with the axiomatic, fundamental basis of the New-Paradigm physics. Let us begin with the single axiomatic entity of the Unified Physics, the Universal Unity, simply denoted as 1. This unity is the Universal Creative Potential (UCP) of the Unified Physics. From this potential we have defined all physical quantities of the traditional physics used up to now (*compare Chapter 4*). The most important of them are the physical quantities equivalent to UCP (*compare the white squares in Figures 14, 15, and 18*). They are: the quantum circulation Φ_f , the quantum power P, the quantum electrical conductivity σ , the quantum magnetic induction B (being equal to the quantum electric current density, j), and the quantum electric field strength E. All those quantities are completely independent of any physical conditions. This means, we can assume that they are unchangeable across the Cosmic Hierarchy of the Solar System, having the same value for all quanta of our observable Universe.

The simplest equivalent of the UCP is the quantum circulation Φ_f , being a product of the quantum area A and its frequency f , $\Phi_f = A \cdot f = f \cdot A$. The quantum frequency f means the reverse quantity of the quantum period (or characteristic time): $f = 1/t$. Therefore, we also can say that this quantity Φ_f means a temporal change of the quantum area. There are two possibilities to realise such a temporal change. Either the quantum area changes its position during a quantum period (a single circulation), or the quantum area pulsates, changing periodically the area value. In the first case we can imagine a (circular for simplicity) area changing its position along a full circulation period and returning to the starting position after the full period, as demonstrated in Figure 64.

On the other way, we can imagine the same area remaining at a "fixed" point (somewhere in our Universe), but changing periodically its value, from minimal to maximal, and then back to the starting minimal value, as shown in Figure 65.

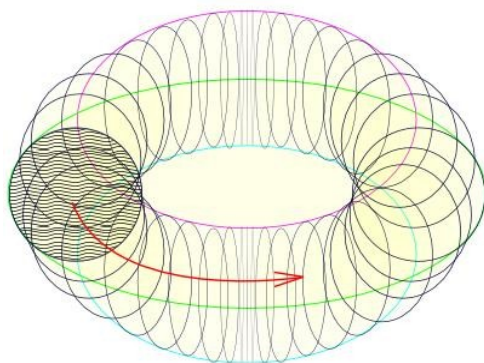


Figure 64. Quantum (shaded) area of a matter-spirit quantum changing its position over a single quantum period, during a single circulation.

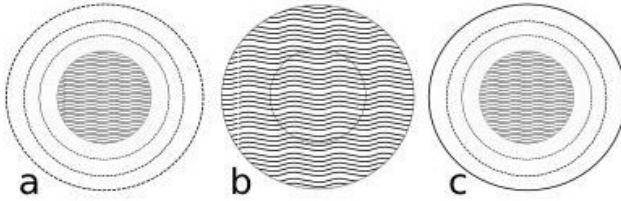


Figure 65. A single matter-spirit quantum (the shadowed object) changing its area from minimal (a), to maximal (b) and to minimal again (c) during a single quantum period.

Therefore, the simplest property of any quantum, living or not, is its natural circulation and/or its natural pulsation. They are the natural (and sometimes considered as spontaneous) properties of every quantum in our Universe.

The quantum power P , the second physical quantity equivalent to the UCP, is simply the quantum circulation squared: $P = \Phi_f * \Phi_f$. But we can also read this equation as a pulsation of the quantum circulation, or as a circulation of a quantum pulsation. As we see, by beginning of our definition of life with the quantum power, we really begin it "at the heart" of the problem. Our pulsating heart, pumping the toroidal red cells of blood, is the first (and last) sign of life in our organism. So, let us place the quantum power P at the center of our definition of life indeed.

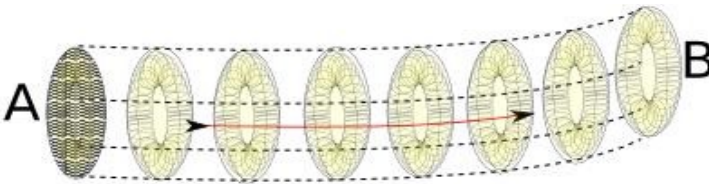


Figure 66. Quantum circulation of a single matter-spirit quantum transferring its energy between points A and B defines the quantum-energy transfer.

What we need to consider next is our unified relation between the quantum power and energy. According to the Unified Family of all physical quantities (*compare Section 4.2*), the quantum energy W is a flux of the quantum circulation, $W = A * \Phi_f$ between arbitrary points "A" and "B" , as in Figure 66.

Energy transfer is the single universal process in our Universe. The relations between the universal power of life, the energy supporting the life and the general idea of a process of life has been graphically simplified in Figure 67.

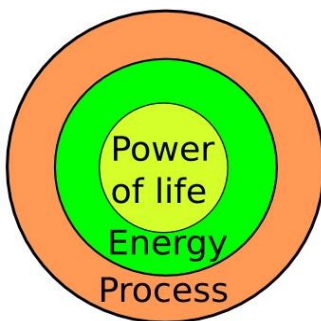


Figure 67. A simplified presentation of the definition of life as a quantum process originating in a universal quantum power and accumulating energy through energy transfer.

As we see, the energy transport by means of the red blood cells can be analogously considered as one of the simplest natural processes in a living organism. An energy transfer in a living quantum system is always directed from the non-living quanta with a higher energy density (higher speed of light), like large molecules, towards the living quanta with lower energy density (like cells), or from the living quanta of the lower spectral classes, like simple biological cells, to those of higher

spectral classes, like nerve cells, or from nerve cells to brain cells, (*compare Section 4.3*). At that point, we have to remember the very important new observation of the Unified Physics that, though the quanta of the higher spectral classes are characterized with lower energy density (because of the defining relation $c = c_u/\mu$), they are able to accumulate much more energy in any individual quantum (because of the defining relation $W = \mu^2 W_u$). This makes the difference between the living matter and the inanimate matter, and between the different cells in our body. Every quantum of our nerves consume ten thousand times more energy than a quantum of body tissue, and a quantum of our brain consume still ten thousand times more energy than a single nerve quantum.

Every natural process can be understood as an action upon an object. Thus, we can consider the following sequence of relations: process = object + action; or process = size (of the object) + duration (of the action); or process = (involved) space + (necessary) time; (both being the unified 2-dimensional quantum quantities). Finally, we can treat the same relation holistically as a process of life = matter + spirit, or - in our present context of the definition of life of an individual - as:

process of life = body + mind.

In summary, we define the process of life as a natural composition of the two inseparable aspects of any living organism, its body and its mind, including all their energetic activities. In that way we reach our new, Unified-Physics definition of life:

Process of life = energetic body + energetic mind.

The proposed composition of body and mind into a living organism is a very old idea. And even their energetic activities have been already considered thousands of years ago (*compare the ancient eastern literature*). However, the absolute novelty of the above definition of life

lies in the connection of those ancient ideas of body, mind and energy with the central idea of the unified description of the entire Nature, the Universal Creative Potential and its equivalents, the universal quantum circulation (or pulsation) and the universal quantum power.

In our quantized Universe, life emerges as a natural quantum process.

What can we say about the future evolution of life on Earth? We have seen in Section 5.2.1 that the evolutionary schedule of our Cosmic Timescale can be given precisely for millions of years ahead. On account of this schedule, we have to disappoint all traditional scientists believing in their own estimations. Our Earth, as well as our entire Solar System, has not next four of five milliard years to live (to exist) in our Universe. As we have seen in Figure 26, our Cosmic Hierarchy stands shortly before its next quantum jump of level 9. It means for us that not later than in 77.897 million years, but probably already in 35.739 million years, our Earth will be completely remelted, as during the previous event of the Moon's formation. The life expectation of our Order *Primates* ends in 7.958 million years. Nobody knows which exciting next Families of *Primates* could be theoretically created in those coming almost eight millions of years. If we consider the progress over the three recent Families (*Australopithecus*, *Homo erectus*, and *Homo sapiens*), the Earth could "obtain" some wonderful, even majestic inhabitants. Are we today smart enough to make their appearance possible? If we observe the world of today we cannot even be sure that our own Species, which can theoretically live the coming almost unbelievable 6800 years, will not become the last one on Earth. The problem with us human beings is that our imagination cannot reach even the next century. This is a strong argument for myself to try to make our scientific long-term prognosis more trustworthy. We will return to that point in Chapter 6 of this book.

New-Paradigm definition of consciousness

(Definition of consciousness is the most fascinating problem of humanity. New-Paradigm physics gives us for the first time a real possibility to define our individual and global consciousness in scientific terms of a unified quantum theory. Below is the corresponding excerpt from the newest book by Peter Jakubowski "[Unified Physics; which Einstein & co. dreamed of and is finally realised now](#)".)

Now, we are ready to define in the following table the global consciousness of humanity and the individual consciousness of every one of us as two triplets of commonly used concepts ordered in a new way, allowing to differentiate between them precisely, and use them in a scientifically verifiable context. In the proposed terminology, soul, body, and mind should be understood as the individual expressions of the global concepts of the creativeness, matter and spirit, respectively. However, in order to understand those relations more precisely, we have to consider also the second main discovery of the Unified Physics, the Quantum Spectrum of Matter-Spirit. Table I (*Section 4.3*) presents the typical values of all classes of quanta of matter-spirit possible in our Universe. We meet in that table the traditionally accepted classes of the smaller quanta of matter: molecules, atoms, atomic nuclei, and quarks. Nevertheless, we have to remember that the traditional definitions of those quanta exclude their spiritual properties at all. Also a precise scaling of all physical parameters of those quanta was impossible in the Old Paradigm of the traditional physics. What is of an immense importance for our present topic, is the classes of matter-spirit quanta above the class of the universal membranes. They are classes of the living quanta of tissue cells, nerve cells, brain cells and superbrain cells. Surprisingly enough, only the lower two has been identified till now in the living organisms. The brain quanta are completely misunderstood in neuroscience and in brain research based on the Old Paradigm. As we see in Table I, brain level quanta are completely new structures in brain, with their (macroscopic!) size between 0.05-5.0 cm.

Only such large structures becoming activated in our living brain as a conglomeration of neurons and all other cells in a brain can be made responsible for all brain activities with frequencies between 500 Hz and 0,05 Hz. This range of frequencies includes all "brain waves" observed in the traditional neuroscience and brain science. However, as far as I know, such large brain quanta, responsible for the observed frequencies, have never been defined (and investigated) in the traditional brain science.

Still worse is the unawareness of the traditional brain science of the obvious existence of the superbrain class in the natural spectrum of matter-spirit quanta. Those extremely large quanta have sizes between 5 cm and 5m; much too large for the brains of all organisms living today. The activities of those quanta happen with extremely low frequencies, ranging between 3 per minute to 3 per week, having an average value of 2 per hour (as shown in the first row of Table I). Let us note as curiosity that at least one group of researchers has already measured the brain activities with such average "super-frequency" of 2 waves per hour, unfortunately not being able (as far as I know) to explain their origin. The group directed by Günter Haffelder of a private Communication and Brain Research Institute in Stuttgart, Germany [36], has done very interesting studies of how specific frequencies (mainly expressed as music) can help our brain to learn and to repair itself.

The measurement done by Günter Haffelder became possible because we have an organ in our body allowing us to build a superbrain structures of neurons and other biological cells. It is our gut. The "gut-brain" cells are able to form such large structures with a size of average 50 cm, necessary to undertake the functions of a superbrain. We cannot "think" with our gut-brain, but we can feel with it. Physically seen, we are able to concentrate much more energy with our gut-brain than with our "normal" brain, because one superbrain quantum has its quantum energy ten thousand times higher than a usual brain quantum, collecting energy of hundred millions of neurons. It is the reason, why we

experience love (and other feelings) as being so powerful. And, according to the New-Paradigm point of view, unifying all physical properties of every quantum to each other, we have to conclude that our consciousness is a physical process (or phenomenon) like all other known processes. By the way, the new definition explains also why we cannot find any thoughts or feelings in a "dead" brain (as well as meridians in a "dead" body), when the corresponding "collective" quanta had already lost their energetic "identity".

Table XXVIII. The Unified-Physics definition of Consciousness

Global Consciousness	Individual Consciousness	Meaning of the considered entity (object / subject)*
Creativeness	Soul	M: the Universal Unity; UP: the Universal Creative Potential; QE; the potential extension (creation) of a quantum in our Universe; Phil; the expression of Oneness (Creator, God);
Matter	Body	M: the spatial creation of the Universal Creative Potential; UP: the necessary condition for a physical existence; QE; the spatial extension (size) of a quantum in our Universe; Phil; the expression of a material (body);

Spirit	Mind	M.: the temporal creation of the Universal Creative Potential; UP.: the necessary condition for a physical experience; QE; the temporal extension (duration) of a quantum in our Universe; Phil; the expression of spirituality (mind).
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* M - mathematical meaning; UP - Unified-Physics meaning; QE - quantum expression; Phil - philosophical meaning.

Our first conclusion from what has been said above is very important: Neither our individual nor our global consciousness can be immaterial, purely mental or spiritual. Both are physically describable products of our superbrain (gut-brain) influencing our individual brain. Our brain is not yet developed high enough (not large enough) to be able to develop a regular superbrain in our head. But our brain can be already modified with our superbrain (gut brain) as discovered by the Haffelder's group. Our individual soul, body, and mind are fundamental elements of our individual consciousness. They describe our individual Unity, its Existence and Experience, respectively, as shown in Table XXVIII.

Our new scientific definition of consciousness directly correlates our individual consciousness with the global consciousness of the entire (historical and presently living) humanity. With our present biophysical configuration of our average body size of about 180 cm and our brain diameter below 25 cm, we can only use our gut brain (or "belly-brain") to "feel" the global consciousness activities. It is the reason, why we are traditionally calling the records made in our "belly-brain" as sub-conscious. Merely a mirroring of those records through our still too small brain has been recognized as conscious activities or decisions. Now we see that the name sub-consciousness for our gut-brain activities is not correct. It should be called our "super consciousness", corresponding to the highest evolutionary level of the matter-spirit

quanta in our Universe.

Second important conclusion from our new definition is the realisation that the superbrain activities, reaching physically the space outside of our body, is those for long looked for possibility to communicate between individuals. Research of such transpersonal communication can be finally transferred now from "para-sciences" to the rigorous science based on the New Paradigm. The global communication joins us together with all other brain-using living organisms, human beings and higher developed animals. The collective consciousness of all users of brains and superbrains forms what we called in the defining table as the global consciousness. Its primary component is the Quantum Creativeness (or Universal Creative Potential), expressed in its material Existence and spiritual Experience.

The global communication joins us together not only with the other "brain users" but also with the surrounding cosmic environment. That is one of the sensational discoveries of the modern astrophysics, though first the New-Paradigm Unified Physics delivers a reasonable explanation of this observation. The details of this explanation has been recently published on the Open Science Academy website [37]. Thus, the global consciousness cannot be thought of as a primary "immaterial medium" of our reality, or as a building element of our observed Universe. But the part of it being influenced by our global consciousness is growing constantly (with the universal speed of light), since the first superbrain has been formed in our Family *Homo sapiens*, and with the intensity growing with the growing number of the conscious inhabitants of the Earth.

Global Consciousness is a product of all past and contemporary superbrains.
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I see the major task of the Unified Physics for the next years in the study of our global consciousness.

New-Paradigm definition of the Electromagnetic Spectrum

(The traditional Electromagnetic Spectrum is based on the "vacuum" speed of light relating the radiation wavelength with the radiation frequencies. New-Paradigm physics proves its inappropriateness and replaces it with the naturally quantized Electromagnetic Spectrum. Below is the corresponding excerpt from the newest book by Peter Jakubowski "[Unified Physics; which Einstein & co. dreamed of and is finally realised now](#)".)

The unified quantum interpretation of the electromagnetic spectrum of radiation (based on the Unified Physics) identifies the tropopause as the most probable place for the origin of the terrestrial life. (See also: <http://www.naturics.eu/?p=1761>).

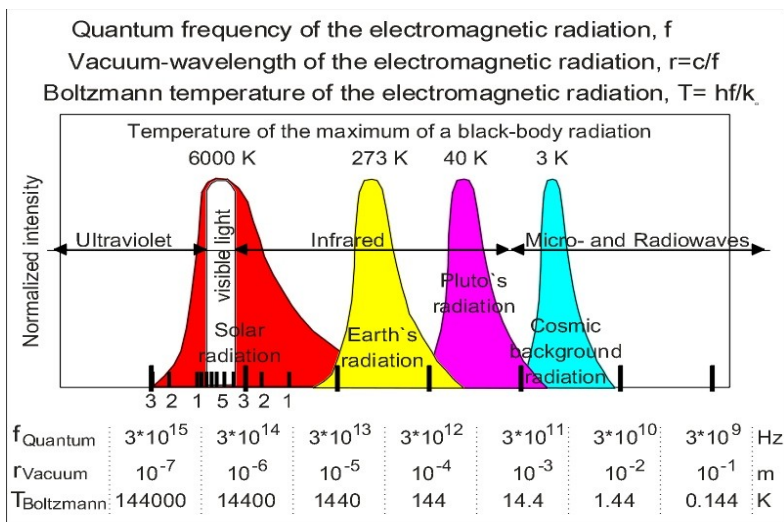


Figure A5_1. Traditional schematic presentation of the normalised black-body radiation of the Sun, Earth, Pluto, and the cosmic background radiation (CBR).

The traditional point of view upon the electromagnetic spectrum tries to unify the quantum frequency of the radiation with the vacuum wavelength of the corresponding waves and with the Boltzmann temperature of the radiation. However, neither the "traditional" sizes nor the "traditional" temperatures of the radiating quanta do really correspond with the quantum radiation frequencies. Against the suggestion of the above diagram, no known quanta of matter with a size of about 20-60 μm can be identified in the terrestrial atmosphere radiating the electromagnetic waves with a frequency of the order of 10 THz and having their temperature between 1200 K and 400 K.

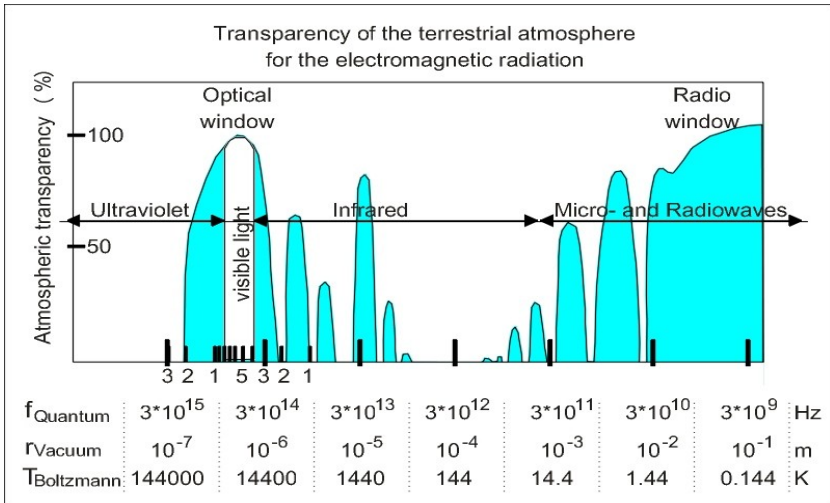


Figure A5_2. Traditional schematic presentation of the atmospheric transparency for the electromagnetic radiation from ultraviolet radiation until radiowaves.

Similarly, no quanta of matter with a size of about 20-400 μm can be identified in the terrestrial atmosphere absorbing the electromagnetic waves with a frequency between 10 THz and 1 THz and having their temperature between 1200 K and 60 K, located traditionally between the both transparency windows in the diagram above.

The above traditional definition of the electromagnetic spectrum produces the so-called vacuum version of this spectrum, because it uses the vacuum-speed of light as the constant coefficient for the whole range of the discussed frequencies. Therefore this version of the spectrum gives a realistic description of the corresponding relations in a single state only, namely in the vacuum. The Earth's atmosphere is surely not a vacuum however, thus the above traditional description is useless for any general purpose.

On the other side, it is quite naturally, that the Quantum Spectrum of Matter, as defined in the Unified Physics here (compare the main menu), describes the same electromagnetic spectrum in a realistic manner for all discussed frequencies, as can be seen on the "triple-quantum" scale below the Figure A5_3.

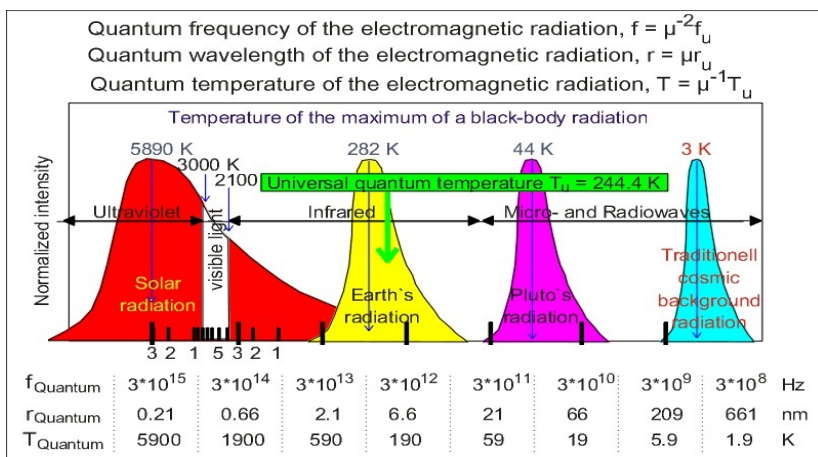


Figure A5_3. Unified quantum presentation of the normalised black-body radiation of the Sun, Earth, Pluto, and CBR.

The universal quantum temperature of 244 K (-29°C) is exactly the middle temperature of the tropopause, the boundary layer of the Earth's atmosphere between the troposphere and the stratosphere. The

universal quantum field (in the Unified Physics called the Field of Light) is the continuous origin of the inanimate as well as the animated matter. The largest quanta of the inanimate matter (with size of 1-5 nm) and the smallest quanta of the animated matter appear directly as the quantized fluctuations of this universal quantum field. The smallest quanta of the animated matter have the sizes between 5 nm and 20 nm. Their corresponding characteristic quantum frequencies lie between 5 THz and 0.3 THz, and their characteristic quantum temperature lies between 244 K and 60 K, respectively.

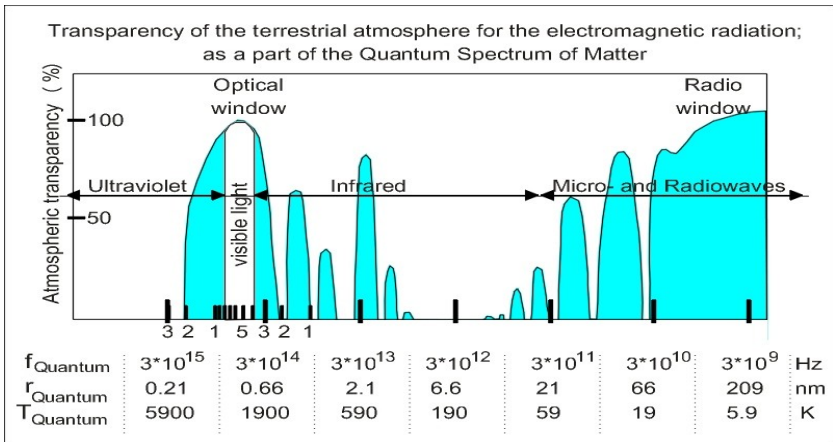


Figure A5_4. Unified quantum presentation of the atmospheric transparency for the electromagnetic radiation from ultraviolet radiation to radiowaves.

This means that the terrestrial tropopause is the first place, where we have to suppose the origin of the terrestrial life. These smallest quanta of the animated matter, the nanoparticles of life (which I propose to call nanoviroids, or maybe just nanoviruses) have the shape of a torus with some to plate compressed, elliptical cross-section, similar to the red blood-cells. However, the nanoviroids are much too primitive for to have any own DNA or RNA in that form as we know it today. The

nanoviroids are just the first step towards the higher developed forms of life. Together with the cosmic "wind" blowing mainly from outside of the Solar System they can reach the Earth's surface and start the process of the higher life development, according to the local and actual physical conditions there. How can we know that the nanoviroids should be present in the tropopause? One of the most direct answers can be reached by a consideration of the atmospheric transparency for the quantum electromagnetic radiation, as shown in Figure A5_4.

The region between the two traditionally named transparency windows (the optical window and the radio window) correspond exactly with the previously identified area of the nanoviroids, with dimensions between a few nanometer and 10-20 nm. This means that the main property of the tropopause should not be seen just as a transparency pause between two transparent windows, but exactly oppositely, as the absorption-shield preserving the favourable conditions to the evolution of the higher developed life on the Earth's surface, preventing it first of all from the harmful cosmic radiation.

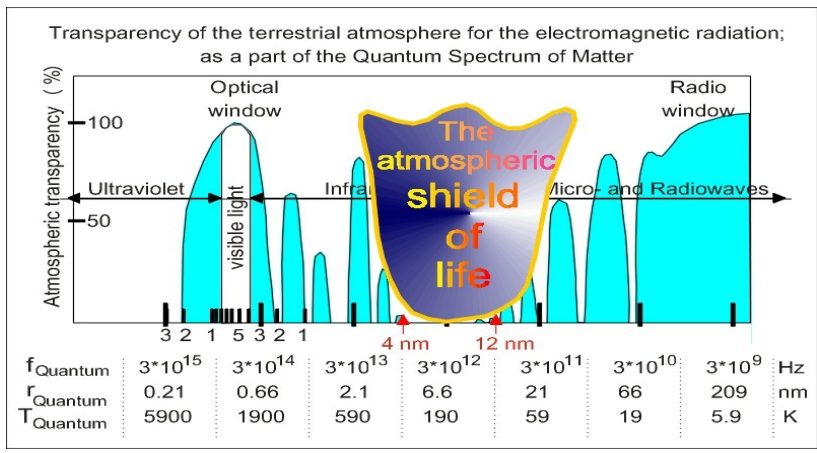


Figure A5_5. The unified quantum spectrum of the electromagnetic

radiation suggests an existence of the most primitive quanta of the animated matter exactly in that layer of the tropopause which absorbs the extraterrestrial radiation between the optical and radio windows of transparency. We call this absorbing property of the tropopause as the atmospheric shield of life.

In summary, we can say that **tropopause is the terrestrial living shield of life** (as illustrated in Figure A5_5).