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RHYTHMODYNAMICS of zero amplitude fields

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Phase-frequency cause of gravitational shift

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FROM THE AUTHOR:

The phase-frequency mechanism which makes the gravitating bodies move toward each other was described back in 1996 in a brochure “Compression of standing waves, Rhythmodynamics and the Third state of calm”(It was translated into English and is freely available in the Internet). Four years of discussing this problem convinced my colleagues and me that the mystery of gravitation has really been solved. Now we can state this publicly. What remains is to create a critical mass of supporters. So, analyze, ponder, and join us.

Yuri Ivanov

With phase-frequency logic toward the 3rd millenium!

(The list of terms and notions is appended at the back of the article)

Now we are gathering scientists and scholars, supporting the new direction in physics. The rhythmodynamics is being embraced, because its aspects are present in various branches of science and human knowledge. In effect, the rhythmodynamics is an interdisciplinary phenomenon. Without intruding into isolated branches of science, it builds its own phase-frequency logic fit for universal use both in local and global aspects, because the notions of rhythm, cycles, wave environment, phase-frequency correlations and oscillators are fundamental and widely accepted.

Scientific thought now has a chance to drop old dogmas. Because a more thorough check of the general truths of the laws of the passing millenium reveals their inability to detect the root-cause of various phenomena. This applies not just to gravitation, but, for example, phenomenon of electricity, in which there is still much mystery is hidden. Mathematics paid much attention to its mystery, like electric charge and current, electromechanical momentum, ponderomotive forces and magnetic field. But this attention was shallow. Without rhythmodynamics, the understanding of those phenomena is impossible.

The rhythmodynamics is turning attention to the resonance phenomena, occurring at sub-quantum level: hidden wave processes, frequency pulling, frequency measurement of space, etc. Therefore, one can expect the breakthrough in the understanding of processes in nuclear physics, connected with parametrical resonance, like acusto-optical, acusto-electric, nuclear-magnetic and others, still not fully understood. In other words, the rhythmodynamics, later on, would be fundamental in understanding the above-mentioned effects. Being like methodology, it opens for researchers the path to the subquantum level of the processes and phenomena.

Academician V.N.Lisyn

Phase-frequency cause of gravitational shift

Gravitation is an interference spider, seeking to catch up with its own shadow!

Introduction

Over 300 years ago Sir Isaak Newton presented humanity the law of Universal gravitation, but gave no explanation of it. The origin of gravitation still remained a mystery. Even the genius of Einstein failed to give some plausible explanation as to why the bodies in Space are pulled toward each other. Nonetheless...

In the wake of a departing millenium, one can safely say that the origin of gravitation is discovered. "The bodies, which got into gravitation field, have, at the atomic level, their frequencies brought in discordance. Emerging frequency gradient deforms interference field inside the body in a way that the area of its energy comfort moves toward the planet. The body starts sliding into area of the energy comfort, the way it takes place in surfing, for example, and thus moves. To an outside observer such movement is perceived as a free fall.

Gravitation, like many other phenomena, has both visible and invisible aspects. Visible one is the bodies' accelerated falling, and weight characteristics. The invisible one is changes occurring at atomic and subatomic levels of matter organization. But the most complex of both visible and invisible aspects, deeply buried beneath them, is the root-cause triggering changes in the inner-matter processes and the appropriate consequences.

We'll examine the invisible aspect, the nearest cause which makes small bodies move toward the big ones. We'll be guided only by common logic and by familiar, well-accepted physics theses:

- gravitational red shift;
- wave picture of the micro-structure of matter;
- interference.

In the cause of discussion we'll assume the large body as still, while the small ones as active, relative to the big body. In this respect, only small bodies present in the gravitation field of large bodies, react to changes. This stipulation is made to simplify the description of the causes of what's going on in the Earth's gravitation field.

So, let's assume a small body is suspended at certain distance from the Earth's surface. The force with which the body reacts to the suspension factor is described by formula: $F = mg$, with m – body mass, g – free fall acceleration.

If you let the body go, it will start moving (drifting or falling) toward the Earth with g acceleration. This seem to be the only case in nature when accelerating body doesn't experience any internal deformation, being, on the contrary, in a deformation-free state, i.e. in a state of *inner energy comfort*. This situation is described in rhythmodynamics as the third state of calm, i.e. the state of absence of any internal deformations in an accelerating body.

Outward manifestations cannot facilitate our understanding of what's going on with a free-falling body, but when taking a look at least as far deep as the atomic level, the situation becomes clear.

Microstructure of matter

Matter has a wave origin. Although some researchers, speaking of crystal lattice, refer to ion and covalent ties between atoms, many of them accept their wave content. Neither do they object to a rythmodynamic model of crystal lattice, in which the ties are presented as standing waves, while atoms are their source.

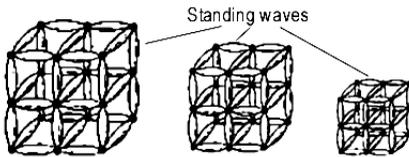


Fig. 1. Atoms are the source of waves. Standing waves emerge between the closest atoms, tying those sources together. Wave crystal structures (standing wave packages) are formed, with atoms in their nodes.

If such package is in gravitation field, the difference of distance between its parts and the Earth is evident, that is, there are some atoms which are closer to, or farther from the Earth.

Interference

Accepting atoms as wave sources we regard the package of standing waves as a result of interference. The multitude of atoms would form a complex picture of interference, so let's examine a couple of sources, which possess all the main qualities of the object. In such case the interference picture would be simple, and its changes easy for analysis.

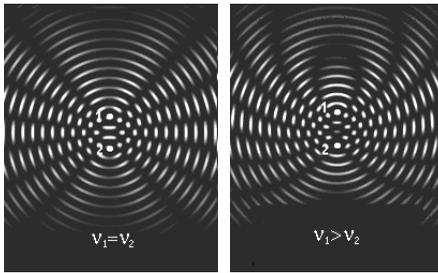


Fig.2.a) Interference field from two oscillators of equal frequency. There is no shift of nodes and loops along the vertical axis. b) Interference field from oscillators of various frequency is asymmetrical. The deformation, which resembles a spider, is called “spider-effect”.

In Fig.2 situation we say that the system is in a state of inner calm, i.e. in the energy comfort state. For 1 and 2 oscillators the nodes of a standing wave are the areas of comfort, while the minimal distance between them is determined by a single loop.

Appearance of a phase shift, or frequency difference, leads to the deformation of interference field, its shift or, in our case, its climb down (Fig.2b). But if the nodes, which are comfort areas for oscillators, start moving, then the oscillators happen to be in the discomfort area. They start sliding down into the moving nodes, thereby moving. An interference “surfing effect” emerges.

It’s been shown both theoretically and experimentally that phase shift ($\Delta\phi$) leads to the system’s movement with constant speed described: $V=c/\pi \cdot \Delta\phi$, while the difference in frequency ($\Delta\nu$) to accelerated movement described $a=2c \cdot \Delta\nu$. It’s with these characteristics of movement that the deformation of interference field disappears, i.e. the oscillators happen to be in the node areas of comfort. In this respect, the change of the movement’s speed becomes a way of escaping from emerging deformation.

Gravitational red shift

In the sphere of gravitating masses the shift of frequency characteristics of matter takes place. Gravitational red shift and Mosbauer’s effect are well known. As a result of experiments based on Mosbauer’s effect, it was established that at the atomic level a slowing down of oscillating processes takes place, which depends on a distance from gravitating body: the closer it is to the surface, the lower is the frequency of oscillations. (1,7). In the Earth conditions this difference is practically impossible to detect (the degree of relative gradient is 10^{-15} for 10 meters of height). It’s registered only with the help of atomic clock which runs slower on the surface, than at some height.



Fig.4. The closer the examined matter toward the surface of the Earth, the lower is its frequency. This also applies in the case of dimensional mono-atom body: oscillation frequency of atoms, which are closest to the surface of the planet, is less than the frequency of distant atoms. As a result – frequency discordance.

The other confirmation of dependence of frequency state of material objects on proximity to the gravitation source is the shift of spectral lines of chemical elements, present on the surface of stars, toward the red.

Interference in gravitation field

In a system of two, originally of equal frequency, oscillators, retained in gravitation field, deformation emerges as well as the current of interference field toward the Earth. The field current draws oscillators in its wake, that's why the system reacts with certain force against the retaining factor. But suppose we ourselves make frequencies of the two oscillators equal? Then, the deformation would disappear, the field current would cease and the system would have no cause to drift toward the Earth. The system would stop reacting with the retaining factor and loose its weight.

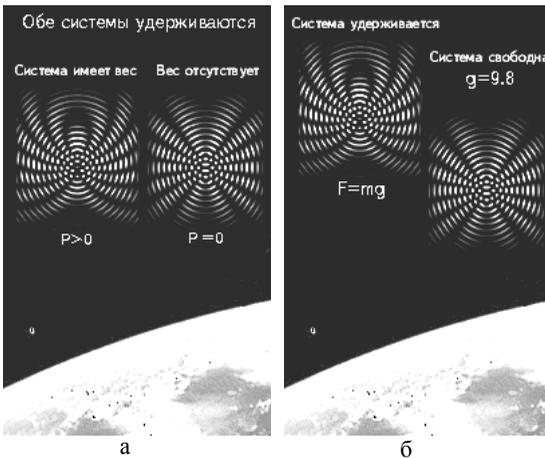


Fig.5 a) The discordance of frequencies leads to the climb down of the interference field toward the Earth. If frequencies are equal, deformation is absent. b) Free-falling system is in a 3rd state of calm, which creates an illusion of equal frequency.

If frequency discordant system becomes free, it starts drifting (falling) after the drifting field. Although oscillators' frequencies differ, during the fall the deformation of interference field disappears, i.e. the movement of the field and oscillators becomes synchronized,

creating the illusion of equal frequency, i.e. each of the oscillators regards the frequency of its neighbor equal to its own (Döpler's effect for the systems moving with acceleration).

But the frequency gradient can be negative. In this case we are dealing with a reverse case of gravitation, i.e. antigravitation, pure and simple.



Fig.7 a) With anomalous frequency difference interference field drifts upwards. If such system gets free of the retaining factor, it'll start falling with acceleration away from the Earth. b) Gravitation, weight disappearance and antigravitation are identified with the frequency state of the system.

Conclusion

Within the framework of the known we have described concrete phase-frequency processes which ensure the bodies' gravitational movement (falling). These processes are simple in content and don't need introduction of any additional hypotheses. In this sense it's become possible to simply and vividly show the essence of the immediate cause of gravitation. Now we can state that there is no gravitation force in nature per se, but there are gradient conditions around massive bodies which cause the frequencies of smaller bodies shift at their atomic and lower levels. Frequency discordance leads to the shift of energy comfort area toward the big mass and the drift of small body in its wake.

What are the perspectives?

The most complex thing is to learn to control from within the phase-frequency state of matter and bodies of the flying objects. But this is a matter of technology, where its breakthroughs are already appearing. The main thing is to have the fundamental understanding of the processes which are yet to be realized in practice.

Mossbauer's effect and a formula to determine acceleration of the system of oscillators in gravitation field

If a photon with frequency ν is emitted at height H over the Earth toward its center, then at the level of Earth's surface its kinetic energy $h\nu'$ increases at the expense of decreasing potential energy. So, in accordance with the law on energy conservation, we'll have:

$$h\nu' = h\nu + mgH = h\nu + h\nu/c^2 \cdot gH$$

We assume here that photon's mass $m = h\nu/c^2$ doesn't change. Thus the photon approaches the surface with frequency ν' , different from the one with which it was emitted. With $H = 10m$

$$(\nu' - \nu)/\nu = gH/c^2 \approx 1 \cdot 10^{-15}$$

This tricky experiment was conducted with the help of Mossbauer effect.

But what, in the Earth's gravitation field, will be discordance of frequencies of atoms, if we have a mono-atom crystal, where the distance between the nearest atoms is determined by one loops of a standing wave, i.e. $H = c/2\nu$?

$$(1.0) \quad (\nu' - \nu)/\nu = gc/2c^2\nu$$

$$\nu' - \nu = g/2c$$

If $g = 9.81m/c^2$, then $\Delta\nu = 1.63 \cdot 10^{-8}$ Hz

Let's re-write 1.0 formula with respect to acceleration g :

$$(1.1) \quad g = 2c(\nu' - \nu) = 2c \cdot \Delta\nu$$

From this point of view, we see that acceleration g is ensured by frequency gradient $\Delta\nu$ emerging in the body's crystal lattice under the influence of gravitation field (here we do not examine the way it happens). Such is the immediate cause of gravitational movement.

Gravitation force

Classical mechanics states that in the gravitation field $F_g = mg$. Rhythmodynamics discloses this formula a grade deeper:

$$(2.0) \quad F_g = 2mc \cdot \Delta\nu$$

with m – being index of proportion, quantitative measure of wave links in the body's crystal lattice.

From 2.0 follows that $F_g = 0$ if frequency difference, at least atomic level of matter organization, is absent ($\Delta\nu = 0$). This conclusion is especially important, because it helps understand what must be changed in the bodies to reach antigravitation effects.

Another important thing is that elements of quantum physics have emerged in the formulas of classical mechanics. But that's another aspect of rhythmodynamics.

Rhythmodynamics of zero amplitude fields

By Yuri Ivanov, Academician of Russian Academy of Information.

Theory is a hypothesis, supported by a valid argument!

From the author

This article offers a general explanation, on the example of hypothetical black holes and the accompanied effects, of the nearest cause of gravitational attraction of bodies, as well as introduces new notions, like zero amplitude (gravitational) field, zero amplitude quantum (graviton), and frequency horizon.

Black holes

Everyone in the XX century heard about the block holes (BH):

“In accordance with the laws of Newton and relativity theory, not a single quantum of light can leave star compressed down to gravitation radius. The space curves in the place where block hole emerged and becomes closed with its own self”[14].



Fig.1. That's how a painter “sees” the black hole

Speaking of the black holes, the world of science knows two basic concepts of Cosmogenic process: classic (diffused) and informal (Burocan). The first one springs from V. Gershel's ideas and theories dated to 18th century, the other was expressed by V. Ambartsumyan in late 40s of the 20th century.

Unlike the “classics” who regard black holes a natural stage in the matter of evolution, the followers of Burocan concept introduce hypothetical “pre-star matter” (PSM) as a relic of Cosmogenic singularity. The pre-star matter is supposed to be excessively dense in a state not subject to fundamental laws of modern physics. In this sense the Burocan group evades giving concrete physical definition of the nature of hypothetical pre-start matter (PSM) which creates a situation when something unknown is explained through something yet more unknown.

Though black holes still remain purely hypothetical objects, representatives of competing concepts seriously admit a possibility of their presence in the Universe.

Academician V. Ginzburg, supporter of “diffuse” theory says that “Within the framework of General Theory of Relativity (GTR) the black holes can exist”. Academician Ambartsumyan, “Burocan” man, also states that “Existence of black holes in the Universe is quite possible because it’s predicted by the relativity theory of gravitation”. Both schools regard the black hole a relativist object. But there are other opinions yet. For example, A. Logunov, who has created his own version of relativist theory of gravitation, asserts that black holes don’t exist [13]. Nonetheless...

The most interest is aroused by BH matter concentrated in the central “not pointed singularity”, with the size of about 10^{-33} cm (Plank’s size). In this sphere our fundamental physics, including GTR and quantum mechanics, are not supposed to work. The BH is regarded here as an object subject to the physical laws unknown to us. It’s around the aspect of matter of BH that heated disputes are raging. But there is one common thing – properties:

- Excessively powerful gravitation field;
- Existence of a horizon (Shwarzshield surface);
- Impossibility to observe matter, crossing, in the course of its collapse, the horizon and continuing its movement toward the central singularity.

These properties are recognized by all schools of science, therefore it’s thought that the collapsed object cannot communicate with the exterior world: all particles (even photons) emitted by the BH would fall back to it. The Schwarzshield surface is a horizon, beyond which, on the outside, nothing can be seen. Which means that a body falling into the BH becomes invisible, having crossed the Schwarzshield surface. The GTR offers a unique explanation here: the geometry of space has changed by curving and closing with itself [1]. The presence of superpowerful gravitational field is also explained by the twisting of space.

To get a fuller idea one should mention the ether concept, regarding gravitation as a consequence of ether’s flow into matter [5,6]. If the speed of the flow exceeds the speed of light the light cannot escape outside.

So, there is a problem of BH and there are several hypotheses claiming to explain it. But is it possible, staying within the limits of logic of science and operating by only the established facts and effects of physics, to give any other explanation of the phenomenon ‘s properties?

Let's raise questions:

What happens with the bodies in between a distant observer and BH surface?

Why do the bodies, as soon as beyond Shwarzshild surface, become unobservable?

Can one explain the super-powerful gravitation without resorting to hypotheses, like curved space?

Is Shwarzshild surface a barrier to electromagnetic waves?

Here's a comprehensive explanation of these developments.

Let's mark the priority of examination of phenomena and effects we are to observe:

- gravitational red shift and
- wave picture of the micro-structure of matter;
- frequency pulling;
- distortion of interference field;
- gravitation drift;
- frequency horizon.

Gravitational red shift

In the sphere of gravitating masses the shift of frequency characteristics of matter takes place. Gravitational red shift and Mosbauer's effect are well known. As a result of experiments based on Mosbauer's effect, it was established that at the atomic level a slowing down of oscillating processes takes place, which depends on a distance from gravitating body: the closer it is to the surface, the lower is the frequency of oscillations [1,7]. In the Earth conditions this difference is practically impossible to detect (the degree of relative gradient is 10^{-15} for 10 meters of height). It's registered only with the help of atomic clock which runs slower on the surface, than at some height. The other confirmation of dependence of frequency state of material objects on proximity to the gravitation source is the shift of spectral lines of chemical elements, present on the surface of stars, toward the red. Judging by the size of the shift, one can tell the mass of a distant star: the larger is this shift, the larger mass or density it has.

Let's examine the mechanism of frequency characteristics.

Frequency pulling in zero amplitude field

In late 19th century Relay noticed that two organ pipes, tuned closely and with their holes in close proximity to each other, start sounding in unison, i.e. mutual synchronization of vibrations takes place. Sometimes the pipes can silence each other almost completely [4,8] The competing sources of vibration impose on each other their own frequencies. The degree of such imposition (pulling) depends on correlation of their powers and distance between them.

According to [1], the matter has wave origin and can be presented as a package of standing waves, with atoms in their nodes (Fig.2). Each element of the matter (atom) is vibrating. If the minimal distance between atoms is determined by one loop ($\sim 1-10\text{\AA}$), one can judge about the frequency of those vibrations ($\sim 10^{18}$ Hz). In this sense the matter is invisible for us because the frequency band of human visual perception is much lower ($\sim 10^{14}$ Hz). What makes the material bodies visible is their quality to reflect, or rather relay the waves of the visible frequency band. If the matter is in excited (plasma) state, it starts radiating on its own in a range of spectral lines and thus shows its wave origin.

From the point of view of universal world environment, each atom of a chemical element forms inside and outside itself a frequency band (frequency environment) within the boundaries of which it is stable. When interacting with the other chemical element, or atom, a different frequency band is formed, comfortable for the aggregate of those very elements, and so on for any aggregate of elements. The chemical elements or their aggregate can exist comfortably only in the frequency bands they formed, and with any change of either elements or their aggregate, their stability is conditional on the formation of an appropriate environment. In other words, one cannot regard matter separately from its frequency environment. It's evident from the fact that various chemical elements are made up of the same elementary particles, and what's important here is their aggregate, stable only in a certain frequency band. Any change in the frequency band leads to a reaction, or, if that's impossible, to a change of a chemical element. Taking the above-said into account, one can give a different interpretation of the Table of Chemical Elements where Mendeleev revealed periods but didn't explain them.

The characteristics of a frequency environment (field) are interesting: density and amplitude. The field density (thickness, absorption) depends on the number of oscillating elements of the object and distance from it, i.e. it decreases with distance.

Amplitude is other point in question. If the number of oscillating elements is large, any emitted travelling wave (quantum) can be matched by an identical travelling wave (quantum) in the opposite phase. The situation when amplitude is annihilated emerges, in which there are travelling waves but there is no resulting wave. In this connection calculations and dimensional modeling were carried out [4] and a theoretical possibility of existing “non-radiating” systems of oscillators and zero-amplitude wave fields was discovered.

The absence of amplitude makes detection of the field’s wave characteristics difficult and creates an illusion of something being absent in space. In such case the field is referred to as the other kind of matter, but the recognition of the zero-amplitude means of transmission of wave disturbances, confirmed by modeling, allows us speak of a wave origin of fields. Let’s dwell on gravitation field, which, according to rhythmodynamics approach, is a zero-amplitude wave environment of high frequency, ideally consisting of zero amplitude (unmanifest) quanta (gravitons).

The absence of amplitude lets us speak of high penetrating ability of gravitation field: “it’s nothing, therefore it penetrates everything”. If so, how then the bodies “feel” zero-amplitude field? In the published, CD-R version, article on unmanifest energy we concluded that the transfer of energy from unmanifest, zero-amplitude state to manifest one can take place on the dividing line between two environments, i.e. in refraction. If nonlinearity in the form of a material object can shift phases, then some of the energy is released directly in the refraction area. It’s this release of energy which is regarded by the rhythmodynamics as the cause of emerging frequency gradient in the bodies. That’s apparently the reason why in the gravitation field the spectral lines of an excited matter shift to the red band.

One can use the following analogy here: “The periods of swinging of a mechanical pendulum clock in various environments: vacuum, air, water differs. The denser is the environment the stronger is the resistance to oscillations. The clock runs slower in water, than in the air, but faster than in liquid mercury.” In this sense we can speak of gravitational environment, which imposes its own rule of the game on the bodies which get in it. In their turn, the bodies, too, bring changes by deforming the general field.

Deformity of the field of interference

One of the consequences of the body’s presence in the field of gravitation is its frequency discordance. The body is dimensional and discrete, i.e. consists of isolated atoms, therefore the distance between its particles, atoms,

and a massive object varies. For this reason varies the degree of frequency pulling for each atom. Let's have a more detailed look at it.

Let's examine matter as a package of standing waves with atoms in their nodes [12].

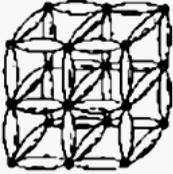


Fig.2. Atoms are the source of standing waves. Standing waves emerge between the closest atoms, thus linking the sources to each other. Wave crystal structure (package of standing waves) emerges, with atoms in their nodes.

Atoms are situated at a different distance from the surface. The distance between the upper and lower parts of the crystal (Fig.3) is estimated in few Angstrom, but this is sufficient for a frequency gradient to appear. Frequency difference leads to a so-called "spider-effect" (Fig.3 b) [4], i.e. to deformity of the general interference field and to deformity of internal relations. The meaning of the latter is in the directed (vector) shift of the nodes of wave crystal lattice relative to the atoms. Atoms tend to remain in the nodes, therefore they are forced to continuously move after those nodes. The system starts moving.

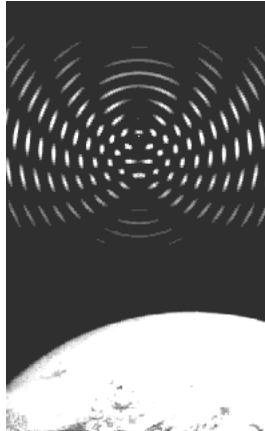
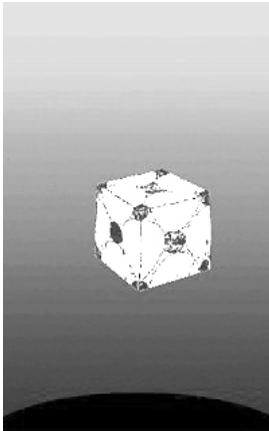


Fig.3 a) As the distance of atoms from gravitation source differs, so does the level of pulling of their frequencies. The discordance of frequencies in the system takes place; b) The frequency gradient leads to deformity of interference field and its slipping down off the object. The exterior appearance of the interference picture resembles a spider, that's why the name: spider-effect, gravitational spider. To such kind of deformity the system reacts by its movement.

Gravitational drift and loss of weight

The BH (any source of gravitation is implied here) imposes vector deformity on the body which tries to avoid it (restore its shape) by all means possible, one of which is moving after its own interference field. As a result, it drifts toward the BH, which is regarded by us as a free fall.

If the cause of the free fall can be described by discordance of frequencies, i.e. internal causes, there is no need to introduce the curvature of space. It

would be more logical to speak of the distribution of potential characteristics in the linear space, which can create energy unbalance in the bodies.

As for the curvature, one has to compare the standards of length distributed in space, the the measure of which depends entirely on the frequency state of the matter.

The absence of gravitation source guarantees the standards equality of frequency states, and consequently the equality of their lengths (Fig.4a). The presence of gravitating body breaks the equality in frequency, the standards become different, i.e. they cannot be used to construct linear figures, which is associated with curvature (Fig.4b). The rythmodynamics speak of the illusion of curvature.



Fig.4.

If the cause of gravitation drift is discordance of frequencies, the leveling of frequencies inevitably leads to a stop in falling, that is, antigravitation.[12]. The body would loose weight (not mass) and stay suspended. But it's not for nothing.

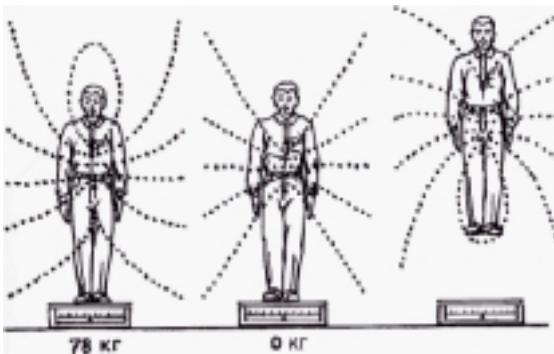


Fig.5. At present the possibility is debated of a creation of a frequency-controlled matter. Assuming that levitation is an innate, but rarely produced ability of the body, the man becomes a live example of feasibility of the idea.

Frequency horizon

What may happen if frequency characteristics of the examined body shift to the infrared spectrum completely? This body is expected to disappear from sight.

Something like this may take place in the proximity of the black hole, because with the approach to its surface the frequency characteristics of the body shift to the infrared spectrum.

Let the body fall from A to D (Fig.6 b). For observer A the body's spectral lines shift toward the infrared area. He watches the parting body first turn red, then disappear. If the other observer falls with the body, the situation for him would be symmetrical: the package of spectral lines, characterizing the state of A, would shift completely toward ultraviolet zone. One must point out that none of the observers would notice any frequency change in its own system.

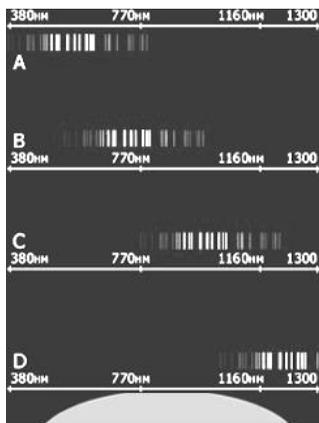


Fig.6. To illustrate the developments one might use two types of clocks: real and ideal ones (a). Fig(b) shows gravitational red shift of spectral lines (frequencies) in B, C and D relative to system A scales.

One can assert that A and the falling observer “disappeared” from each other’s sight, being divided by Shwarzshield’s surface. But it would be more logical to explain the mutual disappearance by a large difference in the objects’ frequency characteristics. In this sense Shwarzshield’s surface is regarded as a frequency horizon: the disappeared observers are actually present in space and for some time can watch each other with the help of infrared

and ultraviolet vision gadgets.

Then there is no reason to prohibit the electromagnetic signals from leaving the BH, i.e. exit outside. The other question is what happens with the sources of these signals, if one regards the BH matter as such?

If what matters is the red shift and its dependence on the concentrated mass, then with its appropriate accumulation the frequency characteristics of the matter falling “beyond” but not reaching the BH would be in radiowave band. In this respect, the BH is to act as a source of radiowaves. But the frequency state of the BH body increases ($m = kv$, with $k = h/c^2$).

Let’s sum up our hypothetical experiment

For an outside observer A the objects, positioned between the Shwarzshield sphere and the BH body are invisible, because all their frequency characteristics shift to the infrared area.

For observer D, positioned on the surface of the black hole, the outside observer becomes invisible because all frequency characteristics of the outside objects shift in the ultraviolet area.

With the accumulation of its mass the BH is to turn in a radiowave source.

Relativity of frequency horizon

The BH matter forms outside and inside itself an appropriate environment. Any material object, getting inside or outside it, must transform appropriately, which applies first of all to frequency band.

We compared the frequency horizon with Shwarzshield sphere, the radius of which is usually determined by $R_0 = 2GM/c^2$, i.e. the larger is the mass, the bigger is the sphere's radius. In rhythmodynamics the frequency horizon is a relative notion, because it has physical meaning. For an outside observer, the formula, describing the radius of the horizon, would be also different: $R_v = kgv$, where $kg = 2Gh/c^4$. The replacement of mass (M) in the usual formula by its frequency state (v) makes it possible to view the phenomena and processes connected with the BH from the frequency aspect. Now we can say: the higher is the frequency of the BH body, the larger is the radius of its frequency horizon. Unlike the Shwarzshield sphere, the frequency horizon is a relative notion, because it depends on correlation of frequency states of observer and object systems.

If for A observer the frequency horizon is marked by surface B (fig.6a), then object C is invisible for him. The frequency horizon for observer B is different and marked by surface C, therefore object C is visible for him. The reason is a different correlation of frequency characteristics of "observer-object" system.

Interestingly enough, observer C can have two frequency horizons: the inner one, behind which system D hides, and external one, behind which A system is beyond visibility. The system C and its observer become isolated from both sides, but if objects with similar frequency characteristics appear in the space, they will be visible for C.

Let's examine a hypothetical example with two black holes of equal frequency on the surface of which observers D' and D (fig.7). D' and D are equal frequency conditions and therefore communication is possible between them. But external objects, say A, are invisible for them because of a significant difference in their frequency characteristics (violet shift). Understandably, for A objects D' and D are invisible. One could speak here of frequency delineated areas of a single space. Each type of observers see the world

as real only in its frequency band, determined by the innate qualities. All which is beyond is beyond the observers' grasp, beyond the frequency horizon. In this respect every frequency limited world is regarded by the other one as a kind of a Black Hole!

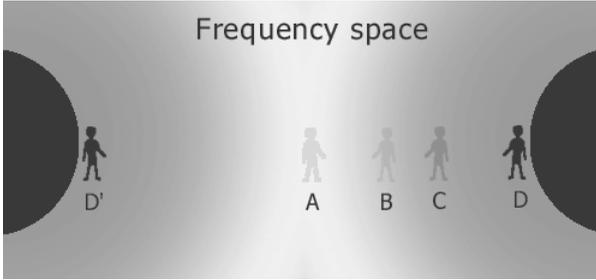


Fig.7 On the outskirts of massive bodies an illusion of frequency space emerges (pseudofrequency one).

For D and D', the real observers A and B are beyond the frequency horizon. That's why we refer to their system as a real world beyond us.

Illusion of objects appearance and disappearance

A material object moving from D' to D (or vice versa), passing by A, would behave quite strangely – first, it would appear, as if from nowhere, then would go, disappearing, fading. The cause is changing frequency characteristics of a moving object, and when they are within the A visual perception band, the object becomes visible. Any further shift of frequency characteristics leads to visual disappearance of the object. But, as was mentioned above, the object can be watched for a while in the infrared area by special gadgets.

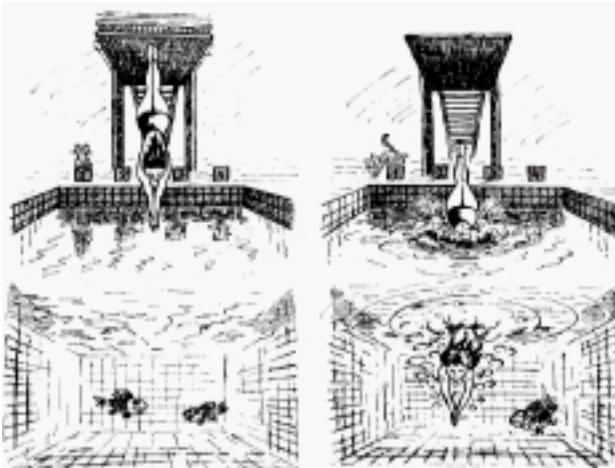


Fig.8. Illustration of frequency horizon issue. The reflection angle doesn't allow an on-surface observer to see the underwater objects, just like a submerged observer cannot see a diver approaching the surface of the water. The transfer through real, and at the same time conditional boundary between the air and water is accompanied not just by the objects disappearance in one world and appearance in the other, and by in-

tensive wave disturbance on the division border. An underwater observer might think that an instantaneous appearance (materialization) of the object takes place, while the surface observer would think it's disappearance (dematerialization). In the example cited the border between different frequency environments is evident, because our sense organs cover both frequency bands. Interesting situation might emerge if different frequency worlds (environments) are enclosed in each other's volume. If the frequency gap is sufficiently big, that is our sense organs don't cover it, then the transfer from one frequency band to the other, the disappearance in one world and emergence in the other, will be accompanied by wave disturbances on the division border. These effects can be described not just by mathematical formulas without resorting to additional dimensions, but by three-dimensional logic.

The mechanism of materialization-dematerialization was described in "Frequency space" brochure [3]. It also suggests replacing the notion of time by frequency, and time (t) coordinate by frequency (ν) coordinate.

The introduction of frequency coordinate is regarded as a natural logical step. Replacing time coordinate by frequency coordinate we have a chance to give a different interpretation of what's going on.

Frequency movement in free space differs from similar movement in the field of the black hole.

In the area of the black hole the change of frequency characteristics of the objects takes place indirectly and accompanied by obligatory transfer in metric coordinates. In this sense the black hole creates conditions similar to that of frequency space.

The movement in a classical frequency space is different: the object, moving along frequency coordinate materializes and dematerializes, staying put. Does this mean it's physically absent in space? From rhythmodynamics position, the object is present, but not visible.

We have come closely to the border, across which we would appear in the other world, as realistic as the one we just left. Such worlds can exist side by side, being divided by frequency horizon, and therefore seen by each other as "black holes". The interaction between these worlds is weak [11], therefore it's called sensual, informational [9], perceived at the intuitive level. [10].

Conclusions:

The rhythmodynamics space has non-linear distribution of frequency-amplitude characteristics (potentials, conditions) which creates an illusion of curvature.

Frequency pulling – the cause of gravitational red shift, slowing down of the atomic clock and discordance of frequencies.

Discordance of frequencies of the object leads to the vector deformity of interference field. Reaction to deformity is movement (free fall).

The massive body becomes invisible because of the shift of its frequency characteristics toward the infrared (black hole) or ultraviolet (white hole) areas. In such interpretation collapse is regarded as a quick shift of the object's frequency characteristics.

The notion of "Shwarzshied sphere" is replaced by frequency horizon, beyond which the object becomes invisible.

The electromagnetic waves freely pass the Shwarzshied sphere in both directions.

While on the issue of black holes there has been until now confrontation between two opposing traditional (diffuse) and untraditional (burocan) hypotheses, with the appearance of this article a new point of view emerges, that of rhythmodynamics, which asserts:

There is no curvature of space, no black holes in a traditional meaning, but there is an illusion: the bodies becomes invisible because of their frequency shifts toward the infrared or ultraviolet areas.

Our Universe is limited on both side by the frequency horizon, therefore invisible for external worlds, i.e. "a black hole".

With the increase of the BH mass its frequency increases until the moment when frequency increase leads first to the weakening of gravitational properties, then to the BH departure to the other frequency band in space. For a resident of other frequency dimension this process might seem as appearance of a nova, or an elementary particle.

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Rhythmodynamics is a science on algorithms

Rhythmodynamics is a phase-frequency method of describing all kinds of movements and interactions. Its approach (one of its main advantages) is clear both to scientists, and engineers as well, and therefore can be used as a basis for the development of new technologies.

Here's a list of Rhythmodynamics breakthroughs:

- discovered and proved experimentally the phenomenon of standing waves compression (discovery);
- determined and experimentally confirmed the dependence between the speed of movement in space and phase shift (new formula given);
- a number of interference phenomena were discovered, like “spider-effect”, non-radiating system of oscillators, S and F fields, etc;
- a deeper understanding of the nature of movement, inertia, mass, force, including gravitational, has been achieved;
- showed that frequency discordance of the matter elements causes gravitational drift (gravitational frequency pulling), leading to vector deformity of the body's inner interference field;
- a set of visual aids, modeling the wave processes of any complexity, has been developed;
- on the example of acoustic phenomena, the nature of energy current has been shown, the dependence of the speed of energy current on oscillators' frequency discordance, etc.

On the threshold of the 3rd millenium we are witnessing the change of our understanding of the world. Many scientists already share the basic positions and significance of this approach. Isolated ideas are being developed in the works of the Russian scientists, like Y. Simakov, Professor of Bioecology (Moscow), I. Kopylov Professor of Moscow Energy College, G. Ivanitsky, Professor of Bio-physics (Puschino), and many others. Still the progress of rhythmodynamics, as a way of integral approach, encounters resistance due to age-old prejudice and stereotypes of thinking. But this will inevitably change.

The list of terms and notions

Field – dimensional distribution of something. In scientific practice the researcher deals with the distribution in space of potentials, gradients, velocities, wave and interference characteristics, etc, i.e. conditions which manifest themselves through action on a test body.

Interference field – a kind of wave picture, emerging as a result of a sum up of waves from two or more oscillators. Interference field can be either static or dynamic. Static field emerges from oscillators of equal frequency.

Deformation of interference field – takes place in the case of a change in phase and frequency of one of the oscillators. The deformation is characterized by the shift of interference bands in space. In the case of phase shift deformation takes place just once, after which interference picture becomes stable. In the case of frequency change interference picture changes constantly.

Spider-effect – n-dimensional interference picture of the distribution of the bands of phase change from oscillators of different frequency.

Zero-amplitude wave – two similar waves travelling in the same direction with the relative phase shift of 180°. In this situation, the formal presence of the wave is impossible to detect because of the absent amplitude.

Zero amplitude photon – the same as zero-amplitude wave, but applies to all radiations of the studied field.

Zero amplitude field – distribution in space of zero- amplitude waves and photons. Amplitude absence is a condition which ensures the field's maximum penetrating ability.

Non-radiating particle – open spherical system of oscillators of equal frequency, the wave field of which becomes localized in the inner part of the sphere. The outer wave field is absent [4].

Wave crystal lattice – package of standing waves, with atoms in its nodes. The size of crystal lattice is determined by atoms own frequency ($\sim 10^{18}$ Hz).

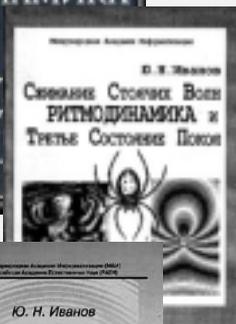
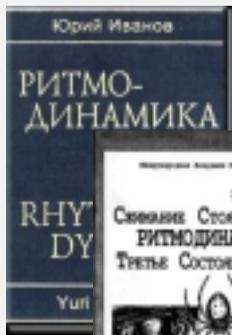
Energy comfort area – while in the wave crystal lattice the atoms are positioned in the nodes, during the phase shift of one or a number of atoms a shift of the lattice nodes in regard to the atoms takes place. Here we speak of a shift of energy comfort area, and thus a reaction of the atoms to it.

Frequency space – a way of seeing and describing the world by means of introducing the frequency system of coordinates. From the position of frequency coordinate system the manifest world is presented as a thin spherical layer, frequency interval [3].

Frequency horizon – threshold of ability to observe the developments, determined by the inborn frequency limitation of observer's perception band.

Frequency-metric system of coordinates – space-time system of coordinates, in which time axis is replaced by frequency one. Frequency-metric system allows a partial, sometimes complete, escape from the necessity of introduction of additional dimensions when describing various phenomena.

Gravitational drift – body movement in the wake of a moving area of energy comfort. Gravitational drift emerges as a result of phase-frequency discordance of the body's atoms under the influence of gravitation field.



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Main formulas

Velocity:

Former formula: $V=S/t$

New formula: $V=c/\pi \cdot \Delta\varphi$,

where $\Delta\varphi$ – shift of phases between nearest system oscillators.

Speedup:

Former formula: $a=dV/dt$

New formula: $a=2c \cdot \Delta\nu$,

where $\Delta\nu$ – difference of frequencies between nearest system oscillators.

Transformation molded classical mechanical engineers in rhythmodynamic is realized by the substitution in first new expressions for the velocity and speedup. For instance:

Pulse:

$p=mV$ (Former formula)

New formula: $p=mc/\pi \cdot \Delta\varphi$

Power:

$F=ma$ (Former formula)

New formula: $F=2mc \cdot \Delta\nu$

Other formulas will converted by the similar image. Offered to do this by itself (you will pleasantly be delighted), whereupon answer a question: Manage rhythmodynamic to find a connecting-link between classical and quantum mechanical engineers?