The law of stratification in wave vortices.

Abstract. In the wave vortices, the energy is capable of winding itself onto itself and at the same time being redistributed.

An attempt to find formulas for elementary particles.

So, there is a discrete set of solutions to the wave equation, which, according to our hypothesis, creates elementary particles. Let's try to realize the star dream of many scientists: to look into the internal arrangement of elementary particles and ball lightning (this was November or December 2002). It seems to us that this is possible with the volume of knowledge on spherical and cylindrical functions accumulated in mathematical reference books. We start with the scalar quantity, the energy density of the loks (wave vortices). Initial wave equation:

The uniform formula of all Matter, of all Particles, of all Fields and all Quantums of our Universe:

$$\frac{\partial^2 \mathbf{W}}{\partial t^2} - c^2 \Delta \mathbf{W} = 0;$$

$\overline{\mathbf{W}}$ - displacement vector of elastic space

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Practically all the physical quantities appearing in the current quantum mechanics and described by the Schrodinger equation satisfy the wave equation. The same can be said about the energy of loks.

A particular solution of the wave equation: spherical standing waves.

$$W_i(r,\theta,\varphi,t) = \frac{C^i_{j,m}}{\sqrt{r}} \bullet J_{j+\frac{1}{2}}(kr) \bullet Y_{j,m}(\theta,\varphi) \bullet \cos(\omega t + \delta)$$

i=1,2,3 (cartesian); j=0,1,2,...; m=0,1,...,j; c - speed of light;

ω - frequency; λ - wavelength; $\lambda \cdot \omega = c$; $k = 1/\lambda$;

$C^i_{j,m}$ - constants; $J_{j+1/2}$ - Spherical Bessel function;

$Y_j(\theta,\varphi)$ - spherical surface harmonics;

$$Y_j(\theta,\varphi) = \Phi_m(\varphi) P_j^m(\cos\theta);$$

$$\Phi_m(\varphi) = (const_1 \cos(m\varphi) + const_2 \sin(m\varphi));$$

P_j^m - Adjoint order function m and rank j;

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P^m_j - Adjoint order function m and rank j

$$P^m_j(x) = (1 - x^2)^{\frac{m}{2}} \frac{1}{2^j\, j!} \frac{d^{j+m}}{dx^{j+m}} [(x^2 - 1)^j]$$

i=1,2,3 (cartesian); j=0,1,2,...; m=0,1,...,j;

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What is attractive about this decision? - The fact that it gives a discrete spectrum of functions, and the energy spectrum of elementary particles is also discrete. The fact that the amplitude of spherical harmonics decreases with distance from the center. And the energy spectrum of elementary particles also decreases with distance from the center. The fact that it allows conversion into a vortex wave, creating its own moment of rotation - the prototype of the future spin of elementary particles.

And what else is it attractive? - The fact that it is, implicitly, used in the current quantum physics. Why is it implicit? Perhaps the reasons were the same, which we will indicate below.

As is obvious to everyone, there is a functional connection between the displacement of the W and the density of the lok energy at a given point. More (less) displacement - more (less) energy density at this point. It can be shown that the energy density is described by the same kind of formulas as the above solution for displacement. As in all mechanics, energy is the square of the elastic displacement. $E \sim W^2$. One can also prove that if the integral over the space converges on the energy density of the lok, then the integral over the space of its displacement at each point multiplied by the volume element also converges. The converse is also true. That is, to estimate the energy of the lok, one can use the solution for the displacement W. So, let us try to integrate over the space the solution obtained for the square of the displacement W^2.

Alas! Alas! Alas! We are faced with an insurmountable barrier. Although the solution itself tends to zero at infinity as well $(1/r)^{3/2}$. But when integrating over space, it does not give a finite value. We can not satisfy this decision.

The search for other solutions to the wave equation does not lead to success. We find ourselves in a broken trough. Such a good idea and such hopelessness. This circumstance pushes back the sweet dream of touching the electron in the distant future. Honest mathematicians close the ink tanks and dry feathers. Sly mathematicians come up with **"quantum operators", the Schrödinger formula,** and continue to work secretly with the same decision. Fortunately, the results obtained, surprisingly enough, are satisfactorily confirmed by experiments. But in parallel there are publications about the **"electrodynamic divergence"** that appears here and there, which has the same nature as our attempt to integrate spherical functions over space.

A detailed analysis of the shape of elementary particles is postponed until better times.

A later note. The best times will come very soon, literally in three months.

The phenomenon of wave stratification.

Let us recall the breakers on the water behind the ship. The wave eddies in the gukuum are similar to such breakers. But how are they different? The fact that the breakers on the water - it's moving around the circle of matter. And wave whirlwinds are vortexes of vibrations in matter, without moving the substance itself in a circle. And what does it give? And this gives something, at first glance, imperceptible. The substance has the property of keeping the volume when moving for any given area of this substance. For example, the allocated volume of water can change its shape while moving, but the volume remains unchanged. This can not be said about the wave in matter. Waves in an elastic body can safely pass through each other, cross each other, overlap. And this is exactly what happens in a vortex wave. The vortex wave runs not along a calm elastic medium, but along an excited elastic medium. The wave runs by itself. The **winding of the wave** occurs. Fantasy? At first glance yes. But further results confirm this fantasy.

The closer to the center, the more intense this winding. The more the energy of the selected volume element is obtained. It can be shown that the energies of the layered oscillations are summed. Here come two intersecting waves of waves. Each has its own energy density and its own energy flow. As these pallets pass through each other, it means that the energy flows do not mix, do not exchange, as they went and go. In the first approximation, the wave excitation proceeds equally along both the unexcited element of the gukuum and also intersecting with any other excitation. From what has been said it follows that at any point of their intersection the energy density in space is equal to the sum of the energy densities of each of the streams.

The same can be said for a wave running in a circle. She runs by herself. That is, the energy of the wave is layered on itself. And the energy of the vortex wave at the point is greater than the formal mathematical solution. How much more? How many times? How can this ratio be estimated? This coefficient can be estimated by comparing the number of revolutions a vortex wave makes per unit of time. For what unit of time to count the number of revolutions of a wave in a lok - this is not essential. Here, only comparison, relative quantity is important. Since the "number of turns" of the wave is inversely proportional to the radius of rotation r, the factor for the energy element simply appears in the formula ~ $(1/r)$**.** At the same time, since the total energy of the lok is constant and finite, the energy redistribution comes into play. Closer to the center there is an excess over the formal solution. Energy as it contracts to the center of the wave vortex.

In fact, since the wave is layered by itself, all the circular layers are coherent to themselves. Therefore, not the addition of energies, but the addition of oscillation amplitudes (voltages). This is an important point. As a result, the formula for the energy includes the factor not $(1/r)$, but $(1/r)^2$.

And all, do not strain. The original wave equation remains unshakable. Everyone knows the solution - also unshakable. *But you need to calculate the energy correctly!* Behind external simplicity there is a great difficulty, because, all the biggest minds asserted and assert that you can not extract much from the wave equation in the elastic body. Let us recall the quotation from Einstein. The wave equation is linear, all its solutions are also linear. And the universe, as is known, is not linear. However, the phenomenon of stratification just creates a nonlinear universe from linear mathematical solutions.

The law of stratification and the model of an elementary particle.

We give the findings and methods of action to mathematicians, let them tear them apart like a Tuzik rag. There are a lot of discoveries for us. There will be a complete computer simulation of all nuclear processes. There will be hundreds of defended dissertations.

With the help of these principles, some analysis can be made and it is possible that it will give some new connection between the world constants. All this is a matter of the future.

LAW OF SUPPLY. *Elementary particles are formed by waves running around the center around the center. In this case, the purely mathematical solution of the wave equation does not reflect the real energy distribution in the elementary particle. To take* *into account the real energy density at a given point, a functional factor must be introduced into the solution, which is proportional to the number of wave passes through this point in a fixed time interval.*

Here are the arguments in favor of the fact that the functional factor is equal to $(1/r)^2$.

1) How many times a wave passes through a given point - it does not matter. It is important to compare the number of passes at different points per unit time. The number of passes (at a constant speed of a wave equal to the speed of light) is inversely proportional to the radius of motion. A circling wave (of the elements of the loks) is coherent to itself and as a result only the displacements, the amplitudes of the waves, are summed. Summarizes all (energy, momentum, amplitude of oscillations), which is linear with the solution of the wave equation, linearly with displacement. Of course, as long as the process remains within the framework of Hooke's law. That is, the correction factor for the amplitude of the voltage oscillations in the lok is $(1/r)$. Energy in this virtual world is not the main, but the derivative value and is determined by the square of the amplitude. Consequently, the correction factor to the value of the energy density of the lok must be equal to $(1/r)^2$.

2) Finally, it is not yet established why the factor $(1/r)^2$ and not $(1/r)$. This is only confirmed by the complete coincidence of the theoretical results obtained with the experimental results. An attempt to delve into the strictly justified conclusion of this multiplier leads to a philosophical abyss and again to the search for a box containing all the boxes.

3) The fact that the energy of the wave vortex has the ability to contract toward the center leads to the observation that adjacent layers rotating around the axis at distances r and $r+dr$ rotate with slightly different angular velocities, but they are in direct contact, and thus interact with friend. This means that some tension is created in the relations between these two layers, which leads to a flow of energy closer to the axis of rotation.

4) Here is one more, comic illustration. Imagine a smooth round panel, with a diameter of eleven meters. On this panel, after every 10 cm, very smooth, deep concentric grooves are cut, with a width and depth of about 5 centimeters, ten pieces. In each furrow with the same linear speed, electric machines with a width of 4 cm and a height of 4 cm are launched, only ten pieces. Each machine, it has a scratching (or current-hitting) projection from above, which slightly protrudes above the top edges of the furrows of the panel.

Further. On this structure, on this panel, several big dogs lay in different places (not on one radial line). Say, ten dogs. One lies near the center, on the innermost furrow. The second - on the 2-nd from the center of the furrow. The third is on the third furrow, and so on. The tenth dog crouched on the very extreme, 10th furrow.

Now, even when the machine rolls under the dog, it scratches it with its scratching device over its fur (or beats current) and the dog experiences discomfort or wakes up if she has already fallen asleep.

From rolling each machine under each dog, they all experience the same discomfort. The machine in each furrow is the same, one by one. The linear speed of the machines is the same. Clippers are not braked after every scratch and every turn, they have powerful batteries. That is, for each dog, conditions like the same: the same machines, the same linear speed of machines, and 1 machine per furrow. A complete analogy with localized objects in elastic gukuum.

Does this mean that for a certain period of time all dogs will experience the same total discomfort? Which of the dogs sleep better? Which of the dogs does the wool wear out more? Which of the dogs will the bald patch appear earlier?

Question: By what law will the average discomfort D be distributed in time, depending on the number of the furrow N? Meditation gives such a dependence:

$$D(N) \sim 1/N;$$

This is an illustration of the law of stratification. This illustration could be developed by making a definition of the type of "accumulated irritation," which increases according to a quadratic law. But this is next time.

On this argument ends before the connection of solid mathematicians.

In conclusion, we repeat again and again many times: the law of stratification has not been fully and rigorously proved by us - there is no time. The only justification for him is the coincidence of all our further theoretical results with all the experimental data accumulated in physics. As the Americans say, if an animal is like a duck and still swims and quacks, it means that it is a duck.

Russian: http://universe100.narod.ru/
English: http://universe100.narod.ru/002-Oglavlenie-angl-jpg.html
dubinyansky@mail.ru