

# OTVS - Model of the general theory of all forces.

Sha S.V.

This is not a Theory, but only a Model of the Theory. Research on the torsion approach is conducted here.

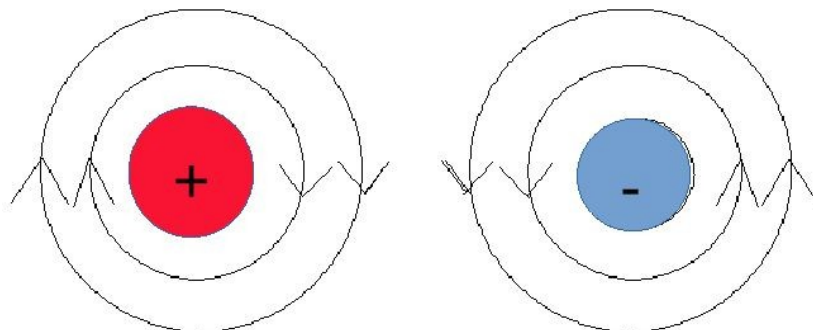
## Content

Electromagnetic fields.....	1
Charge, gravity and mass.....	2
Quantum mechanics.....	4
Quantum gravity.....	4
How to control gravity.....	5
Gravitons.....	6
Strong and weak interaction.....	6
Charge of quarks and leptons.....	7
Proton.....	7
Quantum Field Theory.....	8
750 GeV.....	9
All forces.....	9
On the discreteness of space, time and motion.....	10
Inverse square dependence of the field on distance.....	10
About the "Möbius Strip" for Neutron.....	10
About Ether and Quantum Mechanics.....	10
About Superpositions.....	11
Types of quarks.....	11
Strong interaction of quarks with the same electric charge.....	11
1) The centers of the quarks almost coincide.....	11
2) Large distances between such quarks.....	12
The necessity of Fermat's Last Theorem (FLT) for neutrons in any n- dimensional space, $n > 3$ .....	13
Corpuscles.....	13
I like such particle.....	14

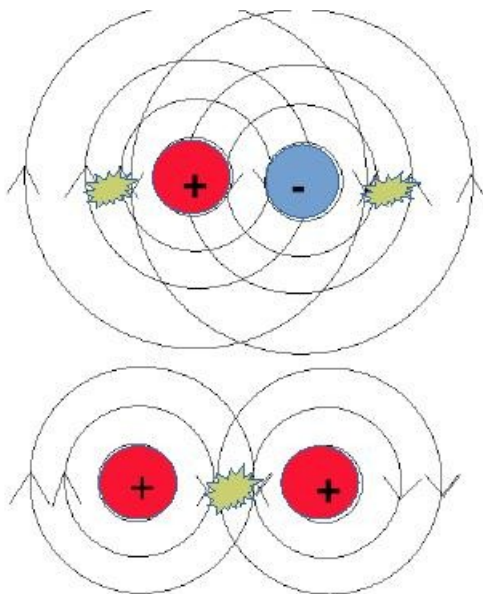
## Electromagnetic fields.

Any particle consists of a nucleus and a field. The nucleus and the field in turn must consist of smaller particles. Let's call them corpuscles. If the corpuscles do not fly in closed orbits, they will fly away and the particle's reserves of matter and energy will quickly run out. Therefore, corpuscles must fly in closed orbits.

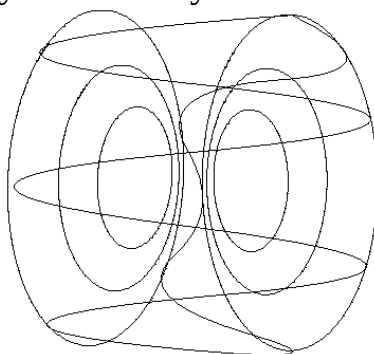
In the two-dimensional case, corpuscles can fly clockwise and counterclockwise. This can explain positive and negative charges.



Then the flows of corpuscles of opposite charges easily penetrate each other and collide only outside the charges. The collisions push the nuclei towards each other. And the same charges collide between the particles and push the nuclei apart. This is how the attraction of opposite charges and the repulsion of the same charges occurs.



In the three-dimensional case, a sphere cannot be formed by closed motion of corpuscles. There is such a theorem in topology. That is why tori are obtained.



But the magnetic field of currents can be imagined as the movement of corpuscles along spirals. Spirals of similarly directed currents easily penetrate each other, and from the outside the corpuscles collide, attracting them. With opposite currents, collisions of corpuscles occur between the currents, pushing them apart.



When the torsion currents move, the spirals created are less spread away from the axes than in free torsions. The spirals are obtained as secondary movements of corpuscles in torsions along the axis (the case of electrical interaction is described by the movement of corpuscles around the axis, and this movement is denser). All this explains the dependence of the magnetic interaction force of currents inversely proportional to the 4th power of the distance between the wires.

## Charge, gravity and mass.

The repulsion of like charges and the attraction of unlike charges have a slight asymmetry (see the pictures above . There, the "explosions" between the same charges and different charges are asymmetric). In one case, the particles should be closer, and in the other, further from each other. This asymmetry can explain the gravitational attraction and its smallness

compared to electromagnetic fields. Also, changes in the electromagnetic field can explain the large error in determining the gravitational constant.

Also. " 01. OTF - Total Theory of allPhysics" states that the nucleus and the field of a particle have different measures of motion, and therefore must interact.

And how to interact is explained in this article about torsion:

It is quite logical to replace the very concept of a particle with the internal turns of a field, and the entire field with the external turns. They rotate in opposite directions.

If a force is applied to a particle, the particle's core begins to collide with its field, which resists (the particle's core is the internal spiral of the torsion, where the corpuscles fly in the opposite direction). This is how the particle's mass can be explained. And, in general, the very concept of mass. That is, the mass is determined by the density of the field's turns squared (the number of field turns is multiplied by the number of core turns). Gravitational interaction, caused by the asymmetry of the interaction of identical and different charges, is also proportional to the density of turns squared (the electric force is primary and proportional to the number of field turns, while the gravitational force is secondary, and as a correction, should be proportional to the square of the number of turns), therefore, gravitational and inertial masses are proportional.

The electrical interaction between the particle fields is determined by the number of turns of each particle's field, so the electric charge is proportional to the number of turns of the field, and therefore proportional to the square root of the mass.

In addition, the inertial force is proportional to the square of the corpuscle velocities, since the oppositely flying corpuscles of the field and nucleus interact (hence the square). And it is proportional to the radius of the particle. It turns out that the dimension of the inertial force is proportional to the length to the 3rd power and time to the power of -1. The dimension of the charge is the root of this force, i.e.  $[e] = [M]^{1/2} [L]^{3/2} [T]^{-1}$ , where M is the mass, L is the distance, T is the time. This corresponds to the dimension obtained from Coulomb's law.

Therefore, inertial mass is an internal matter of the particle. And from this it follows that the force of inertia is not a fundamental force.

If we take Newton's LUG  $ma = G \frac{Mm}{R^2}$  and Coulomb's law  $ma = \frac{ee}{R^2}$ , we get the impression that  $[e]=[m]$ , In fact, there can be two options here:

1) G is not dimensionless;

2) the gravitational mass is constant, and the inertial mass depends on the speed.

In any case, from Newton's LUG with dimensionless G it follows that the mass is expressed in  $[m]=[L]^3 [T]^{-2}$ . And from here it follows that the charge is also expressed in  $[e]=[L]^3 [T]^{-2}$ .

But the charge does not depend on the speed  $[L][T]^{-1}$ , which means G has a dimension. And therefore G changes with speed and distance. And in general, since the charge does not depend on speed, it is dimensionless. Therefore, in fact, the mass is expressed in  $[M]=[L]^3 [T]^2$ .

So we must use Einstein's GTR, but in addition we must take into account that G can change.

Although the asymmetry of the action of like and unlike charges is unlikely to explain gravity. The fact is that for neutral particles the EM field was represented by both photons with momentum from the particle and vice versa. But neutral particles have no field. The hypothesis requires a double field, each part of which neutralizes the other. You can conduct an experiment: put a grounded screen between charged particles and measure the increase in

temperature. The fields will start to act on the screen, and it will heat up a little. And then put a screen between neutral particles. It should heat up by about  $4/3$  more due to the fact that in a neutral particle  $+2/3$  and  $-2/3$ . Which is unlikely to happen. So, the gravitational field is unlikely to be generated by the electromagnetic one.

Or another case: electromagnetic fields do not come out of a black hole, but gravity does. So my explanation is most likely wrong. Or does something come out of a black hole?

In support of gravity as a product of the electromagnetic field, there is the sameness of their propagation speeds in a vacuum, equal to the speed of light. And in all formulas, the charge is always included in proportion to the mass. This theory of gravity can also explain the Hyperinflation at the beginning of the birth of the Universe: until matter cooled down to the formation of quarks or smaller particles that form electromagnetic fields, there was no gravity and the Universe could fly apart freely at any speed.

The solution is that at a certain distance from the neutral particle, the field becomes zero, and the gravitational asymmetry of the electromagnetic field turns into gravitons, which somehow act on another charged particle, in any case, attracting it. Or gravitons at a certain distance from the charged particle open up and act as a double field plus and minus.

The electromagnetic field is caused only by the outer turns.

## Quantum mechanics.

In order for the corpuscles not to fly off to infinity and for the particle to exist for a long time, it would be necessary for the corpuscles to move around the particle in closed orbits.

- In order for the corpuscles to move in closed orbits, another force field is needed that would hold them.

- If another force field diverged radially from the particle, it would dissipate in space and the particle's field would not exist for a long time. Therefore, the corpuscles of this Other field must also move in closed orbits. And in order for these fields to somehow differ and interact, there must be some phase shift.

- Moreover, in this case, the corpuscles of the First field also bend the orbits of the Other field. Which is very good and does not require complicating the model. In turn, the corpuscles of the Other field bend the orbits of the corpuscles of the First.

=====

So.

- The First field is a wave function in quantum mechanics .

- The second field with a phase shift is the conjugate of the First wave function, the Second wave function.

- Their interaction in the first approximation is expressed through the product of these wave functions . And to obtain a general expression, it is also necessary to integrate over the entire space.

-----

This is how I explain the need for wave functions in quantum mechanics. And so, through the integral of the product of a wave function by a complex conjugate of another wave function, the interaction of particles and fields in quantum mechanics is described.

## Quantum gravity.

- The mass of the body is determined by the interaction of the torus core and the outer turns.

- Gravitational mass is determined by the same thing, taking into account the asymmetry of attraction and repulsion of electrically charged particles.

- For the closure of torsion fields, another such field is required, only with a shift.

Therefore, in ordinary quantum mechanics, they take into account  $\int \Psi^* \hat{f} \Psi^1$

And in quantum gravity, fields  $\Psi^*$  interact  $\Psi$  to bend each other's trajectories, but these fields affect the interactions of torsion particles separately. That is, it would be necessary to apply  $\int ((\hat{f}^* \Psi^*)^2 + (\hat{f} \Psi)^2)$ . This can be confirmed by the Taylor series, in which the asymmetric term is followed by a symmetric one (and then again by an asymmetric one, etc.).

## How to control gravity

In fact, the field consists of fields of different particles. We will not write the coefficients, but simply write for one component of the field:

$$1 \pm \Psi^* \pm \Psi$$

Let's multiply by the second component of the field.

For simple gravity, where everything is chaotic and uniform, we get:

$$(\Psi^{*2} + \Psi^2).$$

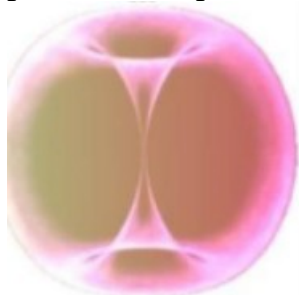
And for quantum physics, where interaction is described:

$$\Psi^* \cdot \Psi.$$

In fact, without averaging over all particles, you should get:

$$1 \pm \Psi^* \pm \Psi \pm \Psi^* \cdot \Psi \pm \Psi^{*2} \pm \Psi^2 \dots \text{And this can already be controlled.}$$

And for me, the speed of light and gravity can be overcome by ordering elementary particles in space. For me, quarks are torsions.



So, they need to be aligned along the axis. Gravity is also connected with torsion and can also be overcome.

There is an idea to justify the graviton spin equal to 2.

If the spin  $\Psi$  takes the values  $(-1, +1)$  for a boson, then the spin  $\pm \Psi^{*2} \pm \Psi^2$  takes the values  $(-2, 0, +2)$ . For example,

$$(-1)^2 + 1^2 = 2 \text{ or}$$

$$-(-1)^2 + 1^2 = 0, \text{ or}$$

$$-(-1)^2 - 1^2 = -2.$$

Which is what is required of all theories of quantum gravity.

But fermions with spin  $(-1/2, +1/2)$  come to  $(-1/2, 0, +1/2)$ . For example,

$$(1/2)^2 + (1/2)^2 = 1/2 \text{ or}$$

---

<sup>1</sup>Non-commutativity  $\int \Psi^* f \Psi \neq \int \Psi f \Psi^*$  is explained by the fact that the interaction of external turns with internal ones, on the one hand, cannot be equated to the case when external turns become internal, and internal ones become external. An asymmetric interaction is obtained.

$$-(-1/2)^2 + (1/2)^2 = 0, \text{ or}$$

$$-(1/2)^2 - (1/2)^2 = -1/2.$$

## Gravitons.

In OTVS, gravity is explained by a slightly greater electromagnetic attraction of unlike charges than by the repulsion of like ones. To generate gravity, it is necessary that fields (photons) of opposite charges be present at a distance. Then neutral bodies would generate huge streams of photons. Each particle would have its own field. Everything around would be burned. This is not the case. The fields do not add up, but are missing. And therefore there is no gravity.

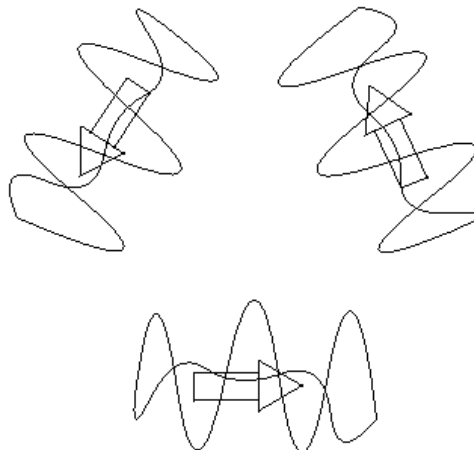
A contradiction arises. Most likely, gravitons are generated not by photons, but by other bosons. It looks like the Higgs bosons are inside the particle. And then the gravitons fly on their own.

## Strong and weak interaction.

Let's represent the torsion bar as follows:



If we imagine a proton as 3 quark-torsions, the torsions would form a triangle, interlocking at the edges. Since the quarks in the proton are positively charged at  $+1/3$  of the proton charge, they repel each other with their side surfaces, but are attracted by their torsion holes. In addition, a triangle is a stable figure and does not bend, unlike 4-, 5-, etc. polygons. You cannot make rigid structures from them. Therefore, we get a stable figure of three particles. There is no need to introduce "three colors", as was artificially done in QCD.



The neutron also has 3 quarks, and also in the form of a triangle, but the charges are different: two at  $+1/3$  and one at  $-2/3$ . Here, the positive charges are well connected by the edges, but the negative one has a reverse rotation at the junction with the positive ones. There is only one way out: additional microparticles must be added so as to coordinate the directions

of rotation of the field particles. This can be done with the help of microparticles that have a field movement/rotation along the Mobius strip. See the figure: Neutron

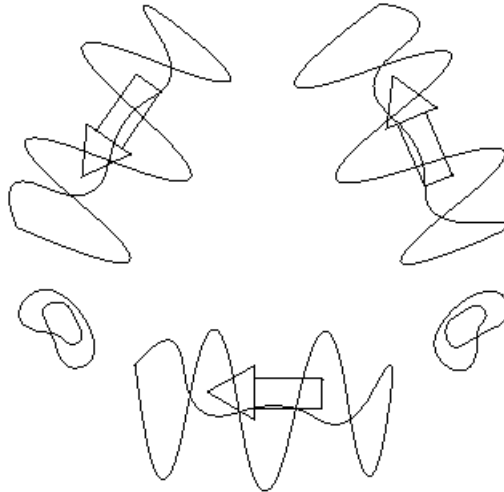


Рисунок 1: Нейтрон

The binding microparticles make the structure unstable, which is why the neutrons do not live long.

There are two microparticles, and we can assume that their mass is comparable to the mass of an electron, then it becomes clear:

- why is the neutron heavier than the proton, and precisely by 2 times the mass of the electron;
- why is the proton stable, but the neutron is not;
- and why, when a neutron decays, additional vortex particles (neutrinos) are formed.

The half-life of a neutron is inversely proportional to the 5th power of energy. It is the 5th power that indicates the presence of 5 subparticles in a neutron.

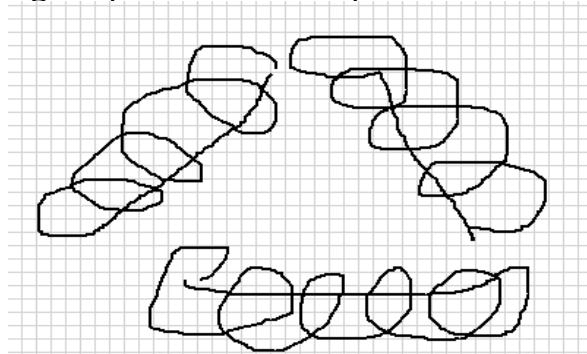
## Charge of quarks and leptons.

It is quite possible that the charge is the movement of corpuscles in a circle. Then the charge of quarks is also not proportional to  $1/3$ , but 1. The proton has 3 quarks united in a circle and the charge goes from  $3 \times 1$  to 1, but the neutron does not have a circle and the charge is 0. The lepton also has 1 circle and a charge of 1.

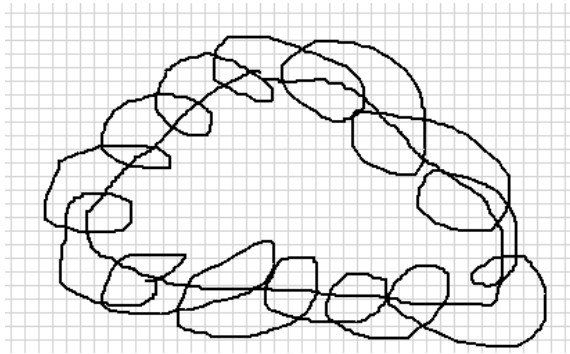
This is at close distances, but at large distances virtual particles work and the charges add up there.

## Proton

An ordinary proton, consisting of quarks, can be represented as follows:



But it can also combine the trajectories of the field particles. Then we get a compressed proton:



Mass is determined by the opposite direction of the external and internal flow. This is for positive mass. And if there is co-direction, then the mass will be negative. In the absence of internal flow, the mass is zero.

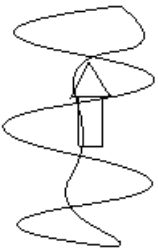
**Most likely, the united proton is the real proton and it should live forever, and the disunited one is the A particle, which lives  $10^{-23}$  sec.**

## Quantum Field Theory.

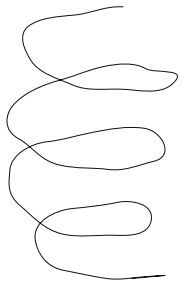
The mass of a particle is determined by the oppositely directed flight of the field particles in the core and outside the particle.

Virtual particles have no mass, therefore they do not have such a core. In addition, they exist in pairs: particle + antiparticle.

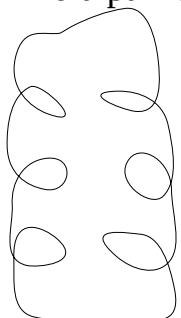
If a particle can be represented as follows:



Then the virtual particle is like this:



And a pair of virtual particle + antiparticle like this:





The field of a real particle is expanded into a sequence of virtual particles and their pairs, just as a function is expanded into Taylor series.

Torsions do not have spherical symmetry. And it seems that close to the middle of the torus this is the case. But at a large distance, when the field particles no longer fit into the middle, the spherical symmetry of the electromagnetic field is provided by virtual particles.

I wrote all this because I just wanted to chat.

Lonely massless particles, i.e. without a core, have only an external vortex. And the vortex determines the non-zero spin. A particle cannot have no core and an external vortex at the same time.

Such a particle must also constantly move at maximum speed in order to reproduce itself.

## 750 GeV.

There was a suspicion of a particle at 750 GeV, and Higgson has 125 GeV. 750 is 6 times greater than 125. So, if the proton quarks have one turn of the spiral both inside and outside, then with 2 external and internal turns of one of the quarks, the mass of the entire particle due to the force of interaction of the external and internal rings will increase by 2 times.

It was  $1*1+1*1+1*1=3$ .

It became  $1*1+1*1+2*2=6$ .

$6/3=2$ .

For 3 quarks the mass will increase by  $2+2+2 = 6$  times. And Einstein's energy, being potential, will increase by 6 times.

This particle must be as stable as a proton, and may be even stronger, or may not.

In any case, this should explain why the 750 particle should be very stable and only detectable at 750 GeV. At higher or lower energies it may not be detectable.

Higgson is described in the "01. OTF - Total Theory of all Physics". It is the result of interaction of different particles. In particular, there is an example of a proton and an electron. And if instead of a proton we take a particle 750, we get Higgson 750. Which determines the ratio of 750 GeV and 125 GeV.

$750/125 = 6$

Dark matter / Visible matter = 6.

## All forces.

**Electromagnetic** force explained.

**Gravitational** explained.

**Strong** is the interaction through the ends of the torus. It is stationary, so we must take into account the potentials from the distance.

**The weak** force is the interaction in the neutron through the Mobius particles. And such an interaction requires describing through flows, not distances.

## On the discreteness of space, time and motion.

It is now popular to talk about the discreteness of space and movement. In fact, this discreteness can be replaced by jumps in continuous space and time between stable states. In torsion theory, stable states are the number of turns of subparticles that occur in the torus. Subparticles are what rotates along the torus. Between the vertices of the torus, these particles can make an integer number of revolutions. These are stable states. If the number of revolutions is not complete, then such a torus is unstable and constantly changes.

## Inverse square dependence of the field on distance.

In my opinion, the inverse square law is not due to the density of the torus corpuscles, but to the fact that the torus, when interacting with another torus, emits virtual pairs of particles (one of them is a virtual electron-positron. There may also be photons and other virtual particles). They are emitted uniformly. Flying away to infinity, such virtual particles generate the inverse square law, since the number in each layer is the same, and the area of each layer is proportional to the square of the distance to the torus.

## About the "Möbius Strip" for Neutron.

- 1) For the existence of tori, a second similar field is needed, but with a shift. Otherwise, the particles of the field would fly apart. Or the tori would quickly waste their energy. I build Quantum Mechanics on these two fields.
- 2) Fields according to "01. OTF - Total Theory of all Physics" are approximately described as  $\frac{\sin(x)}{x}$ . This is a decreasing cosine with phase stretching at  $\pi$  zero maximum. This is important!
- 3) In a photon, to determine the direction of the pulse, it is important whether the electric part is ahead or behind the magnetic part. So it is here. But this shift is squeezed in  $\pi$

The "Möbius strip" can be constructed as follows:

one revolution  $n$  fields do normally, and then one of the fields encounters this shift and  $\pi$  the impulse changes to the opposite. After making another revolution, the other field makes the same shift and everything returns.

The result is a particle with the properties of a "Möbius strip".

## About Ether and Quantum Mechanics

If everything consists of Ether, then the interaction of particles and their behavior is determined by Ether. Then in Quantum Mechanics, the wave function under any conditions must consist of permutations of superpositions of all particles. In the superposition of an electron, not only all electrons must be taken into account, but also protons, neutrons, and all the rest. They consist of Ether. But in fact, only identical particles are permuted.

Explanations: the wave function has the form:  $\Psi = A(1)B(2) + A(2)B(1)$ ,

where 1 and 2 are particles, and A and B are states of particles.

$A(i)B(j)$  is a superposition, and replacing 1 with 2 and 2 with 1 is a permutation of two particles.

So, if everything were Ether, and particles with fields consisted of one Ether, then absolutely all particles would have to be rearranged, and not just the same ones.  
So there is no Ether.

## About Superpositions.

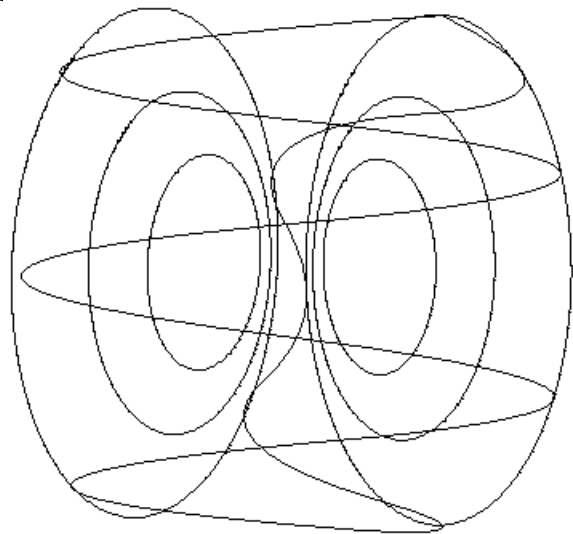
At large distances, electromagnetic particles interact with virtual photons. And they are the same. So how does a particle determine whether there is a positron in front of it, or a proton, an electron, or an antiproton? It doesn't. This is a mistake in the orthogonalization of the eigenstates of the particles themselves. This is the way quantum mechanics is constructed. And then they fight this with various methods of perturbations and everything else. Any particles must be in Superpositions.

## Types of quarks.

I give you the first drawing of the torsion bar again:

As you can see, there can be internal flows in torsion rings. Not only is everything directed in one direction. That is, torsions can be inserted inside other torsions. This explains the existence of several generations of quark-torsions and their different masses and lifetimes.

Thus, torsion quarks can differ in the number of turns of subparticles (particles-molecules) in the torsion and the presence of internal subtorsions, as well as the direction of rotation of the subtorsion flows inside the quark.

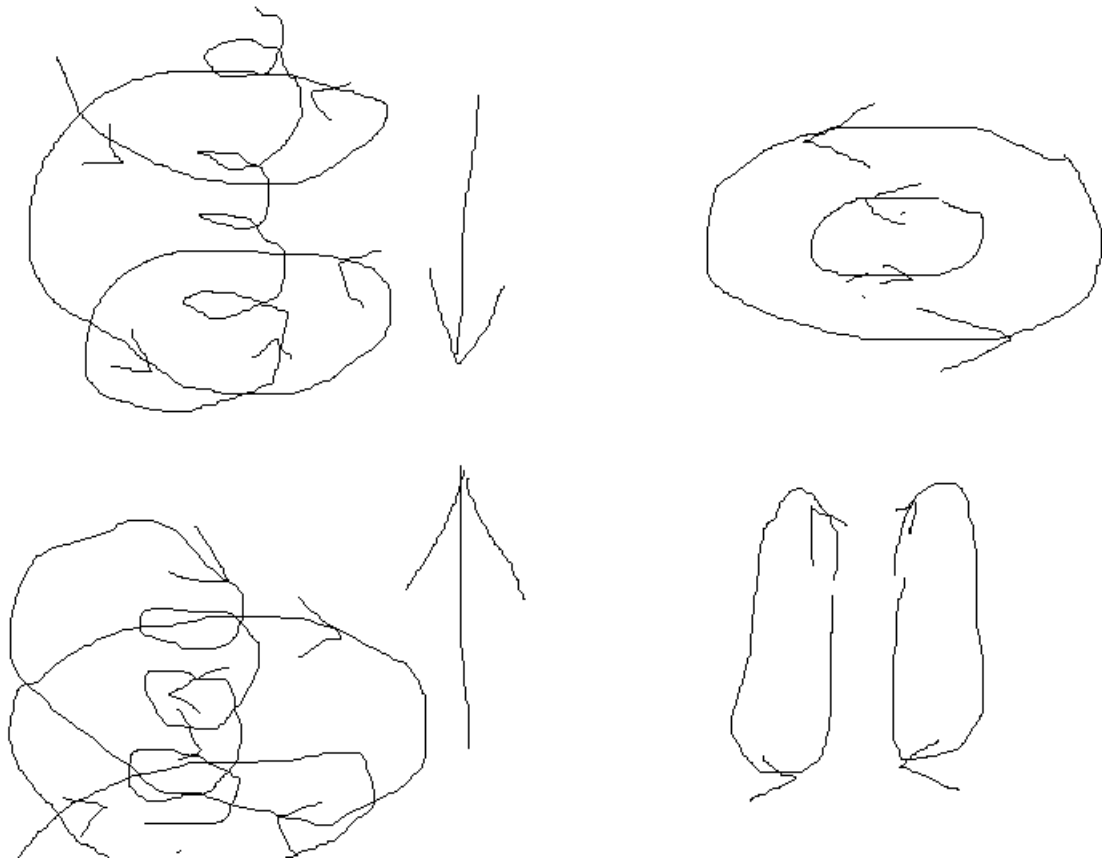


## Strong interaction of quarks with the same electric charge.

Quarks are represented by torsions consisting of subparticles-molecules. They move as shown in the picture. They are joined coaxially. This is what causes the Strong Interaction.

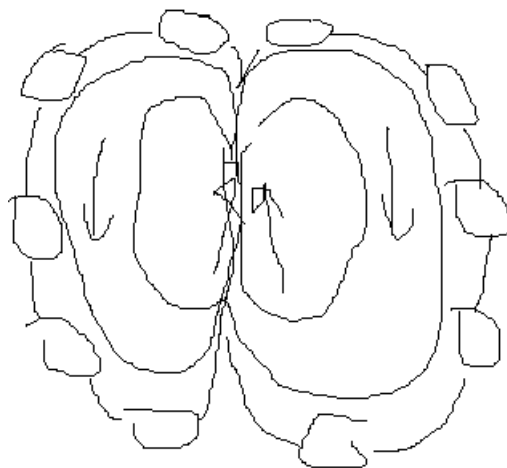
### 1) The centers of the quarks almost coincide.

Upper right picture. If you look at the axis from above, the rotation of the core coincides with the rotation of the periphery, and therefore these circles do not prevent the particles from approaching or moving away. But if you look perpendicular to the axis (lower right picture), the movement of the subparticles-molecules of two identical quarks is opposite, and therefore an "explosion" occurs, and the quarks collide. Which prevents the quarks from merging together.



## 2) Large distances between such quarks.

The outer corpuscles, further and further from the core, are no longer able to make a circle in the torus and form vortices (mesons). With the help of these vortices-mesons, equally charged quarks are attracted. Mesons of different quarks fill the outer layers of quark-tors. Here is a picture:



The result is the Yukawa potential.  $r^{-1}$  is determined by the distance from the core of the mesons, and  $\exp(-r/r_0)$  is determined by the lifetime of the vortex mesons and their expansion velocity.

## The necessity of Fermat's Last Theorem (FLT) for neutrons in any n- dimensional space, $n > 3$ .

According to the FLT, the equation  $0 = a^n + b^n - c^n$  cannot have solutions, for natural numbers  $n > 2$ , a, b, c

1) Charged particles interact electromagnetically through virtual particles (photons). Virtual photons are generated at some distance around the center of the particle (in a certain ring). This ring has a dimension one less than space.

2) The particle consists of quarks (torsions). Quarks are attached to each other by their ends. In order for the connection to be more or less stable, the subparticles of the field (molecules) must fly in spirals and make an integer number of revolutions.

Therefore, for a proton and a neutron, consisting of 3 quarks, their rotations can be designated by positive integer (natural) numbers a, b, c.

3) The neutron has no electric field, therefore in  $(n+1)$ -dimensional space the rings (where virtual photons are born) have a volume, and therefore a number of virtual photons, proportional to the n- th powers of a, b, c.

Since a neutron has two quarks of the same charge and one of the opposite charge, and they should not produce an electric field, then  $0 = a^n + b^n - c^n$ .

Conclusion: Since Fermat's Last Theorem has been proven, stable neutrons do not exist in  $(n+1)$ -dimensional spaces with  $n > 2$  (there are no solutions to the Fermat's Theorem).

This proves that our space is 3-dimensional. And there are solutions  $0 = a^2 + b^2 - c^2$  in natural numbers.

The instability of neutrons in our space is explained by the fact that the quarks of neutrons need additional particles at the junctions in the form of a "Möbius strip").

This particle ("Möbius strip") explains the description of weak interaction through internal Flows (vectors), and not Scalars.

This proves the necessity of the FLT.

I saw a proof of the existence of solutions to the FLT for 4 natural numbers somewhere  $0 = a^n + b^n + c^n - d^n$ . If I find it, I'll post it.

## Corpuscles.

Now let's think about corpuscles.

They interact with each other, forming flows.

When two opposite flows collide, they fly apart in different directions. At the very least, their movement is disrupted.

All these are rather simple and monotonous phenomena.

Consequently, torsions and the corpuscles that comprise them sharply simplify the diversity of physical forces and varieties of states of matter.

**I like such particle.**

