

**Experimental investigations of
demonstrational model of generator
using, presumably, energy of
physical vacuum.**

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ABSTRACT

In this article, a developed, manufactured and tested model of a new type generator is presented, which allows to differentiate and predict , with probability close to 1, coasting characteristics of the rotor during its clockwise and counter-clockwise rotation. An explication of the effect on a base of a new interaction, different from four known ones, is provided.

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1 Introduction.

A model of the observed three-dimensional physical space formation from a finite set of one-dimensional "vectorial" objects, byuons ¹, has been proposed in [1,2]. The byuons $[\mathbf{i}]$ may be presumed to be defined by the expression

$$[\mathbf{i}] = \mathbf{A}_{\mathbf{g}}x(i), i = 0, 1, 2, \dots, k, ..$$

where $\mathbf{A}_{\mathbf{g}}$ is the cosmological vector-potential, a new fundamental vectorial constant, $|\mathbf{A}_{\mathbf{g}}| = 1,95 \times 10^{11}$ CGSE units; $x(i)$ is a byuon quantum charge having the dimensions of length, it has a minimum value $\tilde{x}_0 = 2,8 \times 10^{-33}$ cm.

According to the articles [1-4], all masses of elementary particles are proportional to the magnitude of $\mathbf{A}_{\mathbf{g}}$. Therefore, if the vector potential $\mathbf{A}_{\mathbf{g}}$, say, of a solenoid, is in opposition to the vector $\mathbf{A}_{\mathbf{g}}$, one would expect emergence of a new force in the region of reduced modules of $\mathbf{A}_{\mathbf{g}}$, which force would push a particle and hence the whole of a material out of this region. Terrestrial experiment and astrophysical observations have shown this force to align itself predominantly with the vector $\mathbf{A}_{\mathbf{g}}$, which has, in the second equatorial system, a right ascension $\alpha = 270^\circ$ and declination $\delta = 30^\circ$ [5-9].

Based on a force predicted, a new motion principle of material body can be realized [1,2,10,11], which consists in that a body being entered into a region of physical vacuum with reduced $|\mathbf{A}_{\mathbf{g}}|$ due to the vector potential of a magnetic source, is repelled from this region and, if connected rigidly with a solenoid, for example, entrains it with itself.

Below are considered methods of strengthening the new interaction, constructional approaches allowing to realize these methods, and results of experimental investigations of a demonstrational model of the energy generator.

2 Methods of strengthening the new interaction.

It is demonstrated in the articles [2,8] that the new force

$$F \sim \lambda(\Delta A) \times \frac{\partial \lambda(\Delta A)}{\partial \Delta A} \times \frac{\partial \Delta A}{\partial x},$$

¹ In the works [1,2] the byuon objects were called one-dimensional discrete magnetic fluxes.

where ΔA is the mean value of $|\mathbf{A}_g|$ variation due to the vector potential of the magnetic system in the region of a test body location, $\lambda(\Delta A)$ is a series of ΔA . It was found [2,8] that $\lambda(\Delta A) = \sqrt{1 - v^2/c^2}$ where c is the light speed in vacuum, and v is the velocity of motion of an object **4b** ("four-byuons") coming into existence in the course of the four-contact interaction of byuons. By the object **4b** can be meant a pair neutrino-antineutrino (an electron one). It is precisely these objects that form the Universe [1,2].

A connection between $\lambda(\Delta A)$ and v points to the fact that during the motion if an object affecting \mathbf{A}_g by its own potential, in the direction of the vector \mathbf{A}_g an increase in F must take place.

The paper [12] reviews experimental investigations of the dependence $F = F(v_0)$ performed on a vacuum centrifugal stand when bringing magnetic rotors with different diameters up to speed. It was shown that increase in peripheral rotational velocity of rotors (the angular velocity kept constant) the new force acting on the said magnetic rotors increases, too.

In the course of formation of physical space and elementary particles from byuons [1,2], the most of their potential energy goes into the rotational energy of quantized objects (**4b**-ones and spins of elementary particles [2]), as well as into that of macroscopic objects, - planets, galaxies and the entire Universe (Birch's anisotropy [13]), but the greater part of this rotational energy is in spins of the free objects **4b** which have Heisenberg uncertainty interval in a coordinate being equal to 10^{28} cm [1,2] and, as a mention above, form the space of the Universe.

Thus we may formulate the following main principle of construction of the new force increase mechanism which consists in phase coincidence of the body motion with the process of physical space formation from a finite set of byuons, i.e. the body must rotate and move in the direction required. This direction is indicated by the vector \mathbf{A}_g .

There exist in nature some analogues of the considered principle of the new force increasing. Firstly, this is the surfing, and secondly, the effect of "Landau attenuation" is. If the thermal velocity of plasma electrons is sufficiently high, an electromagnetic wave attenuates rapidly in such a plasma transferring its energy to the electrons.

All the aforesaid can be realized, however, solely on condition that one will be able to penetrate into the formation process of physical space, of elementary particle charge numbers or masses. Otherwise the space observed

will be isotropic and homogeneous as it must according to the existing classical and quantum field theory, and there will be no direction selected.

In our models of the generator, we create a "wave" in space artificially ourselves, with the aid of the vector potential of magnetic system through reducing $|\mathbf{A}_g|$, and take energy away of the Universe's physical vacuum by phasing motion of the body with that of the said "wave".

3 The constructional diagram of the demonstrational model of the generator.

In Fig. 1 a constructional diagram of the demonstrational generator model is shown which was developed and manufactured by the Central Scientific Research Institute of Machinery and the firm "CF". The choose of this diagram was dictated by the above-listed methods of the new force increasing and by reducing to a minimum inductive losses during motion of the bodies in the magnetic field. To create a vector potential (1) field a constant magnet (2) was used, which, together with a magnetic circuit (3), produced a magnetic flux density B in the center of the magnetic system equal to $1.1T$ in magnitude. In Fig.1 the vector potential (1) of the magnetic system is directed, in the region (4) (the shaded one), oppositely to the vector \mathbf{A}_g (5) being perpendicular to the plane of the figure, and in the region (6) the vector (1) is aligned with \mathbf{A}_g . Hence, any body will be ejected from the region (4) in direction of \mathbf{A}_g . Around the magnet (2) a cylindrical drum (7) is situated, in which six bronze rollers (8) are arranged being able to revolve the magnet (2) as the drum rotates clockwise or anticlockwise. The mass of a bronze roller is about 1kg. The overall weight of the drum is near 15kg. The experimental measurements of the magnetic field in the region of the drum have given values between 0.2 and 3 mT, i.e. due to the magnetic circuit we managed to lower significantly the magnetic field in the region of the rotating drum and, hence, to reduce the losses due to Foucault currents to a minimum. The most contribution to dissipation losses during the drum rotation is made by mechanical friction in the bearing (9) as well as by aerodynamical friction. To minimize the latter, the drum (8) was built in the form of a hollow cylinder. The construction of the generator is described in more detail in the papers [14,15].

4 The experimental procedure and results.

The generator is considered as fully working when the drum (7), after being driven up to speed with the aid of a special drive system and detached from it, comes into acceleration under the action of the new force (mainly on the drum rollers). This can be realized only in the event that the new force with increase in angular velocity ω of the drum rotation will be in excess of the friction force associated with dissipation losses which grow with ω , too. To measure angular velocity of the drum rotation, an optoelectronic system was developed, manufactured and tested. This system is comprised of a sensing element measuring rotatory velocity of the generator and a system of signal formation. The sensor operates over an infrared range. Its photodiode responds to a signal reflected from the rotating surface divided into two sectors with different reflectivity of signal coming from a light-emitting diode of the sensor. Further the signal from the photodiode arrives in the form of rectangular pulses at a shaping circuit at which output it has the level of +15V.

With the aid of the optoelectronic system it has been possible to follow the variation of the angular velocity ω of the generator rotation in time t (Fig.2). The following procedure was used. The rotor of the generator was driven up to speed of about 2000 rpm after which the drive system (an electric motor with a drive disc) was quickly drawn aside, and every seven seconds the optoelectronic device gave the mean value of $\omega(t)$ over this time interval.

The first start-up the generator was always accomplished in counter-clockwise direction. Thereafter the rotation was reversed. The clockwise and anticlockwise deceleration curves must be compared in pairs solely since in the course of time the variation of nonmonitored parameters of the experimental set takes place (modification of a lubricant, backing off of rollers from the surface of the cylinder revolved asf.)

In Fig.2 the pair curves of deceleration have the same designation. The continuous curves correspond to clockwise rotation, the discontinuous ones do to anticlockwise. The clockwise rotation correspond to the direction of the new force (in accordance with Fig.1 if viewed from above). As is seen from Fig.2, the rotor deceleration time during the clockwise rotation is by $(20 \div 35)\%$ above that for the counter-clockwise. In 20% of experiments from a series of 30 pairs we have observed a reverse effect. As is seen from Fig.2,

in the range from 1200 to 1500 rpm the most intensive discrepancy between the deceleration curves corresponding to clockwise and anticlockwise rotation takes place. It is in this range that the vibration in the rotor of the generator was noted, and its drive rollers were much more engaged with the surface of the cylinder revolved. Hence, the new force acting on rollers was more efficiently transmitted to the rotor rotating. With time the rollers in experiments backed off from the surface of the cylinder revolved under the action of centrifugal force, and the effect began to disappear in a gradual manner (Fig.2, the curves 8, 8'). When changing the magnet (2) polarity (Fig.1) the curves underwent a reversal, i.e. the rotor decelerated more slowly if rotating anticlockwise than clockwise. Therewith the maximum discrepancy of the curves was at $\omega \approx (1300 \div 1500)$ rpm. Further they ran almost parallel to each other as in Fig.2. In (15 ÷ 20)% of 30 pairs of experiments the reverse phenomenon was observed. Power demands of the drive system corresponding to angular velocity $\omega \approx 2000$ rpm during clockwise and counterclockwise rotation of the rotor differed insignificantly from each other.

Substitution of bronze rollers for magnetic ones having axial magnetization (in this case are fully realized the new principle of motion and the mechanism of increasing the new force) led to considerable difference in power consumption of the drive system at a fixed rotational speed of the generator, or to sufficient (up to 17 consumption of the drive system (equal to $\approx 300W$)). Further increase in angular velocity resulted in breakdowns of roller axes.

When used magnetic rollers more than in 30 pairs of experiments with the generator of the type depicted in Fig.1, the deceleration time of the rotor during clockwise rotation was in none of the cases less than during counterclockwise.

Thus the generator model presented may be considered as a demonstrational one since it corroborates the existence of the new interaction and the realization of mechanisms of its strengthening; but this model gives no way of reaching a condition of self-acceleration of the rotor because of limitations in strength characteristics.

5 Conclusion.

On the base of the new interaction arising when acting on physical vacuum by magnetic systems through their vectorial potentials, a demonstra-

tional model of the generator using, presumably, energy of physical vacuum, was developed, manufactured and tested. The experimental investigations of characteristics of this model have shown that the construction developed allows to differentiate and predict, with probability close to 1, coasting characteristics of the rotor during its clockwise and counter-clockwise rotation. This fully confirms not only the existence of a new force but the mechanisms of its strengthening, too.

The generator model discussed in this article contains all basic elements of ecologically clear generators of future using energy of physical vacuum. The experiments in searching the most effective construction of the generator are being continued.

References

- [1] Yu.A.Baurov, in collected volume "Plasma physics and some issues of general physics", Central Scientific Research Institute of Machinery, 1990, 71-83, 84-91 (in Russian)
- [2] Yu.A.Baurov, Fizicheskya Mysl Rossii (Physical Idea in Russia), N1, 1994, 18-41 (in Russian)
- [3] Yu.N.Babajev, Yu.A.Baurov, preprint **-0362** of Institute for Nuclear Researches, Acad. of Sciences of USSR, Moscow, 1984
- [4] Yu.N.Babajev, Yu.A.Baurov, preprint **-0368** of Institute for Nuclear Researches, Acad. of Sciences of USSR, Moscow, 1985
- [5] Yu.A.Baurov, E.Yu.Klimenko, S.I.Novikov, Dokl. Akad. Nauk, v.315, N 5, 1990, 1116-1120
- [6] Yu.A.Baurov, E.Yu.Klimenko, S.I.Novikov, Phys.Lett., **A162**, 1992, 32-34
- [7] Yu.A.Baurov, P.M.Ryabov, Dokl. Akad. Nauk, v.326, N1, 1992, 73-77
- [8] Yu.A.Baurov, Phys.Lett., **A181**, 1993, 283-288
- [9] Yu.A.Baurov, A.A.Efimov, A.A.Shpitalnaya, Fiz. Mysl Ross., N3, 1995, 10-13 (in Russian)

- [10] Yu.A.Baurov, V.M.Ogarkov, Russian patent N 2023203 with priority of Nov. 11,1990
- [11] Yu.A.Baurov, V.M.Ogarkov, International application PCT/RU 92/00180 of Sept. 30, 1992
- [12] Yu.A.Baurov, V.G.Vergikovskij, Fiz. Mysl Ross., N2, 1995, 21-27 (in Russian)
- [13] P.Birch, Nature, v.298, p.451
- [14] A.Yu.Baurov, V.M.Ogarkov, Inventor's application N 94015479/07 (015210) of Apr. 26, 1994
- [15] A.Yu.Baurov, V.M.Ogarkov, International application PCT/RU 94/00135 of June 23,1994

Fig.1 The constructional diagram of the generator.

Fig.2 The dependence of the rotational speed ω on the time t of rotor coasting during clockwise and anticlockwise rotation (ω , rpm; t , s; 1-8 clockwise , 1'-8' anticlockwise).

