GALILEAN ELECTRODYNAMICS

Experience, Reason, and Simplicity Above Authority

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EDITORIAL POLICY

Galilean Electrodynamics aims to publish high-quality scientific papers that discuss challenges to accepted orthodoxy in physics, especially in the realm of relativity theory, both special and general. In particular, the journal seeks papers arguing that Einstein's theories are unnecessarily complicated, have been confirmed only in a narrow sector of physics, lead to logical contradictions, and are unable to derive results that must be postulated, though they are derivable by classical methods.

The journal also publishes papers in areas of potential application for better relativistic underpinnings, from quantum mechanics to cosmology. We are interested, for example, in challenges to the accepted Copenhagen interpretation for the predictions of quantum mechanics, and to the accepted Big-Bang theory for the origin of the Universe.

On occasion, the journal will publish papers on other less relativity-related topics. But all papers are expected to be in the realms of physics, engineering or mathematics. Non-mathematical, philosophical papers will generally not be accepted unless they are fairly short or have something new and outstandingly interesting to say.

The journal seeks to publish any and all new and rational physical theories consistent with experimental fact. Where there is more than one new theory that meets the criteria of consistency with experiment, faultless logic and greater simplicity than orthodoxy offers, none will be favored over the others, except where Ockham's razor yields an overwhelming verdict.

Though the main purpose of the journal is to publish papers contesting orthodoxy in physics, it will also publish papers responding in defense of orthodoxy. We invite such responses because our ultimate purpose here is to find the truth. We ask only that such responses offer something more substantive than simple citation of doctrine.

The journal most values papers that cite experimental evidence, develop rational analyses, and achieve clear and simple presentation. Papers reporting experimental results are preferred over purely theoretical papers of equally high standard. No paper seen to contradict experiment will be accepted. But papers challenging the current interpretation for observed facts will be taken very seriously.

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The journal also publishes correspondence, news notes, and book reviews challenging physics orthodoxy. Readers are encouraged to submit interesting and vivid items in any of these categories.

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From the Editor's File of Important Letters:

Calculation of Aberration for Laser Location of Earth Artificial Satellites

In order to calculate the aberration correction precisely, it is necessary to conceive the Galaxy's structure clearly. In our work [1], we illustrated the fact that all outer space, including our Galaxy, is filled with ether. Like many other galaxies, our Galaxy is spiral. The ether and the stars form a whirl. In 1985, the General Assembly of International Astronomic Union recommended to use the following values: the distance from the Sun to the center of the Galaxy $R_e = 8.5$ kps, the Sun's speed of rotation relative to the Galaxy's center $V_0 = 250$ km/s [2]. Since the Sun rotates together with the ether surrounding it, in other words, the Sun's speed relative to the ether equals zero, the speed V_0 doesn't affect the aberrated correction.

As a result of carrying out the measurement of the star radial velocity, it was stated that the Sun moves at a speed of 20 km/s relative to closely set stars in the direction of Hercules Constellation [3]. In fact, the Sun doesn't move relative to closely set stars. It spins with the stars at the same angular velocity relative to the Galaxy's center.

The above-mentioned phenomenon in the Galaxy can be compared with the phenomenon in P. Sagnac's experiment [1]. The light, spreading in the spinning Galaxy, transfers oscillatory movements to the particles of the ether. The particles oscillate in the plane that is perpendicular to the direction of the ray of light. At the same time, the particles of the ether are affected by centrifugal and Coriolis forces. Centrifugal forces don't affect the velocity of light. Coriolis forces transfer the oscillating particles the acceleration in the direction that is perpendicular to those oscillations, and reverse to the direction of the Galaxy's rotation. Influenced by Coriolis forces the velocity of light, where the light is spreading in the direction of the Galaxy's rotation, decreases, but the velocity of light, where the light is spreading in a reverse direction, increases.

The particles acquire the acceleration that can be calculated by a formula from [1]:

$$a = C\omega = CV_0 / R_0 \quad ,$$

where C is the speed of light, ω is the angular speed of the Galaxy's rotation. The speed of light decreases or increases according to

$$\Delta V = at / 2 \quad ,$$

where C is the speed of light, ω is the angular speed of the Galaxy's rotation. The speed of light decreases or increases according to

$$\Delta V = at / 2 \quad ,$$

where $a = CV_0 / R_0$, $t = \delta / C$ - a period of time, that the light going from a star to the Sun takes, δ - the distance from the Sun to the closely set stars. Taking into consideration all above-mentioned values we find:

$$\Delta V = V_0 \delta / 2R_0 .$$

Using the formula, we find: **(Continued on p. 8)**

Three Experiments Challenging Einstein's Relativity & Traditional EM Acceleration Theory

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This paper discusses three experiments that challenge Einstein's Mechanics and the traditional Theory of EM Acceleration. The experiments were as follows: **1)** The speed of electrons accelerated by a Linac was measured in order to clarify whether the Linac's effective accelerating force depends upon the speed of electrons or not. **2)** High-speed electrons from a Linac bombarded a lead target and the increase of the target's temperature was measured. **3)** High-speed electrons from a Linac were injected perpendicularly into a homogeneous magnetic field and the radius of circular motion of the electrons under the action of the Lorentzian deflecting force was measured. Analyses of all the three experiments support three conclusions: **1)** The accelerator's efficiency decreases as the speed of electrons increases, and the measured speed of electrons is far less than calculated according to the traditional electromagnetic acceleration theory; **2)** Results of the experiments do not accord with Einstein's formulas for moving mass and kinetic energy, but do conform to formulas in a new electrodynamics of moving bodies; **3)** The third experiment proves that the effectiveness of the Lorentzian deflecting force also depends upon the speed of the deflected electrons.

1. Introduction

According to Einstein's relativistic mechanics, if an object with static mass m_0 moves at speed V, then its moving mass is $m = m_0 \Big/ \sqrt{1 - V^2 / c^2}$ and its kinetic energy is $E_k = (m - m_0)c^2$. Scientists have done experiments with high-speed electrons to examine these Einsteinian formulas. Most experiments were based on the traditional electromagnetic acceleration theory, which deems the electromagnetic force acting on a moving electron to be independent of the speed of the electron.

Some scientists doubt the Einsteinian formulae and the traditional electromagnetic acceleration theory. To investigate them, we have used high-speed electrons emitted from a linear accelerator (Linac) to do three kinds of experiments [1,2]:

1) To measure the speed of accelerated electrons, in order to calculate the kinetic energy gained by the electrons and compare it with the energy spent by the Linac.

2) To bombard a lead target with high-speed electrons and measure the target's temperature increase due to the kinetic energy of the bombarding electrons.

3) To inject high-speed electrons perpendicularly into a homogeneous magnetic field and measure the radius of circular motion of electrons under the action of the deflecting Lorentz force.

All the three experiments were conducted on a femto-second Linac at Shanghai Institute of Applied Physics. The experiments provided clear data to check the traditional electromagnetic acceleration theory and the formulas of moving mass and kinetic energy. By analyzing the data from the three experiments, this paper proves:

1) The actually effective force exerted by an accelerator on moving electrons depends upon the speed V of the electrons. There exists a '$c - V$ phenomenon' (or 'wind-sail phenomenon') so that the higher the electron's speed V is, the less efficient the Linac is. Traditional electromagnetic acceleration theory is incorrect. The endless pursuit of accelerator's power, including the construction of the costly European Large Hadron Collider (LHC), is a meaningless waste of money.

2) In a homogeneous magnetic field, the effectiveness of the Lorentzian deflecting force, which acts on moving electrons, depends upon the speed V of electrons. There also exists a '$c - V$ phenomenon' here, and it is necessary to introduce a coefficient to match theoretical and experimental data.

3) The results from all the three experiments do not accord with Einstein's formulas of moving mass and kinetic energy, but do conform with the formulas in the New Electrodynamics of Moving Bodies [3,4].

2. Experiment Accelerating Electrons in a Homogeneous Electric Field

2.1 Method and Results of the Experiment

The front of electrons emitted from a Linac continues its linear and uniform motion through a straight tube with length of $S = 1.43$ m. Sensors installed at both ends of a section of the tube measured the entry time t_1 and the exit time t_2 of the electronic front going through the section. The speed gained by electrons due to the Linac's acceleration was calculated as $V = S / (t_2 - t_1)$. The experimental results are shown in Table 1.

Table 1. Energy & Speed

Linac's working energy E, Mev	0.025	0.035	0.045	0.055	0.065
Measured speed of electrons, V/c	0.313	0.369	0.412	0.449	0.480

2.2 Analysis

From Einstein's formulae for mass $m = m_0 \Big/ \sqrt{1 - V^2/c^2}$ and energy $E_k = (m - m_0)c^2$, we have:

$$E_{\mathrm{k}} = m_0 c^2 \left(1 \Big/ \sqrt{1 - V^2/c^2} - 1 \right) \quad ,$$

so that, having measured speed V, we can calculate the kinetic energy gained by the electrons, E_{k}, and the efficiency of the Linac, E_{k} / E. See Table 2.

Table 2. Efficiency of Linac from Relativistic Model

Linac's working energy E, Mev	0.025	0.035	0.045	0.055	0.065
Measured speed of electrons, V/c	0.313	0.369	0.412	0.449	0.480
Kinetic energy of electrons, E_{k}, Mev	0.0270	0.0388	0.0498	0.0609	0.0715
Linac's efficiency, E_{k} / E	1.08	1.11	1.11	1.11	1.10

It is surprisingly strange that the kinetic energies of accelerated electrons are *more* than the Linac can give them, and the Linac's efficiencies are more than unity! Obviously, both the Einsteinian relativistic mechanics and the traditional electromagnetic acceleration theory are questionable here.

In accord with the **New Electrodynamics of Moving Bodies** [3, 4], which is based solely on Galilean principle of relativity without Einstein's Postulate of the constant speed of light and Loretnz's Postulate of the length-contraction, if a static body ($V = 0$) is accelerated to speed of V, then it obtains the kinetic energy $E_{\mathrm{k}} = mV^2/2$. On this formula we can get the results shown in Table 3.

As the speed of the electrons increases, the Linac's efficiency decreases. This is understandable because the electromagnetic force cannot push electrons to reach the speed of light c which is the speed of electromagnetic action. This is similar to the case between wind-force and sailboat: A sailboat's speed can never be equal to the wind's speed, because, as the boat's speed approaches the wind's speed, the wind's effective force acting on the boat's sail reduces sharply. A great amount of the wind power is wasted. In the case of the electromagnetic acceleration, let's call it a '$c - V$ **phenomenon**'.

Table 3. Efficiency of Linac from Classical Model

Linac's working energy, E, MeV	0.025	0.035	0.045	0.055	0.065
Measured speed of electrons, V/c	0.313	0.369	0.412	0.449	0.480
Kinetic energy of electrons, E_{k}, Mev	0.025	0.0348	0.043	0.0515	0.059
Linac's efficiency E_{k} / E	1.0	0.994	0.964	0.9365	0.906

3. Calorimetric Experiment with High-Speed Electrons Bombarding a Lead Target

3.1 Experiment Method and Results

High-speed electrons from a Linac bombarded a lead target. The Linac's working energy levels were set up at 6 MeV, 8 MeV, 10 MeV, 12 MeV and 15 MeV. The current strength of electrons was 1.26 A with the impulse width of 5 ns and frequency 5 Hz. The electrons bombarded the target for 120 seconds. So, each bombardment's cumulative time was **only**

$$120 \times 5 \times 10^{-9} \times 5 = 3 \times 10^{-6} \text{ sec.}$$

The cumulative electric charge received by the target was $1.26 \times 3 \times 10^{-6} = 3.78 \times 10^{-6}$ Coulombs. Since 1 Coulomb = 6.2415×10^{18} electrons, the target received

$$3.78 \times 10^{-6} \times 6.2415 \times 10^{18} = 2.36 \times 10^{13} \text{ electrons.}$$

Since 1 MeV = 1.602×10^{-13} Joule, each 1MeV of the 2.36×10^{13} electrons is equivalent to

$$2.36 \times 10^{13} \times 1.6021733 \times 10^{-13} = 3.78 \text{ Joules.}$$

The target's mass is 70g. Since the lead's specific heat is 13 J/g per °C, $70 \times 0.13 = 9.1$ Joules are needed for the lead target's temperature to increase 1°C. The temperature is measured with a thermoelectric couple. The experiment's equipment and the measured values of the lead target's temperature increase are shown in Fig. 1 and Table 4:

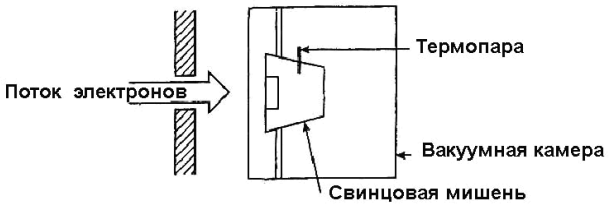

Figure 1. Experiment layout.

Table 4 shows that the target's temperature varies very little, although the Linac's working energy level changes widely.

Table 4. Experiment Results.

Linac's working energy E, Mev	6	8	10	12	15
Measured temperature increse, °C	0.25	0.30	0.32	0.34	0.35

3.2 Analysis

The traditional theory of electromagnetic acceleration maintains that the actually effective force exerted by an accelerator on an electron is independent of the electron's speed and all the accelerator's working energy E becomes the electron's kinetic energy $E_{\rm k}$; *i.e.*, $E_{\rm k} = E$ if the electrons have actually received all the Linac's working energy ($E_k = E$), then, by use of Einstein's formula

$$E_{\rm k} = m_0 c^2 \left(1\Big/\sqrt{1 - V^2 / c^2} - 1 \right) \quad ,$$

their speeds can be calculated as:

$$V / c = \sqrt{1 - 1\Big/(1 + E / m_0 c^2)^2} \quad . \tag{3.1}$$

The kinetic energy $E_{\rm k} = E$ of electrons causes the increase of the lead target's temperature. The increase of temperature can be calculated as

$$E_k \times 3.78 / 9.1\,^{\circ}\mathrm{C} \quad .$$

Given $E_k = E$ and by use of Einstein's Eq. (3.1), the **calculated** values of the lead target's temperature increase are:

Table 5. Experiment Predictions

Linac's working energy E, Mev	6	8	10	12	15
Calculated speed of electrons, V / c	0.9969	0.998	0.9988	0.9992	0.9995
Calculated increase in temperature, °C	2.52	3.36	4.20	5.04	6.35

The calculated values of the temperature increase in Table 5 are much bigger than the corresponding measured values in Table 4. Moreover, the calculated values vary in proportion to the Linac's working energy, whereas the measured values do not vary so much. This is because, on the one hand, when the speed of electrons approaches the speed of light, their kinetic energy does not increase as sharply as calculated by use of Einstein's formula

$$E_k = m_0 c^2 \left(1\Big/\sqrt{1 - V^2 / c^2} - 1 \right) \quad ,$$

but on the other hand, the Linac's efficiency decreases sharply as the speed of electrons approaches the speed of light (*i.e.*, the '$c - V$ **phenomenon**' shown in Sect. 2), so that the electrons did not reach the high speed calculated in Table 5.

Let us take the '$c - V$ **phenomenon**' into consideration. An accelerator's work is to convert its electromagnetic field's potential energy into the electron's kinetic energy; *i.e.*, to change the Linac's potential head into electron's velocity head: $F\ dx = mv\ dv$.

The **New Electrodynamics of Moving Bodies** shows that when moving the charge along field efficient force F can be denominated $F = F_0(1 - v^2 / c^2)$, where V is the electron's speed and F_0 is the accelerator's nominal force of action. Supposing that there is always a fraction δ of energy loss, we expect

$$F_0(1 - \delta - v^2 / c^2)dx = mv\ dv \quad , \text{ or}$$
$$F_0 dx = mc^2 v\ dv \Big/ [(1 - \delta)c^2 - v^2] \quad .$$

The nominal work done by an accelerator consuming energy E is the integral of F_0 accelerating an electron from $v = 0$ to $v = V$:

$$E = \int F_0\, dx = \int_0^V mc^2 \Big/ [(1 - \delta)c^2 - v^2]\ v\ dv \quad . \tag{3.2}$$

After integrating we get:

$$V^2 / c^2 = 1 - \delta - \exp(-2E / mc^2) \quad . \tag{3.3}$$

By use of (3.3) we can calculate the **actual** speed V of the electrons accelerated by the Linac's certain working energy E and consequently their kinetic energy, $E_{\rm k}$

It is known [5] that electrons in a linear accelerator, delivering energy incerements 1 to 3 Mev, reach velocities close to the velocity of light. The degree of approximation to the velocity of light is related to loss to energy electron in the accelerator, and, what follows from experiment on deflection of electrons at high energy in uniform magnetic field, forms value $0.997c$. With provision for that the full electron energy registers on the target, we can also calculate the lead target's actual temperature increase as $(E_{\rm k} + mc^2) \times 3.78 / 9.1\,^{\circ}\mathrm{C}$, the Linac's wasted energy $\Delta E = E - E_{\rm k}$ and its efficiency E_k / E. See Table 6.

Table 6. Determination of Linac Efficiency.

Linac's working energy, E Mev	6	8	10	12	15
Calculated speed of electrons, V / c	0.997	0.997	0.997	0.997	0.997
Kinetic energy of electrons, $E_{\rm k}$, Mev	0.254	0.254	0.254	0.254	0.254
Calculated temperature increase, ΔT, °C	0.32	0.32	0.32	0.32	0.32
Linac's wasted energy, ΔE, Mev	5,746	7,746	9,746	11,746	14,746
Linac's efficiency, %	4.23	3.2	2.54	2.12	1.69

The calculated values of the lead target's temperature increase vary little, and match the varying **trend** of the measured values in the Table 4. Obviously, the classical mechanics together with the consideration of the '$c - V$ phenomenon' can explain why the lead target's temperature increases so little.

4. Experiment on the Deflection of High-Speed Electrons in a Homogeneous Magnetic Field

4.1 Methods and Results

A stream of high-speed electrons from a Linac is perpendicularly injected through a rectilinear correcting tube made of 10cm thick lead-iron combination into a chamber with homogeneous magnetic field. **To avoid any outside electromagnetic interference, the magnetic field is created by a permanent magnet, not by an electromagnet. The gap between two poles of the magnet is as narrow as just 2.5[cm] in order to make the magnetic field between the two poles as homogeneous as possible.** Three series of experiments were done with three magnets of 0.121[tesla], 0.081[tesla] and 0.063[tesla] respectively. The Linac's working energy levels were set up at 4MeV, 6MeV, 9MeV, 12 MeV, 16MeV and 20MeV. The experiment's equipment is shown in Fig. 2.

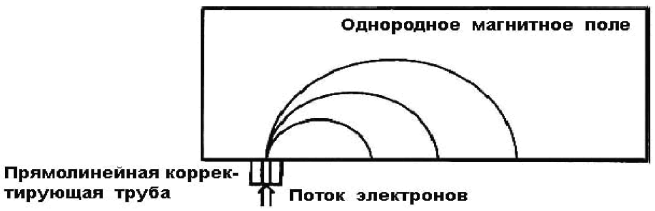

Figure 2. Characterization of Linac beam deviations.

Table 7 shows the measured radii of the circular track of electrons moving under the action of the Lorentz deflecting force:

Table 7. Linac Radius Results

Linac's energy E, Mev	4	6	9	12	16	20
radius measured @ 0.121 Tesla	~ 18	~ 18	~ 18	~ 18	~ 18	~ 18
radius measured @ 0.081 Tesla	~ 27	~ 27	~ 27	~ 27	~ 27	~ 27
radius measured @ 0.063 Tesla	~ 35	~ 35	~ 35	~ 35	~ 35	~ 35

The measured values of radius R for the Linac's six different energy levels remain almost constant. The six small sesame-size spots merged together and appeared on the screen as a single big bean-size spot with its width of about 0.5 cm, so that there are about $R = 17.75$ cm, 26.75 cm, 34.75 cm at the low energy end of $E = 4$ Mev and $R = 18.25$ cm, 27.25 cm, 35.25 cm at the high energy end of $E = 20$ Mev.

4.2 Analysis

Traditional theory deems that the Lorentz force, which deflects an electron moving in a static homogeneous magnetic field, is irrelevant to the electron's speed V. If the strength of a static homogeneous magnetic field is B, then the **theoretical** Lorentz force deflecting the electron is $F_0 = eVB$. The Lorentz force is balanced by the centrifugal force acting on an electron moving circularly due to the deflection. Therefore, the kinematic equation of the electron's circular motion is:

$$mV^2 / R = eVB \quad \text{or} \quad R = mV / eB \quad , \qquad (4.1)$$

where m is the electron's moving mass and R is the radius of the electron's circular track. Einstein's formula

$$m = m_0 \Big/ \sqrt{1 - V^2 / c^2}$$

makes Eq. (4.1) become:

$$R = \frac{m_0 V / eB}{\sqrt{1 - V^2 / c^2}} \quad \text{or} \quad R = \frac{m_0 c}{eB} \frac{V / c}{\sqrt{1 - V^2 / c^2}} \quad . \qquad (4.2)$$

The traditional electromagnetic acceleration theory maintains that all the Linac's working energy E is transferred to the accelerated electron and becomes the electron's kinetic energy E_k so that $E_k = E$. As mentioned in § 3.2 above, the traditional electromagnetic acceleration theory and the Einsteinian relativistic mechanics together lead to the formula (3.1). By use of (3.1) we can calculate the electron's speed V and then by use of (4.2) we can calculate the radius R of the electron's circular motion. The **calculated** values of R are shown in table 8:

Table 8. Linac Velocity Results

E, Mev	4	6	9	12	16	20
V / c	0.9919	0.9969	0.9986	0.9992	0.9995	0.9997
radius R measured @ 0.121 Tesla, cm	11.00	17.85	26.59	35.20	44.53	57.49
radius R measured @ 0.081 Tesla, cm	16.43	26.66	39.72	52.58	66.52	85.88
radius R measured @ 0.063 Tesla, cm	21.13	34.28	51.07	67.61	85.53	110.42

The **calculated** value of R increases almost in proportion to the Linac's working energy level E. This does not match the experimental results. Thus, both the traditional electromagnetic acceleration theory and the Einsteinian relativistic mechanics are questionable.

The above-mentioned calorimetric experiment with high-speed electrons bombarding a lead target has revealed a '$c - V$ phenomenon' (see § 3.2). By use of the formula (3.3), which takes the '$c - V$' phenomenon" into consideration, we can calculate the speed V of electrons entering the magnetic field from the Linac.

On the other hand, in the New electrodynamics of moving bodies [3,4] is shown that when moving the charge in transverse magnetic field dependency interactions of the charge exists with field from its velocities under the law:

$$B' = B\sqrt{1 - V^2 / c^2} \quad .$$

Considering this phenomena in (4,1) and complying with (4.2) we get the formula:

$$R = (m_0 c / eB)(V / c) \Big/ \sqrt{1 - V^2 / c^2} \quad . \qquad (4.3)$$

As was already noted, in a linear accelerator, electrons energy goes by leaps and bounds, of energy 1-3МэВ, take the velocity close to velocities of the light. The degree of the approximation

to velocities of light is defined loss to energy electron in booster and as can be seen from collation of the Tables 7 and 8, in this instance the velocity of electrons was within $0.997c$. With provision for this in formula (4.3) we can calculate radius R:

Table 9. Measured Values of $R(E)$

E, Mev	4	6	9	12	16	20
V/c	0.997	0.997	0.997	0.997	0.997	0.997
radius R measured @ 0.121 Tesla, cm	17.85	17.85	17.85	17.85	17.85	17.85
radius R measured @ 0.081 Tesla, cm	26.66	26.66	26.66	26.66	26.66	26.66
radius R measured @ 0.063 Tesla, cm	34.28	34.28	34.28	34.28	34.28	34.28

5. Questioning the European Large Hadron Collider (LHC)

It was reported that the world's most powerful collider—European LHC succeeded in accelerating protons to the energy level of 3.5 Tev and protons had obtained speed of $V \approx 0.99999995c$. Obviously, CERN's scientists stick to Einstein's relativistic mechanics and traditional electromagnetic acceleration theory in the calculation of the speed of their protons. Indeed, according to the formula (3.1), which comes from Einstein's relativistic mechanics and assumes the electromagnetic acceleration is 100% efficient, if $E = 3.5$ Tev, then $V \approx 0.99999995c$ which is only 15 m/s less than the speed of light.

CERN's scientists believe that, with $V \approx 0.99999995c$, each proton has huge moving mass $m = m_0 \Big/ \sqrt{1 - V^2 / c^2} \approx 2.967$ Tev and kinetic energy $E_{\text{k}} = 3.5$ Tev.

The cumulative energy of two colliding protons is $2E_{\text{k}} = 7$ Tev. The collision speed is $-0.9999999999995C$ according to Einstein's law of addition of speeds. The collision may lead to some new physical findings mainly due to proton's huge moving mass with huge energy.

However according to formula (3.3), which is founded on classical mechanics and takes the '$c - V$ phenomenon' into consideration, the protons were speed before smaller velocities. Moreover if even proton moves at the speed of C he possesses the kinetic energy, equal only 469.13 MeV, far less than the LHC's energy $E = 3.5$ Tev. The LHC's efficiency is only about 0.013%.

With V increasing, the acceleration becomes less and less efficient because of the '$c - V\,c$ phenomenon'. It is not because a particle's moving mass drastically increases as its speed approaches C, according to Einstein's relativistic mechanics, so that the acceleration becomes harder and harder. Nevertheless, according to the Galilean law of addition of speeds, the collision speed is high: $V + V = (2 - \varepsilon)C \approx 2C$

The collision may lead to some new physical findings mainly because of the huge collision speed, not due to proton's moving mass and kinetic energy, which remain small. CERN is going to double its LHC's power to 7 [Tev] to accelerate protons to $V = 0.999999991c$ (only about 12.3m/s higher than in case of LHC's energy $E = 3.5$ [Tev] and only 2.7m/s less than the speed of light) so that $V_{\text{sum}} \to C$, $m \to \infty$, and $E_{\text{k}} \to \infty$.

Mainstream scientists guess such collisions may cause a Big Bang and help them to know some scenario at the Birth of Universe. However, according to our formula (3.3), LHC's 7 [Tev] energy can only accelerate protons to $V \approx (1 - \delta/2)C$. The results are almost the same as those in case of LHC's energy $E = 3.5$ [Tev]. This is because the '$c - V$ phenomenon' lowers LHC's efficiency further down to 0.0065%

The collision speed is $V + V = 2(1 - \delta/2)C \approx 2C$. No matter how powerful a collider is, the collision speed will always be less than $2c$. Disregarding the '$c - V$ phenomenon', the costly LHC has been wasting a great amount of energy and money to do ineffective work. Indeed, what CERN ought to do is, not double the LHC's power, but increase the current density of its proton stream. Not every kind of collision of two protons can cause new physical phenomena. Oblique collisions are ineffective. Only **precise head-on collisions**, the probability of which is extremely small, are effective and are needed for finding new physical phenomena. Yet, with LHC's energy 7 [Tev], the total kinetic energy of two precisely head-on colliding protons is only $2E_{\text{k}} \approx 938.26$ [Mev]. There won't be any Big Bang or Birth of Universe.

6. Conclusions

1) All the three experiments prove that the traditional electromagnetic acceleration theory and Einstein's relativistic mechanics are misleading. Electromagnetic acceleration cannot push a charged particle to $V \approx c$. It is not because a particle's moving mass drastically increases as its speed approaches c so that the acceleration becomes harder and harder. It is because the "$c - V$ phenomenon" makes the acceleration less and less efficient.

2) Einstein's relativistic mechanics cannot explain the results from all the three experiments but the Classical Mechanics with the New Electrodynamics of moving bodies can.

3) The Lorentzian deflecting force, which stems from the interaction between a static magnetic field and a moving electron's moving magnetic field, depends upon the speed of the moving electron.

4) In order to examine the '$c - V$ phenomenon' we suggest physicists to repeat these experiments more accurately and by use of more electron speeds.

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Calculation of Aberration for Laser Location of Earth Artificial Satellites

(Continued from p. 2)

$$\Delta V = \frac{250\times10^3\times1350\times3.0857\times10^{16}}{2\times8500\times3.0857\times10^{16}} = 19.85\times10^3\,\mathrm{m/s} = 19,85\mathrm{km/s} \quad .$$

It seems that some of the stars move away from the Sun while the others approach to it. At present this illusion is considered to be the Sun's motion at a speed of 20 km/s relative to closely set stars [3]. The seeming Sun's motion doesn't affect the aberrated correction. Thus, the aberrated correction depends only on a satellite orbital motion around the Earth and the Earth's orbital motion around the Sun.

To simplify the task, let us handle some cases where the satellite orbits are circular and the planes of their orbits coincide with the Earth's orbit plane spinning around the Sun. The Earth's atmosphere similar to other planets' atmospheres entrains the ether [1]. The Sun and other stars are static relative to the ether, while the planets with their atmospheres move through it. The laser beam reflected from the satellite could go along a telescope axis only if the Earth and the satellite were static relative to the ether. As a result of the motion of the satellite, the reflected beam deviated from the optic telescope axis at an angle of φ. The angle φ will take its maximum value at that moment when the satellite comes exactly above the observatory

$$\phi_{\max} = 2V_c / c \quad ,$$

where V_c is the speed of a satellite, c is the speed of light.

The scientists of the Crimean Laser Observatory, Ukraine, defined the Earth's motion relative to the ether [4]. Now the aberrated correction for the above-mentioned cases should be calculated according to the formula

$$\phi = 2V_3 / C \pm 2V_c / C = 40.9854'' \pm 2V_c / C \quad ,$$

where $V_3 = 29.7848\times10^3\,\mathrm{km/s}$ is the speed of the Earth's motion along its orbit [1]. The aberrated correction will have the minimum value if the Earth and the satellite move in the same direction and the maximum value if Earth and satellite move in opposite directions. The results of the calculations of the aberrated corrections for the satellites moving at different heights h are shown in the table.

height h, km	$\varphi_{\min}$, arc sec	$\varphi_{\max}$, arc sec
450	30.4718	51.4990
1500	31.1974	50.7734
6000	33.1767	48.7941
20,000	35.6363	46.3345

The rate of the satellite movement was defined according to the formula

$$V_c = \sqrt{\mu / (r_3 + h)} \quad ,$$

where r_3 = Earth's radius, $\mu = fM$, f = gravitational constant, M is the Earth's mass. According to [5] $r_3 = 6378.16$ km., but according to [1] $\mu = 398603\times10^9 i^3\,/\,\mathrm{s}$. The results of the calculations conform to the results of the experiments [4].

It is possible to read the book [1] on the site: http://Suhorucov.narod.ru

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Aberration: Stellar vs. Gravitational

Bradley discovered stellar aberration almost 300 years ago. He explained it as the effect of the fact that an observer moving with the speed u in relation to our Sun will in his own frame see an apparent speed $c-u$, although the motion of light is c in relation to our Sun. When we observe a moving phenomenon from a moving platform, addition of vectors must be applied. It does not matter whether the phenomenon is a wave or a particle. Bradley was correct 300 years ago, and he still is. This means that, when $\mathbf{u}$ is orthogonal to $\mathbf{c}$, we get a change in apparent direction. Since $u << c$, the angle change is approximately u/c. Stellar aberration can tell us about our own motion $\mathbf{u}$ in relation to our Sun, but stellar aberration is useless in relation to an underlying ether wind $\mathbf{v}$. This great mistake of explaining stellar aberration by $\mathbf{v}$ instead of by $\mathbf{u}$ is the most important error leading to Special Relativity Theory (SRT). The reason is that most scientists erroneously concluded that stellar aberration refuted the entrained ether suggested by Stokes.

To see this important error, we must observe the difference between coherent and incoherent detection. With incoherent detection, we can see the real motion of light equal to $\mathbf{c}+\mathbf{v}$. ($\mathbf{v}$ is ether wind in observer's frame.) We can see real motion in the direction of a focused beam. However, when we use coherent detection, we see apparent motion equal to the normal to the wave fronts. Orientation of wave fronts, not motion, is detected coherently.

In MMX, light speed is c along the optical axis in the transverse arm, since wave fronts are defined by mirrors in the equipment and not changed by ether wind inside the planes of these mirrors. In relation to equipment, light speed is $\sqrt{c^2+v^2}$.

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Philosophiae Naturalis *vs.* Principia Mathematica

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Unsuccessful attempts to fill Newton's absolute emptiness with something material able to transmit signals and actions have led to predominance of the PRINCIPIA MATHEMATICA over the PHILOSOPHIAE NATURALIS. Comfortable for mathematicians, the principle of absolute continuity gave rise to the seemingly simplest idea of action from point to point. So-called physical vacuum displaced Newton's emptiness and became the receptacle of several massless fields – each with its own absolute continuity. Meanwhile, quantum physics, being very far from the problem, unintentionally filled up the space with neutral elementary corpuscles – neutrinos – having light speed and non-zero rest mass. This fact revives Lesage's long-forgotten hypothesis: gravitation (and perhaps all other actions and interactions) may be caused by collisions of the corpuscles with a body particles. There appear (and they are proposed in the present paper) intriguing possibilities of non-traditional approach to such notions as inertia, light, charge, spin, *etc.*

1. Introduction

By agreement of authorities Einstein's relativity theory (SRT and GRT together) came to be considered the general physical world-view, while Newton's conception must be a particular case of the theory. In the better case such the view seems to be a disappointing delusion. In the worst case this may turn out to be an ordinary craftiness. The two conceptions contradict one the other even (and first of all) on the level of principles. If so, then it would be quite reasonable to consider each of the conceptions based on its own set of principles independent on the other one.

The contradictions are well known, and I see no need either to enumerate or to discuss them here. However, one of the distinctions must be singled out. It is undoubtedly the watershed line of the two world-views. Newton's world consists of two 'constituents', namely, absolute emptiness and bodies within it – and nothing more. "It seems probable to me, that God in the beginning formed matter in solid, massy, hard, impenetrable, moveable particles…and that these primitive particles, being solids, are incomparably harder than any porous bodies compounded of them; even o very hard, as never to wear or break in pieces; no ordinary power being able to divide what God himself made one in the first creation" [1].

Therefore, Newton's conception was the discrete world. As for the emptiness, it was *nothing*, the abstract space unable to influence on bodies within it. Hence the only way of interaction must be mutual contact collisions of bodies, particles, corpuscles, light in Newton's notion also was some corpuscular substance. Some embarrassment resulted from his own Law of Gravity. However, it would be unfair to lay the blame on Newton himself for the well known 'action-at-a-distance'. "That one body may act upon another at a distance through a vacuum, without the mediation of anything else, by and through which this action and force may be conveyed from one to another, is to me so great an absurdity, that I believe no man, who has in philosophical matters a competent faculty of thinking, can ever fall into it" [2]. Alas! – the 'anything else' hadn't been found till 20th century...

The apparent absence of the 'anything else' gave rise to alternative idea, of course, 'so great an absurdity' of the 'action-at-a-distance' is quite evident independently on a distance – either large or the smallest but finite. Therefore the distances must be infinitesimal. In other words the space must be able to transmit an action from point to point (in the mathematical sense of the *points*!) Thus and so, the PRINCIPIA MATHEMATICA became prevailing over the PHILOSOPHIAE NATURALIS.

The absolute space became occupied with some physical vacuum deprived of the main physical attribute (the mass density) but endowed with especially mathematical instrument (continuity), hardly conceivable for the natural philosophy. As a result several physical continuous fields (gravitation, light, electricity, magnetism, *etc.*) are contained within the *continuous in its turn* physical vacuum. It is much difficult to get rid of a temptation to draw an analogy with Aristotle's four elements. And thus it is quite probable that 'action-from-point-to-point' in its turn may be found to be the 'so great an absurdity'. Einstein's well-known doubt is very remarkable here: "I consider it quite possible that physics cannot be based on the field conception, *i.e.* on continuous structures. In that case, nothing remains of my entire castle in the air, gravitation theory included, and of the rest of modern physics" [3]. If to be less categorical and more exact, then a field concept, may be – and ought to be – a mighty mathematical method, in which *continuity* is no more than an abstraction, say, like an *infinity*.

So then, a 'man who has in philosophical matters a competent faculty of thinking' should make a certain choice of the two world-views: *either* discrete world with material bodies, particles, corpuscles in it, *or* continuous physical vacuum with uncertain status of matter (mass-energy, wave-particle, space-time, *etc.*). The modern physics (at least the overwhelming majority of physicists) deny any ability of classic physics to explain gravitational, atomic and subatomic phenomena. At the same time quantum ideas and theories persistently attempt to squeeze a multitude of discrete particles, levels and bans into Procrustean bed of the continuity... As for me, I do not belong to the majority. As for the minority, then it's me, one and only – alas!

I have no intention to criticize or discuss ideas of Modern Physics. Instead, I dare to propose the quite radical (heretical?!) idea that possibilities of the Galilean-Cartesian-Newtonian world-view are not exhausted, and may yet pretend to describe all natural phenomena.

2. Neutrinos

It seems remarkable that Einstein's Theory of gravitation (GRT) – without any ether_–appeared nearly at the same time when the super-modern (nuclear) physics, being much far from the problem, unintentionally filled up Newton's absolute space with 'something else'. I mean neutrinos. Their light speed, rest mass, equiprobability of all directions and the highest penetrating ability – all this allows neutrinos to be the ether of Lesage's type. But theorists do not hasten to resort to the neutrinos in their theories, and so space neutrinos remain 'jobless'. Of course, if to be exact, there appear attempts to pay attention to neutrinos. For example, J.-E. Persson supposes with some caution: "The ether could, for instance, be constituted of undetectable neutrinos" [4]. Or some more certain opinion of L.A.Pobedonostsev: "It is obviously possible to make some 'association' between the concepts of ether and neutrino" [5]. However skepticism of theorists as to neutrinos remains unchanged. There used to be said of insufficiency of neutrinos in space. But today's appreciations of the quantity should not be cogent. Any patch of dark sky must be a source of neutrinos. In other words, one must bear in mind not only the neutrinos generated within a star but also these penetrated through the star. Therefore the appreciation of neutrino density in space should be increased for many decimal orders. With it all the quite visible absence of attempts to make the neutrino ether a participant of logical constructions seems to be somewhat disappointing. Theorists traditionally and unsuccessfully attempt to manage without neutrinos. The attempts become the more complicated, the less cogent. Here it may be quite pertinent one witty remark: "Think of it this way: the movements of fish in an aquarium would require an awfully complicated description if we did not separate those movements from the distortions caused by the water" [6]. Alas! - theorists continue to prefer 'the awfully complicated description' while ignoring neutrinos because of the awful inconvenience in order to settle them into the habitual formulas and equations. "The main point is that the subject of physical description in general, and kinematics in particular, needs to be re-conceptualized from the ground up in terms of an altered way of thinking about time". [7]. Behavior of space neutrinos would be quite apropos as to 'kinematics in particular' and 'way of thinking about time'.

Light speed makes a space neutrino unattainable for any external influence unless contact collision. Therefore it is the only 'object' which displays Newton's First low undoubtedly and unconditionally. Trajectory of a neutrino may be considered an ideal physical model of straight line. It never can be a curve. From this it follows that totality of neutrinos creates space of rectilinear segments while any curvature should be no more than some approximation or mathematical abstraction. As the consequence the neutrino space is the Euclidian space.

And what should be saying about 'proper time τ' ([8], p.4) of a neutrino? Absolute seclusion of a space neutrino means that the only possible event may be a collision, but it is an instantaneous event and so has no duration. Then what should mean time without any event? What is time without duration? Therefore a 'pocket-watch' ([8], p.12) of the neutrino must be staying from a collision to the next one. Advance of the 'pocket-watch' readings in the situation may be caused by collisions only. Perhaps a 'pocket counter' would be more suitable. Thus time in neutrino space must have discrete character. In space free of particles and bodies rate of time (inverse of frequency) should be extremely small because of the smallest probability of mutual collisions of neutrinos. In its turn, presence of material particles in location of space must influent on the time rate. The more volume density of particles, the more frequency of collisions of neutrinos with the particles. Therefore dependence of local time upon matter should be inevitable.

It is noteworthy that logic of the relativity theory (SRT and GRT together) unexpectedly leads to deductions similar to the above-worded. Indeed, what should be saying about the well-known world-line of a neutrino? Light speed makes senseless notion of time for it. Therefore fourth coordinate (time) of a space neutrino remains zero and so is absent. As the consequence, neutrinos exist in three-dimensional space. Perhaps – and sooner of all – this particularity makes neutrinos so uncomfortable for relativists.

There appears not easy question to theorists of quantum physics also, especially to those who deny particles (or even if wave-particles) at all and suggest to build material world of waves only (for example [9]). Then what manifestation of a neutrino can be oscillating (changing periodically) to assert that a neutrino is a wave?

3. Ether

I dare not claim that neutrinos as such are responsible for interactions and phenomena in the world. That is one of tasks for theorists and experimentalists. Instead of that I propose a hypothetical *corpuscular ether* of Lesage's type. Properties of real corpuscles – neutrinos – are in question and may be much debatable, while hypothetical corpuscles may be endowed with necessary properties.

Thereby *ether corpuscles* (or simply *corpuscles*) cross the world space in all imaginable directions equiprobably moving straight with light speed. They are absolutely hard and unable to split. Mutual collisions of corpuscles in free space are events of extremely small probability and may be neglected on distances of appreciable interactions of bodies. This peculiarity of the proposed ether distinguishes it radically from a gaseous ether model. Mutual collisions of gas atoms make any gas to be a chaotic system where trajectories of the atoms are segments of broken lines. On the contrary trajectories of the ether corpuscles are practically endless straight lines of all imaginable directions. With it all the unimaginable complexity interlacement of all possible trajectories should not be considered chaotic. The seeming chaos at long last is no more than a totality of *parallel* endless trajectories of *all possible* directions. This circumstance allows in some cases to consider parallel corpuscles of one and only direction while ignoring the other. In particular, one of the main suppositions of the proposed ether is the obvious equality of corpuscle speeds. But relatively to what the speeds ought to be equal? Than there it may be picked out one direction, and several parallel corpuscles be moving along the direction. Now speeds of the corpuscles are equal when distances between the corpuscles remain unchanged. This demand must be extended onto all directions.

There arises the other not easy but much important question of principle: may it be sensible to say about state of rest or movement in relation to the ether? Of course, when to keep in mind a point (in the mathematical sense!), then the suggestion seems to be evidently senseless. But quite the other case reveals an object of some finite size (a body or even if it's massless shell of a soap-bubble type) in the ether. Let it be picked-out a pair of corpuscles crossing the object along any its diameter in mutually opposite directions. There it may be suggested two possibilities in the case.

Both corpuscles spend equal time within the object independently on a direction of the diameter. Then it may be saying that the object is in state of rest in relation to the ether. But the travel time of one corpuscle differs from that of the other. The only explanation for the result may be a movement of the object: back side of the object passes some distance to meet one corpuscle while front side of the object runs off to the same distance from the other corpuscle. As a result, corpuscle in pursuit passes more distance and spends more time within the moving object than corpuscle moving to meet the object. The time difference takes place in all directions crossing the moving object, but the maximum difference arises in direction parallel to the movement.

It seems to be that experimentalists are able to do something like that. "*Cern*, the world's largest physics lab, recently announced that a neutrino beam fired from a particle accelerator near Geneva to a lab 454 miles away in Italy traveled 60 nanoseconds faster than the speed of light" [10]. That is, experimentalists are able to measure travel time of neutrinos. Then let a neutrino beam be fired from point *G* (say, *Geneva*) to some certain point *N* in the same latitude at the moment when diurnal velocity of the chord *GN* coincides with the Earth orbital velocity. The operation must be repeated twelve hours later when the diurnal rotation will reverse the chord *GN* and so the neutrino flow will be opposite to the Earth's orbital velocity. Comparison of the two neutrino travel times should reveal the Earth's orbital movement.

4. Bodies

"What Is the World Made of?" – this is the title of Feinberg's book (Anchor Press/Doubleday Garden City, New York, 1978). And the sub-title "Atoms, Leptons, Quarks and Other Tantalizia Particles" answers the question not without some irony. Current science obstinately attempts to take on the smallest 'pieces' such intricate 'machine' as the world is. This aspiration is quite explainable and, of course, ineradicable. However, are the scientists aware enough of their ability to reassemble the 'machine'? Human experience shows that it is quite easy to dismember something, but it is not so easy to restore it: as a rule several 'superfluous' components are the result. Assortment of 'bricks' the world made of now is inspiringly vast and continues to increase, perhaps, up to the 'tantalizing' continuity. Then it may be the time to *reconstitute* the world of the available 'bricks'. Such attempts were done by me many years ago (in particular [11] and [12]). "All material phenomena result from interaction between elementary particles (nucleons, electrons) with ether corpuscles (neutrinos perhaps). The interaction appears as absolutely elastic collision (*i.e.* collisions unable to deform or to split – as for *mathematical billiards*) – and nothing more" [12].

Is the hypothesis a mere heresy? Perhaps – and much probably – it is. To my great sorry the *auto-da-fe* now is out of fashion. That was a cruel court, but it was a court! Today's 'inquisition' is much more insidious: the full disregard...

In the present paper I see no need to repeat the arguments, figures and mathematics. I would rather discuss motivation of the propositions, while calling attention to similar on analogous ideas of other authors. In some cases, I refer to the suitable sections in [11] or [12].

4.1 Gravitation

R. Feynman in his Second Lecture retells briefly the well-known Lesage's idea. In the beginning that is a genuine hymn. But just the next indention is the mournful requiem. The argument ought to be simple and evident, but it hardly seems to be unquestionable. The young professor (in 'ancient' 1964) attacks the idea carelessly or even recklessly. "If the earth is moving, more particles will hit it from in front than from behind. (If you are running in the rain, more rain hits you in the front of the face than in the back of the head, because you are running into the rain.) So, if the earth is moving it is running into the particles coming towards it and away from the ones that are chasing it from behind. So more particles will hit it from the front than from the back, and there will be a force opposing any motion. This force would slow the earth up in its orbit, and it certainly would not have lasted the three or four billion years (at least) that it has been going around the sun. So that is the end of that theory." [13]

So then, what may be saying as to the word-painting? To the point, there are known precedents in order to call in question the counteraction of material medium under some special conditions: "…this medium acts on a mass as an ideal liquid (Euler paradox)" [14] a run in an 'ideal' (*i.e.* without a wind) rain hardly may be an apt illustration in the case: you may slightly incline your head (up to the angle of suitable aberration) to evade raindrops on your forehead. When moving uniformly in the rain, a flat or cylindrical surface with generatrices at the angle of aberration does not interact with raindrops at all. What is more, when falling on back side of the surface, raindrops push it forward. Thus it turns out that raindrops undoubtedly do impede a body movement in the 'horizontal' rain only (because of zero aberration).

However, all that is not the point. Of course, the 'rain' is evidently the weak place of the argument. On the other hand, it is very difficult to draw an apt analogy with the hypothetical ether-body interaction. Firstly, corpuscular 'rain' attacks a body from all sides simultaneously. Secondly, the 'raindrops' (corpuscles) pierce the body throughout and so each particle (but not the body as a whole!) becomes the target for a corpuscle, as the consequence, arguments against Lesage's hypothesis are at best *questionable evidence*. Such vision ought to be (and was) quite cogent in 1964. However, in present days non-zero rest mass of the neutrino is ascertained. Therefore, the neutrinos, when colliding with a body particle, imparts some impulse, 'and there will be a force opposing any motion. This force would slow the Earth in its orbit, and it certainly would not have lasted the three or four billion years (at least)'.

Then the *evident question* ought to arise: Why the Earth 'has been going around the Sun'? Here I propose my attempt to reply to the "Why"? An endless plane through center of a *resting* body divides corpuscular space on two equal parts, say, left and right. All corpuscles in the left half are potential 'pushers' to the right while all corpuscles to the right of the plane are potential 'pushers' to the left. Corpuscles moving in the plane are neither 'left' nor 'right'. There takes place full symmetry of the space influence on the body. But when the body is moving with velocity v, say, to the right, the symmetry becomes much questionable. The transverse secant plane (*TSP*) perpendicular to the body velocity divides, as before, the space onto 'left' and 'right' parts, but in the case it permanently runs away from corpuscles in it. To be moving in the *TSP* during some finite time a corpuscle must have v as a component of its velocity and so cannot be 'neither left nor right'. Then what must be the true border between the 'pushers' in opposite directions?

Let point *O* be a location at instant *to* of a target moving uniformly with velocity v. Then two parameters should be enough to define location *M* at the same instant *to* of a corpuscle to be hit on the target at instant t. These are distance vt from the *TSP* (to the right of it!) and distance ct from the target's trajectory. Then an endless ray *OM* detects locations at instant *to* of all corpuscles ever to pass through the target at right angle to its velocity. Totality of the rays forms conic surface which divides corpuscle space on two unequal parts. Corpuscles to the right of the surface may hit on the target to meet it. Corpuscles to the left (including those between the *TSP* and the conic surface!) attack the target in pursuit of it. And so it should be made a thorough appreciation of corpuscle flows crossing the moving body to meet and in pursuit of it. Such the attempt had been done in section 'The quantitative effect' [11]. The account shows that corpuscles in pursuit of the body should be no less but even some more numerous than those of to meet it.

The other argument against the corpuscles ether is the 'head wind': corpuscles from in front of a moving body hit it at more speed $(c+v)$ than corpuscles from behind $(c-v)$. A 'head resistance' should seem to be inevitable and quite evident. However the simplest kinematics of *unusual* objects leads to unexpected conclusions (section "The Qualitative Effect" in [11]). In the case the target for a corpuscle is not a body but one of particles within the body, and all particles are accessible for corpuscles with equal probability. For simplicity let it be assumed that all corpuscles to be collided more parallel to the body velocity. Spherical symmetry of all other directions allows to decompose them on components transverse and parallel to the body velocity. Then each transverse component ought to be compensated by the other one of the opposite direction while all parallel components will be either from in front or from behind the body.

Let a multitude of parallel corpuscles entering a body at some instant be called a 'front'. The front is assumed sufficient to produce n collisions over a chord d within the body at rest: in this case the chord fully coincides with the path of the front within the body. The distance d will be passed in time $t=d/c$. Hence the mean time between two successive collisions is $\tau=d/nc$. When μ is mass of a corpuscle, then one collision imparts the body impulse μc. All collisions of the front impart the resting body impulse $n\mu c$. The body in state of rest undergoes such influence in all directions and so remains immovable. The interval τ, of course, must be dependent on sizes of particles and on distances between them (*i.e.* on the body density), but in no way it should be dependent on the body velocity at least till $v<<c$ because the front does not interact with the body at all, while a collision of a corpuscle is instantaneous event of zero duration.

In the case of uniform movement of the body factors $c+v$ and $c-v$ play two-edged part in the body-ether interaction. On the one hand both determinate quantitative changes in power ability of each *separate* collision comparatively with the case of the body at rest: $\mu(c+v)>\mu c$, $\mu(c-v)<\mu c$. On the other hand the factors determinate also the time to overpass the body by the fronts: $d/(c+v)<d/c$, $d/(c-v)>d/c$. In view of this and taking into account the interval $\tau=d/n$ there it may be written the chain of equalities which determinates the total influence of each front on the body either at rest or moving uniformly:

This means that the 'head wind' is not the impedimental factor as to uniform movement of a body, and so it should not be the serious argument against the idea of corpuscular ether. Therefore gravitation via corpuscular ether of Lesage's type ought to be the actual idea.

4.2 Inertia

The aforesaid shows that evenness of straight, uniform movement of a body in a homogeneous isotropic medium of ether corpuscles is the result of the statistical character of particle-corpuscle collisions (instead of the mysterious property inherent a body as such). Mutually opposite flows of parallel corpuscles equilibrate each other on level of particles. However, it must be mentioned one peculiarity of the equilibrium. Two fronts entering the moving body at the same instant from opposite sides spend within it – not the same time and so cannot equilibrate each other at *any* instant. At first joint action of both fronts pushes the body against its speed because of $\mu(c+v) > \mu(c-v)$ in any pair of the simultaneous collisions. This phase proceeds right up to the instant when the head front leaves the body what gives rise to the phase of acting the chasing front alone. Its collisions push the body forward up to full compensation of the preceding joint action (section "The Other Aspect of the Qualitative Effect" in [11]). So, the phase of compensation lags behind the phase of joint action. This peculiarity is of no importance in the case of uniform movement (equations 15 and 16 in [11]) because all pairs of the simultaneous fronts repeat the same two-phase cycle.

But quite the other situation takes place when $v \neq$ constant. In the case of acceleration causing by some external force collisions of the head front become more powerful even during the phase of joint action while the opposite collisions time from time become weaker during the whole two-phase cycle. As the result the chasing front, when acting alone, is unable to compensate the preceding joint action. Corpuscles of the head front push the body against the external force (reaction on the acceleration). In the course of time the body accumulates impulse that is delivering with corpuscles to meet the body.

And *vice versa* in the case of the body deceleration: head-on collisions weaken during the joint phase, while the opposite collisions become more powerful at times during the two-phase cycle. The compensation prevails over the joint-action. Colli-

sions from behind push the body, thus counteracting the cause of speed decreasing (reaction on deceleration) by taking away the body impulse.

When the external influence ceases, the equilibrium renews on level of current (at the instant) speed and new impulse of the body.

It must be presupposed that a time to overpass a body by a front is much-much more than an interval between two successive fronts. Thus a great multiplicity of the fronts interacts with the body particles in all directions. Permanent succession of mutually opposite fronts ensures constancy of the body speed when any outer influence is absent. And the same succession generates immediate reaction of the body on any external force. Thus inertia of macroscopic bodies should not be considered an inherent property of mass as such. Inertia in the broad sense (*i.e.* impulse, momentum, impetus, potential energy, *etc*.) is one of peculiarities of permanent and eternal process of interaction via collisions of a body particles with ether corpuscles. The said may be the answer to the question: "What does the term 'potential energy' must mean? H.Hertz was very wise to remark: 'Potential energy is the energy of hidden motion'. The main task of future research in unorthodox physics will be to solve the problem of this 'hidden motion' in order to resolve the fundamental paradoxes…" [15].

Bodies of the smallest size, in particular a separate molecule or particle, cannot be a receptacle of the successions of parallel corpuscles, and so their behavior and motion should not reveal properties of gravity or inertia in the proposed sense. "We do not know what to say about gravity in relation to small particles" [16]. They move unpredictably because of unpredictability of stochastic conjunctions of corpuscle strikes at each concrete instant.

5. In the Micro-World

Absolute hardness of elementary particles is no less ancient idea than physics (natural philosophy) as such. It remains actual even today: "Each particle is a miniature black hole" [17]. If so, then it would be strange to endow a *separate* particle with some properties in addition to size, mass and impenetrability, and so to its ability of interaction by means of contact collisions only. Therefore all other phenomena of the real world ought to be explained through collisions of particles with other corpuscles.

5.1 Electrons

Two particles at a short distance are pushing to each other by corpuscles of opposite directions on paths within the cone formed by totality of common tangents of the two. So the particles are forced to approach each other. The less distance between the two, the more probability of corpuscles to be reflected by one on the other. At long last there must be settled some dynamic equilibrium of external pressure from without and the contrary action of reflected corpuscles from within. There appears state of *equilibrated opposition* of the two particles (section "Atomistics" in [12]).

A lone particle in the homogeneous ether does not violate the homogeneity because paths of incidence and reflection of any space corpuscle are reciprocal and spherical symmetry of totality of corpuscle trajectories is quite evident. But two particles in state of the equilibrated opposition create some local violation of the symmetry. Particles of the couple shield each other on paths through the both, and some rarefaction of corpuscles in the inter-space between the particles is the result. But corpuscles out of the cone of common tangents may hit on inner ('face to face') sides of the particles and certainly become reflected by them. A picture of the reflection is much complicated. However some simple reasonings allow to depict the situation in general.

Paths of the reflection depend on the angle of impact, which in its turn depends on a point on the spherical inner side of the particle. Within the inter-space a corpuscle may be reflected one, two or several times, and all directions of the reflections are possible – except one: the path of reflection cannot be perpendicular to the line of centers of the couple. Therefore two tangent planes perpendicular to the line restrict the extent where reflected corpuscles parallel to the planes are absent. However this cannot be extended far away: paths of reflection almost parallel to (or slightly deviated from) the planes cross the extent at some distance from the couple thus and so leveling the rarefaction. As a result the violation of uniformity must be a finite location. The totality of the locations around the couple forms some torus-like 'tube' of rarefaction.

At the same time narrowing space between the inner surfaces must act like a concavity thus focusing the paths of reflection beside the planes (to some extent a medical concave mirror with central aperture may be the analogy). And so the 'tube' must be surrounded with 'walls' of thickening of the paths.

All the above-said allows one to suppose that the torus-like 'tube' of rarefaction may be a trap for space electrons.

5.2 Spin

The idea to attribute some toroidal shape to *electron as such* had turned out a much fetching possibility. "Speculation concerning the nature of the electron has continued since the time of its discovery with no adequate model appearing. Its toroidal nature was proposed…The present analysis makes no claim to completeness. The nature of electrical charge does not appear, but the implication of two separate spins for a given vortex flow suggests that charge is a function of the double flow…The orientation of the electron or positron must also be considered." [18]. The speculations about the idea of the toroidal nature go on [19].

If we keep in mind numerous properties of an electron, then there arises a very hard choice before theorists: Either the electron is able to reveal its different properties in different situations, or there exist several different electrons with different sets of properties. I dare to propose something the third. Let it be started from the *spin* as such. "N. Bohr…and later W. Pauli…claimed that the spin of a free electron would never be observed" [20]. From this it follows that the spin should reveal itself in interaction of an electron with some other participants of the process. It may be the above-mentioned tor-like trap. "The electron has *two* radii: the radius… of an axial line of the torus and the radius… of cross section of the torus" [19]. So the toroidal tunnel of rarefaction within the trap leaves for electrons the only way of translation while inner 'walls' of the trap reflect back into the trap accidental (under strikes of corpuscles) transverse

motions of an electron. Superposition of the two motions should be considered a vortex.

Then the question may be quite pertinent: how many electrons is the trap able to retain? One electron should be beyond doubt. But three (or more) electrons within the trap cannot be stable enough. In the case unpredictable mutual collisions of the electrons (like a squash) causes chaotic dispersion of corpuscles what may destroy for an instant the 'wall' of the trap, and 'superfluous' electrons will be pushed out. Meanwhile the trap must not be too tight for two electrons. Each next in turn frontal mutual collision of the two directs them in opposite (clockwise and counter-clockwise) directions. So the two divide in half the trap moving always to meet each other. This situation allows to say about different spins of the two. (But, it must be remarked that each mutual collision may lead: to exchange of the spins).

5.3 Charge

The other feature of electron as such 'with no adequate model appearing' is charge. "Fundamentally, we still do not understand just what is a charged particle" [21]. Rutherford's simplest atom consists of *one* positively charged nucleus (nucleon, proton) and *one* negatively charged electron on some orbit around the nucleus. The system is stable owing to mutual electrostatic attraction of the two. Apropos, it should be questionable the stability of a *sole atom* out of a body or gas: "Monoatomic hydrogen is known to pass into molecular hydrogen" [22].

There it may be proposed some other view on the conception. A couple of two nucleons in state of the equilibrate opposition ensures the same 'arithmetic' with no need of any attraction of the components. Indeed, *two* nucleons hold *two* electrons within common for both *one* toroidal 'trap'. Thus there are *two* atoms each consisting of *one* nucleon and *one* electron on the 'orbital' path. The said allows an unusual view on such entity as electrical charge. An empty 'trap' may be considered the positive charge while a free electron is a potential carrier of the least negative charge.

5.4 Atomistics

A contact joining of several nucleons makes up a compound nucleus. In this case, the pressure of space corpuscles becomes maximum while the contrary action of multifold reflections from within should be minimum. The least quantity of nucleons to form a stable (rigid) structure is evidently four. More nucleons also are able to form a rigid – but chiefly asymmetric – nucleus. Two compound nuclei also are able to create a couple of the equilibrated opposition with a torus-like 'trap'. At the same time exterior of a compound nucleus cannot be a surface of constant curvature because of spherical convexities and sharp concavities formed by contacting nucleons. Therefore reflection of corpuscles by the surface cannot remain homogeneous in the nearest surroundings ("The electrostatic field around a nucleus is not homogeneous") [23]. The convexities disperse corpuscles while the concavities focus paths of reflection. In addition to that there must be corpuscles penetrating through chinks between contacting nucleons. Thus locations of rarefaction should be surrounded with 'walls' of thickenings, and there must appear more or less reliable covers for electrons. Hence it should be possible to suppose that a lone compound nucleus is able to keep hold of electrons. Of course, a prospective possibility to observe a lone atom is much doubtful. But it should be quite evident that the large number of particles in mutual connections under pressure of ether corpuscles ought to create even more number of covers for electrons.

The three-dimensional topography of the inhomogeneity around the compound nucleus and quantity of the 'traps' should be dependent on nucleons forming the nucleus surface. Hence constituents of a multi-nucleon nucleus play much different part in interaction of the nucleus with space corpuscles. Outward nucleons define the nucleus charge, while inward ones, being isolated from space corpuscles, have no direct influence on the nearest environment. From this it may be made a supposition (heretic?-of course!) that the first are *protons* while the second are *neutrons*. (If it is not so, then let it be permitted to put a question: why nuclei of protons only or nuclei of protons and neutrons *do exist*, while nuclei of neutrons only *do not exist* at all?).

Thus an atom with a compound multi-nucleon nucleus can keep hold of several electrons. Space corpuscles push different atoms towards each other, while reflected corpuscles counteract their approaching. Nearby atoms form additional more or less reliable covers of various shape and different ability to keep hold of an electron. The ability of nuclei (both alone and associated) to form covers for electrons can be interpreted as electric charge. External actions (chemical, mechanical, radiation, *etc.*) on the body can destroy some of covers (negative charge) or can create additional covers (positive charge).

In short, all the said is a crazy proposition to call in question the proton's inherent positive charge and the electron's inherent negative charge. The mighty argument against the proposition is the vast experimental practice. But it should be taken into account "… the fact that classical dynamics laws have been derived using experiments with large number of particles. In this case it is impossible to differentiate the interaction between individual particles from the averaged interactions" [24]. The trouble is that the 'averaged' behavior thereupon becomes prescribed for all the particles as some inherent property. Meanwhile, objective reality offers new problems and puzzles, and scientists become compelled to endow the particles with more and more questionable properties. For example: plasma is fully ionized gas; each of its atom is charged (ionized), but as a whole, it is neutral (I reward Cooper's remark, [25]). That is, an atom, while remaining charged, is able to switch off its overall charge (!)

One easily observable occurrence, perhaps, may shed light on the difficulty. Under conditions of absolute calm and clear sky (that is, any friction or whirling should be excluded from consideration) there appears a small cloud. It enlarges in time while being immobile. Then at some moment there arises lightening and thunderclap… Then where the charge has come from? I dare to purpose my own vision. Atmospheric exhalation (ionized separate atoms, *i.e.* plasma) begin to condense. That is, ions connect with each other. There arise molecules of water, associations of the molecules, *etc.* By this a multitude of 'empty' covers appears.

By the way, there exist reports about appearance of electric charge in process of condensation of exhalation in the lab.

5.5 Electrostatics

Each body is forever traversed by streams of *parallel* corpuscles in *all directions*. Corpuscles mostly pass the body without collisions. On such paths quantities of corpuscles in both opposite directions are the same. But two or several atoms on the parallel paths dam the streams of both opposite directions, and corpuscles towards the body become more probable than in the opposite direction. Of course, corpuscles scattered by near-by atoms may occur to be parallel to the paths from the body, but they hardly may restore violated parity of the streams because of much complicated and in general asymmetric microstructure of the body. As a result there must appear pencils of paths ('tubes of shadow') where corpuscles towards the body are essentially more probable than of the opposite direction. Within such a 'tube' space electrons are stimulating by corpuscles to more towards the body and at long last occupy 'empty' covers in it. In other words, bodies with 'empty covers' (*i.e.* positively charged) generate lines of force in all radial directions. The lines reach bodies in the surroundings and are the means of interaction. (The said may be compared with 'the 'thread-like conception': "physical space is a set of thread-spaces that connect interactive material particles with each other"[26]). Spherical symmetry of the interactions should result in absence of any noticeable influence on the charged body. But a near-by body violates the symmetry. When the second body has many disconnected (or slightly connected) electrons, then the electrons attenuate or even dam up the 'tubes of shadow' of the first body within the second one (electrostatic induction). As a result each of the two bodies attack more corpuscles from the outer space than from gap between the two, and both are pushing to each other. This ought to look like an attraction of the two.

Even more enigmatic and questionable is property of a charge to repel another one of the same sign. Instead of the generally accepted idea of repulsion, I dare to propose just above worded 'attraction'. Tentacles ('tubes of shadow') of a positively charged body reach a great many negatively charged bodies in surroundings. The two near-by bodies shadow each other within cones of common tangents from influence of the opposite cone. As a result, the many partial 'attractions' in the left cone pulls the left positively charged body to the left while the right cone 'attracts' the other body to the right.

In the case of two near-by negatively charged bodies the picture is quite similar. Each of the two is crossing by the many tentacles ('tubes of shadow') generated by remote positive charges in space within cones of common tangents of the two interacting bodies. The resultant of partial 'attractions' pull the left body to the left and the right body to the right.

When the bodies are shielded from space by a material casing with free electrons (a conductor) then charges of the same sign must be indifferent to each other because the electrons dam the lines of force from space.

5.6 Light

A pencil of parallel corpuscles on paths, piercing a body, can't remain uninterrupted. The transverse motion of atoms in the body scatter corpuscles from the pencil. There appears a breach in the two opposite happens within the pencil. At the same instant, the breach becomes doubled and so the two breaches move apart with corpuscle speed in opposite directions. Improbability of mutual collisions of space corpuscles ensures unchangeability of breaches on large distances of translation. Thus the breach can influence a body in the environment. Of course, separate stochastic breaches can't be essential enough. But increase of molecular motion (say, caused by warming) stimulates appearance of the breaches. The more the body temperature the more beaches per unit of length of the pencil. At long last corpuscle jets within the pencil may become a succession of the breaches and fragments of uninterrupted jet (that is, portions of parallel corpuscles). The succession is governed by a periodic law. Therefore it should be characterized by such parameters as period, frequency, wave length, *etc.* Certain level of the body temperature defines corresponding to it frequency of the process. There appears *light.*

I see no need to repeat here the argument for the proposed approach (Sect. Light in [12]). Sooner I would like to mark quite noticeable tendency to give thought to infinite ocean of neutrinos instead of so much comfortable for mathematicians continuity of 'physical vacuum' with it inscrutable ability to be agitated. "And everything would be found to be quantified too – but on a much lower level. Could it be that ether can be explained by matter in the form of a flow of many, many neutrinos having very, very small masses? Could waves be explained by particles instead of the other way around?"[27]. So light may be quantified on level of a quantum which in its turn is a couple of an unbroken fragment of the jet of parallel corpuscles *and* a breach between the two successive fragments, where the parallel corpuscles are absent. The couple should be considered an elementary wave while the 'perforated' jet as the whole ought to be the wave process. But a wave process presupposes some oscillations or periodic *alteration* of something. But in the 'perforated' jet nothing oscillates and nothing alters, till it is moving from the source to a receiver. There occurs a mere *alteration* of unbroken fragments and breaches. Of course, superposition of similar jets may appear in form of interference, diffraction, *etc.* But that is mathematic – not physic – appearance, because the absence of mutual collisions of corpuscles excludes any interaction of the jets in space free of ponderable substance. The wave process in physic sense appears when the succession ('perforated' jet) meets particles (gas, dust, liquid, rigid body, *etc.*). "Whenever we detect a microphysical object, we always detect a particle. The existence of waves … can only be inferred. We deduce from interference and diffraction patterns formed by particles the previous existence of waves." [28].

6. A Few Words Before the *Full Stop*

All the aforesaid proposes nothing new to add to my previous publications [11] and [12] which did not attract even the smallest attention of scientists. At the some time many author in their papers or letters (mainly in GED-issues) word the similar or even the same ideas of mine in form of a separate supposition or question. Several of the utterances I cite with understandable pleasure because the citations show quite certainly that the ideas become more and more actual. This is the main motive to propose once more my crazy logic constructions.

I am not ready to assert something or to insist on my suggestions. At the same time I can't disprove or refute them by myself. Then the only what remains for me is to put a question before scientists. In the case I would rather profit by ready-made formulation: "Does it not? Can it not? Should it not? Or why it not?" [29].

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Aberration: Stellar vs. Gravitational, cont. from p. 8

In MMX, light speed is c along the optical axis in the transverse arm, since wave fronts are defined by mirrors in the equipment and not changed by ether wind inside the planes of these mirrors. In relation to equipment, light speed is $\sqrt{c^2+v^2}$. Therefore, ether wind blowing in the transverse arm is irrelevant in MMX. The only effect of transverse ether wind is that returning light hits a different point on the mirrors, which we cannot observe in an interferometer having sensitivity in only one dimension.

In a telescope, v is also irrelevant, but u becomes relevant instead, and produces a telescope error since light motion in observer's frame becomes equal to $c-u$, as stated above.

Gravitational Aberration

Light is a moving phenomenon, but gravity is a local and stationary condition. Since gravity does not move, it cannot produce aberration as long as gravity is constant. According to the theory of pushing gravity (suggested by Fatio 300 years ago, and later developed by Le Sage [1]) a very small shielding effect should be expected during a solar eclipse. The concept speed of gravity has (theoretically) relevance only in this small change in gravity. It sounds reasonable to assume gravity changes to move with speed c, but we cannot prove it since this change is very small.

We can conclude that the lack of aberration in gravity cannot tell us anything about the speed of gravity. Lack of aberration is therefore not an argument against pushing gravity. Instead, we have arguments in favor of pushing gravity gained during solar eclipses. Wang [2] has reported vertical effects, and Rohan Janos [3] has reported horizontal effects.

More information can be found on the personal NPA and CNPS homepages of the present author, and on the homepage of GSJournal under the name of this author.

Conclusions

1. Stellar aberration is not in conflict with entrained ether.
2. There is no effect of ether wind in the transverse arm in MMX.
3. The lack of aberration in gravity does not reveal the speed of gravity.

References listed on p. 20

An Alternative Theory for Hydrogen-Like Atoms

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This paper offers an alternative theory for the Hydrogen atom and Hydrogen-like atoms. Novel features of this theory include: LIST SOME FEATURES.

1. Introduction

The need for creation of an alternative theory of all Hydrogen-like atoms is conditioned by these glaring contradictions between modern Physics and many experimental facts. The reason for a conspiracy of silence is that, upon publicity of stated contradictions, all constructions of Quantum Mechanics collapse, and behind them all building of orthodox Physics.

Examples include:

LIST SOME EXAMPLES

2. Development

Bohr Theory and modern Quantum Mechanics (QM) give the same formulae for radii of excited electrons orbits:

$$r = n^2 \hbar^2 4\pi\varepsilon_0 / mZe^2 \quad , \qquad (1)$$

and structures of energy levels of excited atoms (Fig. 1).

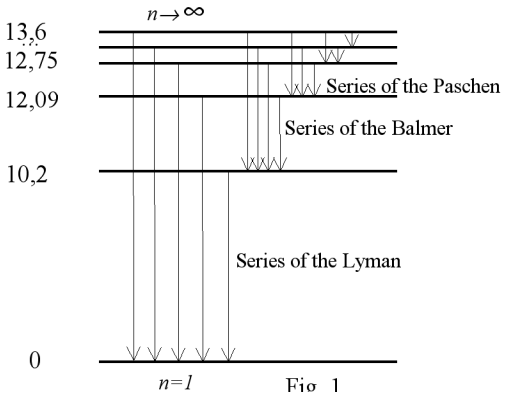


Figure 1.

In any spectral serial it is possible to discover up to a hundred lines (their actual number endless). In this case, the radius of orbit of an electron in an excited atom under the formula (1) will be increased not less than in 10000 times. That overstep the limits of common sense, and contradicts the experimental data. The position of electronic mass in the denominator in (1) also contradicts physical sense, in which it should stand in the numerator.

The atoms occlude the same wavelengths, which emit is a law of the G.R. Kirchhoff (1824-1887) and of the R.W. Bunsen (1811-1899). At slightest heating of gaseous hydrogen we already shall fix spectral lines of an infra-red serial, and from Fig. 1 it is visible, what even in the maiden exited state ($n = 2$) it is necessary to atom of hydrogen to impart energy 10.2 eV. This conforms to absolute temperature more than 100000 ^{0}K.

We are address to a hydrogen-like atom in a stationary state depicted on Fig. 2.

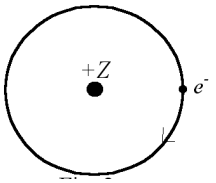


Figure 2.

It is known, that any system aspires to minimum of potential energy and on achieving it occupies a stable state of equilibrium in a potential pit, which name as a ground state.

The author considers kinetic energy $mV^2/2$ as motion of a body on a circumference as universal potential energy of repulsing, operating on all of the universe levels. The reason of this principle is set up in the monograph [1].

For potential energy of an electron we can record:

$$E = -Ze^2/r + m_0V^2/2 \quad . \qquad (2)$$

To not lose common sense, as it is expressed in the classical formula for the orbit radius of an electron, where electronic mass appears in the denominator, let us designate $\alpha = Vr$, and rewrite (2) as:

$$E = -Ze^2/r + \alpha^2 m_0/2r^2 \quad . \qquad (3)$$

Differentiating (3) and equating the outcome obtained to zero, yields a minimum of the function (3). We find the orbit radius at this minimum to be:

$$r = m_0\alpha^2/Ze^2 \quad . \qquad (4)$$

In Eq. (4), electronic mass has taken a position in the numerator, instead of in the denominator of similar expression under the theory of the Bohr and quantum mechanics.

By substituting (4) in (3), we shall receive electron-binding energy with a nucleus:

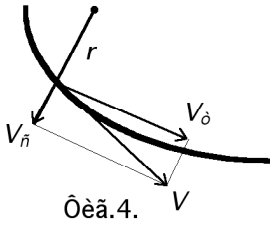
$$E = -Z^2e^4/2m_0\alpha^2 \quad . \qquad (5).$$

The physical meaning of α is, that this product Vr for an electron in endlessness, *i.e.* inherent to mobile electron.

Let us calculate the value of α using the ionization energy of the Hydrogen atom in (5). It has appeared equal 1.1576 cm^2/sec, accordingly, the moment of momentum for a mobile electron will

make $S = m_0\alpha = \hbar$. Naturally, that this value remain constant and for hydrogen-like and other atoms pursuant to a principle of conservation of moment of momentum. Precisely same value of a impulse moment of an electron we would receive, using the formula for bond energy under the theory of the Bohr or quantum mechanics. It is necessary to mark, that orthodox physics for a moment of momentum of an electron (spin) adopts the value $\hbar/2$. Is not known, how it will explain this senselessness (difficultly to skip experimental value!), but one this fact is capable completely to shatter constructions of a modern physics, since for it has fundamental importance by the whole or half-integer spin that the electron has. The electron, thus, is in a potential well, and, when revolving around a nucleus, cannot radiate energy. Only when an absorption of energy occurs, with transition in an exited state, can radiation occur. After wasting this energy on radiation, the electron again will take a ground state.

Further on, it will become clear that the modern theory of a Hydrogen-like atom based on a quantum mechanics and the set up theory of atom of alternate new physics on attitude to one another stand upside down. Who among them can judge for the reader?



Ôèã.4.
Figure 3.

Eq. (3) is deduced for circular orbits, where the velocity vector of an electron is perpendicular to the radius vector. For orbit of the arbitrary form (Fig. 3):

$$E_{\text{tie}} = -Ze^2 / r + mV^2 / 2 \quad , \tag{6}$$

where V is the speed of the body in orbit.

The vector $\mathbf{V}$ on two orthogonally related component is decomposable: a tangential velocity V_{t} and centrifugal speed V_{c}, so, that:

$$V^2 = V_{\text{t}}^2 + V_{\text{c}}^2 \quad . \tag{7}$$

In spite of the fact that the Bohr enabled a capability of motion of an electron with an aliquot moment of momentum and the modern physics approves it, we will not sin against firmly established natural laws, especially fundamental. As the mobile electron has angular momentum $\hbar$ and moves on screw line [1], it remains on any orbit, including and a ground state (circular orbit). For arbitrary electron trajectory this law will appear as:

$$V_T \cdot r = \alpha \quad . \tag{8}$$

By substituting (8) and (7) in (6), we discover:

$$E_{\text{tie}} = -Ze^2 / r + m\alpha^2 / 2r^2 + mV_c^2 / 2 \quad . \tag{9}$$

The known law that a system aspires to minimum of potential energy and on achieving it occupies steady (basic) condition, requires essential more accurate definition, at that should be a dissipation of energy in size of a difference of energy in initial and ground state, *i.e.* the system should be opened, and not isolated. If a dissipation of energy does not take place, then bottom of a potential pit the system can not reach (for example, a pendulum will be swing eternally) - it the energy conservation law requires. In mechanical systems the dissipation of energy takes place at the expense of friction, in space - at the expense of tidal and other forces, and in a microcosmos - at the expense of radiation of photons (or pairs an electron - positron, if the energy has enough for their formation). As only last term (9) distinguishes this equation from (3), $mV_{\text{c}}^2/2$ is that reserve, from which there is a dissipation of energy of an excited atom by radiation of photons. From (9):

$$V_{\text{c}} = \sqrt{2E_{\text{tie}} / m + 2Ze^2 / mr - \alpha^2 / r^2} \quad . \tag{10}$$

Differentiating (10) with respect to radius, and equating the derivative to zero, we find that maximum value V_c on a trajectory at $r = r_0 = m\alpha^2 / Ze^2$, where r_0 is the radius of a circular orbit in the ground state. Substituting this value in Eq. (10), and agreeing that:

$$E_{\text{tie}} = KE^0 = -KZ^2e^4/2m\alpha^2 \quad , \tag{11}$$

where E^0 is binding energy in the ground state, we find:

$$V_{\text{c}}^{\max} = \left(Ze^2/m\alpha^2\right)\sqrt{1-K} = V_0\sqrt{1-K} \quad , \tag{12}$$

where V_0 is the speed of an electron on a circular orbit, *i.e.* depends only on tie energy of electron..

Apparently, in this case, the energy of a photon:

$$h\nu = \tfrac{1}{2}mV_{\text{c}1}^2 - \tfrac{1}{2}mV_{\text{c}}^2 \quad . \tag{13}$$

Converting (13) and taking into account (11) and (12), we discover:

$$h\nu = E'_{\text{CB}} - E''_{\text{CB}} \quad . \tag{14}$$

The same outcome can be derived from (7), recording it for two orbits with V_1 and V_2 and taking into account, that V for both these orbits is identical. It is easy to show, that if $E_{\text{CB}} = 0$, the trajectory of an electron at the nucleus will be by parabola, if $E_{\text{CB}} = E^0$ circular orbit, and in all intermediate cases - elliptical orbits. For these orbits a parabola parameter equal to ellipses parameter and equal r_0, *i.e.* all orbits are intersects in two points of a diametrically opposite to nucleus. In one of these points (where V_{c} is directed from a nucleus) there is a radiation of photons (in contrary - absorption) and transition of an electron from one orbit on another.

Suppose that at at radiation point of parabolic trajectory emanates in all one photon, which is picking up completely energy $mV_c^2/2$ (this electron will immediately move to circular orbit). In this case, the energy of the photon will correspond to the ionization energy the atom (limit of the Lyman spectral series). From the principle of conservation of the moment of momentum, moment of an electron, bound with V_c should be transmitted to a photon (simultaneously it and condition that the photon can be beamed only in the whole kind); therefore:

$$(V_0 - V_c)r = N\alpha \quad . \tag{15}$$

where: N is the number of radiated photons, $V_0 = V_c^0$ at the radiation point of a parabolic trajectory, since in it $V = V_0\sqrt{2}$, r has the mathematical meaning of radius for satisfaction of a law of conservation of angular momentum (it not radius of motion of an electron):

$$mV_c \cdot r = \alpha \cdot m \quad . \tag{16}$$

We from it now will get rid of. From (15):

$$V_c = V_0 - N\alpha / r \quad , \tag{17}$$

By substituting in (17) the r of (16), we find:

$$V_c = V_0 / (N+1) \quad . \tag{18}.$$

Apparently, that number n of steady orbit, if not takes place of a further dissipation of energy:

$$n = N + 1 \quad , \tag{19}$$

Substituting in (18), we find:

$$V_c = V_0 / n \quad . \tag{20}$$

Comparing (20) with (12), we discover K:

$$K = 1 - 1/n^2 \quad . \tag{21}$$

Substituting the value of K from (21) into (11), we find the bond energy in Hydrogen-like atoms depending on n, which for our case it is impossible to consider by quantum number, that in orthodox physics:

$$. E_{\text{tie}} = -\left(1 - 1/n^2\right) Z^2 e^4 / 2m\alpha^2 \tag{22}$$

Substituting (21) into (14) and taking into account (11), we find:

$$h\nu = E^0\left(1/n_1^2 - 1/n_2^2\right) \quad . \tag{23}$$

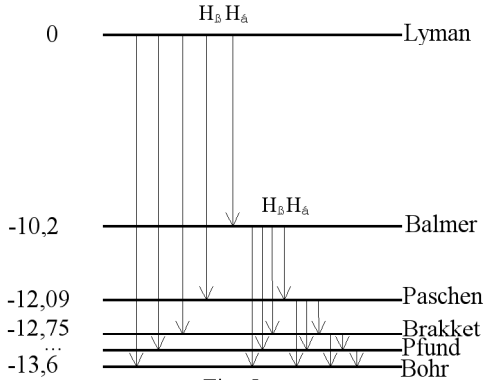


Figure 4.

Thus, the radiation of photons takes place at motion of an electron in a potential pit, and 'quantumness' is determined only by integrity of a photon and to a stationary constitution of atoms of any relation has not. In this connection logic of official science vicious in that relation, that it, watching excited atoms, mechanically transfers outcomes on a constitution of stationary atoms. We would make the same error, doing conclusions about nature of the man, when is observed him in an extremely exited state. If to be precise, the quantum mechanics is compelled so to do, since the solutions of a Schrödinger equation do not enable any 'orbits' of an electron, except for a definite set of stable states. New physics considers, that in a ground state in atom the position of orbits of electrons is determined by a minimum of potential energy of a system as a whole, and 'quantumness' is exhibited only in exited states of electrons.

Using (21), (11) and (3), we can calculate all parameters of possible orbits of an electron around of a nucleus, which one are shown in Table 1.

The eccentricity of orbit can be found from a known polar equation of curves of the second order, supposing focal parameter $P = r_0$, then:

$$r_p = r_0 / (1+e) \quad , \tag{24}$$

and

$$r_a = r_0 / (1-e) \quad , \tag{25}$$

where e is eccentricity. Any other orbit parameters easily will be from known ratio for a parabola and ellipse.

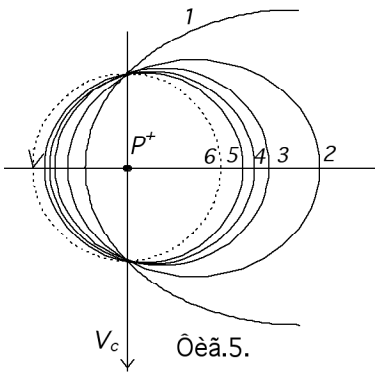


Figure 5. 1 - orbit of the Lyman (parabola), 2 - orbit of the Balmer, 3 – orbit of the Paschen, 4 - orbit of the Brakket, 5 - orbit of the Pfund, 6 - orbit of the Bohr.

On Fig. 4, five orbits of an exited state of hydrogen atom (their infinite set) and ground state (dotted line 6) are to scale figured. The arrow V labels a place of transition from one orbit on another at radiation of photons.

The transition of an electron into any orbit - business of a case, but transition into neighboring orbit in connection with an inertance of an electron is more preferential, that determines large intensity of lines H_α in each spectral serial, specially for high-eccentric orbits. The sizes of atom in any exited state differ from the sizes of a non-excited atom a little. If we have managed not only to arrange orbits of electrons in atoms in parallel planes (that it is possible to make with the help of a magnetic field), but also would make so that the semi-major axes of orbits of steel too are parallel, the radiation of all atoms will be in space strictly distributed depending on energy of photons for the given sort of atoms.

The energy levels of hydrogen atom are shown on a Fig. 5. In matching with official representations, they are figured just what isn't needed. For example, to receive an absorption line in a serial of the Pfund, it is necessary to irradiate hydrogen with an infrared radiation with energy of photons less than 0.6 eV. Official the science assigns for obtaining an absorption line in this serial previously to excite atom by energy not less than 13.1 eV, and that and at all to ionize atom, that enters a glaring contradiction with experiment. The escaping of this inconsistency can be seen by own eyes in oof of paints of a surrounding world, be the official version of energy levels of electrons in atoms fair and all paints here will vanish.

Now we shall be disassembled with a 'exited' electron and we shall look, whether it can beam or to occlude photons, and also 'to wear them with itself'. The term 'an exited electron' is extremely unsuccessful because the exited electron on the frame by nothing differs from unexcited. On the other hand, it is completely inapplicable to such super-exited electron, which one was at all tore off from atom, *i.e.* to a mobile electron. Linking a capability of radiation or occluding of photons with change of kinetic energy an electron, rotated around of a nucleus, we doom ourselves to an infinite wandering on a maze of logical docks without any hope to find any exit. Therefore it is necessary at once to refuse consideration of electron kinetic energy, and to consider its as general purpose potential energy of repulsing. In this case we are compelled to esteem all associates on interplay, *i.e.* system: an electron - nucleus (atom as a whole). The consideration of potential energy only of electron without the associate on interplay is senseless. Analogy to an electrical oscillating circuit beaming radio waves here is pertinent. Without change of potential energy of an electrical field in the condenser and potential energy of a magnetic field in the inductor the radiation is impossible. At the same time, beams radio waves an oscillating circuit as a whole, instead of its any part. Thus, beams or occludes photons atom as a whole, and the electron photons with itself has not.

3. Conclusion

Table 1.

n	Orbit	bind energy	nucleus-pericenter distance (in r_0)	nucleus-apocenter distance (in r_0)	eccentricity
1	Lyman	0	$1/2$	$\times$	1
2	Balmer	$3/4$	$2/3$	2	$1/2$
3	Paschen	$8/9$	$3/4$	$3/2$	$1/3$
4	Brakket	$15/16$	$4/5$	$4/3$	$1/4$
5	Pfund	$24/25$	$5/6$	$5/4$	$1/5$
$\times$	Bohr (ground state)	1	1	1	0
relation	from n	$1-1/n$	$n/(n+1)$	$n/(n-1)$	$1/n$

In conclusion, it is necessary to mark, that the author can not accept many concepts of a modern physics, them to not enumerate, here only some: a centripetal acceleration, S-electrons, spin, Pauli's exclusion principle, indeterminacy principle of the Heisenberg, tunnel effect, laws of a microcosmos, quantum mechanics, independence of apparent velocity of light from motion of the spectator, distorting of space, de-boosting of a time course, neutron stars, black holes etc. If fully to shock this or that branch of physics, these concepts burst, as the soap bubbles, but not on one, and on a chain, are connected which one they. Watching this picture, involuntarily it would be desirable to supplement of the J.J. Thomson that most relevant for science by service is not only introducing of new ideas, but also comprehension of the fallaciousness old.

4. Existing Literature

1. The monograph by the author "Fundamentals of new physics and picture of the universe" by a volume more than 300 pages, spreads in electronic version. Address to the president of fund "Achievements of natural sciences for the solution of problems of the society" Vitaly Giliarovich Dubro

Concluding from p. 16: References

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