The Absoluteness of Gravity
and Electromagnetism [1]

Abstract

Philosophical and physical research and grounding of relative **absoluteness** of motion, space, time and action and showing its *consequences* for physics – The Theory of Absoluteness of gravity and electromanetism.

The present study reveals the gravitational origin of inertia, the **un**explored, **non-radiation,** and the extensiveness of gravity, and therefore the instant and absoluteness of the gravity space (**AGS**). The theory leads to the paradoxical law of inversion vector addition of **non**-inertial of the electromagnetic radiation speed (*c=const* relative to world gravity) with **inertial** velocities of substantial charges, its emitter **v** and receiver **u**, which gives an explanation – the removal of visible contradictions in experiments.

Keywords: gravity, inertia, mass, body, infinity, center of the universe, induction, waves, light speed, inversion **non**-inertial vector addition of velocity.

I. The Absoluteness of gravity and Gravitational origin of inertia
I. §1.The essence of the theory of gravitygenesis

Gravity – boot bodies mutual convergence acceleration, their **attraction** is proportional to the mass **m,** – to the extent of their initial force, weakening with distance $1/r^2$,

Inertia ($\equiv$ antigravity, counteraction of any body to its acceleration or deceleration) is created by the equalization of **counter-gravities** by endless (infinite) set of surrounding world masses as resultant of them **equal-action.** With a serious *simplifying* to the *finite* possibilities of the classical mathematical apparatus, the idea gets form of:

$$f(r) = \rho m_g \iiint\limits_{v'} \frac{(r-r')dv}{\left| r-r' \right|^3},$$

or in the "*center of the sphere*" (where the radius r = 0)

$$f(0) = \rho m_g \iiint_{v'} \frac{r'dv'}{|\,r'\,|^3} \quad \text{etc}\,^2,$$

since the "center" ($r = 0$) of infinity (the "radius" of the universe R = ∞).

Like the way in a fable the cart is immovable, because it is pulled in different directions by a swan, a cancer and a pike.

Thus, **inertia** is the result and type of **gravity**, even just its particular case.

However, **this** theory gravity genesis (of gravitational origin) of inertia rests on the irony of the *classical* notion of the *infinity* of the universe.

I. § 2. **The Proof of the Theory**

This presumption naturally raises an **objection** against this idea, the questions: then why is the shift of the object, at least the smallest, he does not come out of this "center of the world gravitational equilibrium", thereby breaking it and rushing in some one direction? And where is this "center of the gravitational equilibrium" of the entire infinite universe, the absolute center? Because on the various sets of masses he will without end be displaced. After all, with respect to different congregates of masses, he will endlessly shift. Or in "infinity" there is *no* center? But why? Why shifted body does not come out of the all world's gravitational equilibrium?

What does this paradox of infinity hide? What are its consequences for physics, its theory and experiments?

In the resolution of the paradox, the author believes that for infinity *one* *single* geometric center (the "center" of the "sphere of infinite radius" of the universe R=∞) is impossible.

Infinity also has infinitely many centers. Therefore, such a quasi-center of the gravitational equilibrium of infinity is **everywhere** (!), at any point of **local** gravitational equilibrium ("center of gravity", "center of inertia").

What are the theoretical foundations of the new idea?

Philosophical and mathematical justification of the ubiquity of the quasi-centers of gravitational equilibrium in infinity, see chapters 25-26.

According to the accepted in philosophy and after G. Cantor[3] also in mathematics to the definition of "equal power" (~ "quantity") of infinite sets – the author approves – an infinite set has also infinitely many such centers. That is why such a quasi-center of gravitational equilibrium of infinity is **everywhere** (!), at any point.

The division of an infinite set gives **sub**sets that are also infinite. In particular, its division, due to a shift of the body – at the **b**ack of the object there remains the same infinity

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[3] *Cantor* G. Works on Set Theory. (*Кантор Г.* **Труды по теории множеств**. М., Наука, 1985, с.135-141,147, 263). *Science.* **The greatest theories**. (*Наука*. **Величайшие теории**.– Вып. 30. М., 2015, с.122, 157).

of masses, which is **a**head: $\infty = m_b = m_a = \infty$, - and, thus, the body is in gravitational equilibrium of masses everywhere (!) and does not come out of this equilibrium under the shift.

In the author's opinion, the **infinity** and **ubiquity** (in any place) of its quasi-**centers** of gravitational equilibrium in the world's infinity is a *special property* of the infinity of the world, although we, the beings in our practice are always finite, it appears a **paradox**.

So the equilibrium of the <u>infinite</u> masses excludes from the sum of actions the infinite masses themselves, "subtracts" itself and leaves for us and for any individual subject of action two options:

1) The dependence of the result on the action of the <u>own</u> **mass** solely on the object of action itself, its resistance to acceleration as a violation of equilibrium, which appears to us as its **inertia** m_i. Or

2) Plus attraction to the body of <u>non</u>-balanced, closer neighboring masses, and then their **mutual** attraction appears as **gravitation:** $m_{i \to g} + \Sigma\, m_g$

That is why it turns out that the resistance ($\equiv$ inertia) to acceleration is produced only by one **own** mass of the object $m_i = m_g$, - and homogeneity and isotropy of inertia are established.[4] In this homogeneity and isotropy there is a structural contrast between the mathematics of **infinity** and the *finite* "Mach's principle, "with its *finite* masses and the derivation of the anisotropy of inertia, despite the fact that not detected dependence of inertia on the near masses.

The **first** actual factual proof of the gravity genesis of inertia is to explain to him the otherwise surprising fact that the ***inertial mass*** is always invariably and exactly equal to its **gravitational mass** $m_i = m_g$. Their equality exists precisely because inertia is a kind of gravity. Other factual evidence is in further explanations.

I. § 3. The Proof of the Instantly of Gravitation

The action of inertia is **instant**, and, since inertia is a kind of gravity, it means that the gravitational action should theoretically also be instant. And the instantly of gravitation is proved by **facts**.

The long-range action of gravitation and inertia is transmitted instant, at the same time $t_g = 0$, which is reflected in the formulas of Newton's laws, where there is **no** propagation of the action of gravity with any finite velocity v and therefore its *retardation* by the time $t = s/v$ some point at a distance s, as opposed to the laws of electrodynamics, where electromagnetic emission in Maxwell's equations shows the propagation of the action just from point to point, the transfer from immediately adjacent changes with a finite light speed and, as a result, their *retardation* for a time $t = 1/s$.

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[6] See: To the Theory of relative absoluteness. The chapters 25 - 26.

Centuries-old astronomical and astrophysical observations of the gravitational-inertial motion of the Sun, the Moon, planets, stars and any bodies state the **absence** in them of any *retardation* for a time *t=1/v* in inverse relationship to their velocity *v*. Modern astrophysical observations of extremely fast reversing double heavy stars ("white dwarfs") and over explosions of stars, where such differences from the moment of gravitational action should be particularly large, also do not fix any differences.

Now the instantaneous transmission of the shifts of gravitation in the motion of bodies is confirmed by **all** the known facts of cosmic ballistics – throughout the accessible telescopes of the universe at distances of billions of light years[5] .

However, **how** is this possible such instantly of a long-range action be?

Newton himself believed that gravity has an *infinite* velocity $v_g = \infty$. But the Newtonian idea of an "*infinite* velocity": $v = s/t = \infty/0$ – appears as a **nonsense –** from its contradiction to the very notion of velocity as a relation of some <u>different</u> and, consequently, <u>finite</u> distance traveled to time $v = s/t$.

Apparently, therefore, Laplace, as in a hundred years also A. Poincare, and then other researchers, paying attention to the **absence** of any $1/v$ *delays* in the gravitational-inertial motion of the Sun, the Moon, planets and stars, nevertheless received be careful: did not insist on $v_g=\infty$, but recognized that the speed of gravitation is many times greater than the light speed; for today it is checked up to $v_g \geq 10^{11} c$.

Now the instant transmission of the shifts of gravitation in the motion of bodies is confirmed by all the known facts of cosmic ballistics – throughout the accessible telescopes of the universe at distances of billions of light years.

Now, even Einstein and other relativists who, for the sake of preserving their theoretical constructions, long insisted on the "prohibition" of superlight speed, eventually silently limited themselves to the "prohibition" for gravitation to serve as a "signal", and assumed that the speed of light should be equal to the speed of their *gravitational waves*.

I. § 4. **The Explanation of the Instantness of Gravitation**

Indeed, how to combine these mutually exclusive positions – instantness and speed? How is this possible? Why?

In the opinion of the author, the only solution of the gravitational **nonsense** or **paradox** is accepted the unexpected.

The moment of long-range action means that the gravitational field simply does **not** have a velocity: $v_g = 0$, and therefore the **gravitational field** is <u>not</u> radiation, but only the **extension** (extent) of the object, its **holistic nimbus**, invisible, mutually permeable and weakening with a distance of $\sim 1/r^2$, which is <u>not</u> arises and does <u>not</u> propa-

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[5] Ibid, chapters 25, 26.

gates, but **extends** broadwise, that is, **before pre-exists** and travels together with its center as one whole, of course, synchronously with the same sub-light speed as the central mass itself.

That's why even if the velocity of the body and its gravitational field (nimbus) is less than the light speed $v<c$, nevertheless, its detection in action at any distance is instant: $v_m<c$, but $t_g=s/v_g=0$, as well as and the inertia action $t_i = 0$.

But then it turns out that nowadays the *generally accepted* understanding of the body is **erroneous.** Analysis of the facts forces us to a different, **new** concept of body and field – the continuum.

The bodies are **not** at all *limited* to their visible and resisting *surface*, but extend their fields – nimbus to infinity and as a web they are linked to a single whole world, where the shift of any particle **acts** on all others, although, of course, in varying degrees, depending on the distance and from exceeding their quantum threshold.

Finally, in the broad notion of body cherished dream of a "unified theory" comes true – the dialectic of the discontinuity and the fusion (the corpuscularity and continuum of the field).

The implications of open understanding for field' physics go far. Here – two private consequences.

1. There must be a structure and shifts (oscillations and other "perturbations") of the world gravitational field due to the superposition of the set of gravitational fields and the shift of their centers-masses, but not as radiation. The ***interpretation*** of them as "the *emission of gravitational waves*" has a no neither indisputable theoretical and nor empirical evidences and contrary to specified laws of continuamente and immediacy of gravity.

2. The second important effect: According to Newton, gravity, any change of the distance s instantaneous ($t = 0$) causes a change (↑ or ↓) forces in her actions F. Thus instantaneous, therefore, the "superlight speed" ($t = 0$) action of gravity denies as an indicator ("signal") for the experimenter and for any person of the change in this distance s, which deprives and refutes the arbitrary restriction of the relativism of the speed of light $v = c$, making the "prohibition" of the superlight speed of action at a distance for the relativistic theory an alarming problem.

Other **Consequences of Theory of Gravy genesis of inertia** go even further.

The question arises: what is the interrelation of gravity (including inertia) with electromagnetic radiation?

Here as we know, electromagnetic radiation is <u>no</u> longer propagated by Newton's <u>inertia</u>, but by Maxwell's <u>induction</u> at a constant speed (c = *const*). But an **relative** to what?

How is the addition of the speed of <u>induction</u> of electromagnetic radiation with different <u>inertial</u> velocity of the charges-emitters (radiator) *v* and receivers *u*: in the same world absolute gravitational space (**AGS**)? How are these contradictions resolved?

Physicists think and argue about this already the second century. And it's not surprising.

It is not easy for us, the inhabitants of the surrounding gravitational-inertial world of mechanics, to imagine a strange (almost completely) inertial-free world (without-inertial, inertia less) of electromagnetisms with its *unthinkable* **inverse**-inertial vector addition of velocities (Ibid, chapter 26 a)

Constancy of the **induction** speed of electromagnetic radiation (*c=const*) <u>relative</u> to the <u>**absolute**</u> gravitational space (**AGS**).

II. **Relative Absoluteness of e-m radiation and its velocity.**
II. § **1**. **Absolute of kinematics**

According to the not very well-known "*principle of relativity*" the movement of two bodies (reference systems) (e g., the Earth and the Sun) **relative** to each other means their mutual *identity* in distance, trajectory and speed: *as* one moves relative to the second, and *then* moves relative to the first.

From this *inner* identity of movements comes *relativism*.

But this is only **part** of the relationship between body movements. The principle of relativity has another side: both bodies each move empirically <u>differently</u> relative to the external third bodies and fields: to the Moon, the Venus, the Saturn and even to distant stars (parallax, aberration). Thus, the motion of two bodies loses its *kinematic "sameness*" and "equivalence" if we take into account the difference between the motion of each of them relative to the third body and the field, the 4th, 5th (the Moon, the Venus, the Saturn, stars), etc.-relative to the infinite set of external to these two bodies and fields of the universe – the world environment.

<u>Full</u> sum relations = **absolute.**

So the *relativity* of motion **forms** their **absoluteness** (= uniqueness → **not** interchangeability of each). (See: chapters 13-16). This side relativism does not notice or ignores.

II. § **2**. **Dynamic absoluteness of motion**

However, the movement is absolutely not only in the kinematics, but especially in the dynamics.

Dynamic equivalence of motion of some closed system of bodies exists only under the conditions of their **equal action**, relative to the "center of gravity" (center of inertia. See. I §2, *p*.11), which is not involved in their movement, because the total sum of their pulses is constant $\sum_i m_i v_i = 0$. And this "equilibrium" is approximate, since *complete* "isolation" of the system from external disturbances is unattainable.

And outside of the equal action, one "transformation of coordinates" ("reference systems"), of course, it is possible, as in *relativists*, "to make" the Earth "*equivalent*" to the Sun – and then it will acquire a colossal kinetic energy relative to the planet – as if in violation of the law of energy conservation. It is a pity that this energy will not be physically real, but fictitious, *only mental*, and it does not move even the fluff.

Such dynamic absoluteness of motion manifests itself in the instantaneous gravity and inertial long-range action (I.§ 1, 2) and in the fact that all the objects of both uniformity and straightness of inertial motion and accelerations of masses and electric charges do not belong to *any* neighboring bodies, but to the absolute gravitational space and time, which are asymptotically close to the equal action in infinitum and which are therefore accessible to unambiguous (See. section I. + chapters 14-16).

The absolute motion of the masses and charges is found in **all** experimentally established mechanical and electrodynamics effects. (Chapters 18 -19).

II. § 3. **Gravity & electromagnetism**

Electrodynamic motions occur under conditions and in interaction with gravitational-inertial motion, but their laws are radically **different**.

Electromagnetic radiation is driven not by inertia (the gravitational component in it is negligible), but by **induction**, causing each of its previous transverse e-m impulse ("photon") of the next impulse arising at a distance of "wavelength" λ and with "light speed" c.

But its induction itself is caused by the acceleration of an electric charge and, as all physicists know (I hope), moreover, it is <u>not</u> at all related to *any* (and *every*) <u>*neighboring*</u> bodies (the charge does <u>not</u> radiate from their shift), but by acceleration in violation of their **<u>own</u> inertia**, therefore, this acceleration, this induction and this radiation are related <u>not</u> to any bodies – the reference bodies, but to the world absolute (!) gravitational space (**AGS**).

As we can see, in *this* sense, Einstein's original statement is true: the speed of light (and of any electromagnetic radiation), as the speed of successive **induction** of its impulses, does not change, but is constant: $c=const$.

But it is constant not *absolutely*, <u>not</u> to <u>*any*</u> objects. The idea of the"not relative (irrelevant) speed" is **nonsense**. The "light speed", electromagnetic velocity is constant with respect to the absolute gravitational space, therefore, in particular, with respect **to each** of its previous electromagnetic impulse at a wavelength distance λ, and retrospectively, ultimately, to the **instant place** of the <u>first</u> its initial original starting impulse radiation emitted by the charge in this world absolute (!) gravitational space (AGS, "Space of Stars").

However, since after the radiation the charge-emitter and the radiation receiver continue their motion in the same world gravition, in the absolute gravitational space the *light speed c* cannot be invariant with respect to differently moving bodies, but its vector addition occurs with the velocities of the emitter *v* and the receiver *u*.

Their addition occurs under a special law, unusual for inertial macroconditions of our everyday practice, even paradoxical, inverse to inertial mechanics. It's hard for us to even imagine (Chapter 26a) such the electromagnetic world, where there is <u>no</u> inertia.

Light speed refers not to the *emitter*, as in lag Michelson (to the Earth), and applies not inertia, but induction; therefore, it with the speed of the emitter, v is not *inertial* (not ballistic), as usual for our macro conditions of mechanical gravitational the movement and how thought V. Ritz.

Electromagnetic induction propagates, keeping the light speed with respect to gravitational space (**AGS**), but without *taking* over the inertia of the charge-emitter (radiator, let its inertial velocity *v*) and adding with the velocities of the receiver *u* - depending on their **mutual direction**: the velocity *u* of the <u>counter</u> beam is added with light speed, <u>escaping –</u> is subtracted.

Thus their inverse**, a**ballistical, **non-*inertial* vector addition** is strange, unusual, more precisely unaccustomed for us according to laws habitual *inertial* addition in ballistics of the mechanics in our macro-**conditions.** Owing to this **inversion** of the light speed *c* can be variable **not** only relative to a receiver, but relative to a radiator itself, and as a result the <u>received</u> <u>velocity</u> of a radiation (*c*'), contrariwise, can **not** be changed from the motion of a radiator: $\bar{\bar{v}} * c = c' = const$, but $\vec{c}_0 - \vec{v} = \vec{c}_i$, $\vec{c}_i = \vec{c}_0 + \vec{v}$, $\tilde{c}' = \vec{u} + \vec{c}$, $\tilde{c}' = \tilde{c} - \vec{u}$, and addition and permanence of light speed in case of *conjugate* or *dual* motion of a radiator and a receiver when $\vec{u} = \vec{v}$.

Please check: all the riddles of the experiments are explained simple wonderful.

III. § 4. Such inversion *inertial*-**free** (**non-*inertial***) addition (**w**) of the electromagnetic speed means the corresponding anisotropic modification of the Maxwell's equations (Chapter 21.16-17)

$$\mathbf{rot\ H} = \frac{1}{c}\left(4\pi j + \frac{\partial \overline{E}}{\partial t} + \overline{w} \cdot div\overline{E} + rot\left[\overline{w}\overline{E}\right]\right),$$

$$\mathbf{rot\ E} = -\frac{1}{c}\left(\frac{\partial \overline{H}}{\partial t} + rot\left[\overline{w}\overline{H}\right]\right) \quad \text{и т.д. (гл. 21)}.$$

§ **5. A**ballistics' modification the Maxwell's equations under the laws of a inversion **non-inertial addition** of the light speed *c* provides <u>non-contradictory</u> **explanation** of known electrodynamics facts: of star aberration, Doppler effect, motion of binary stars, rotating pulsars, negative results of Michelson's and Trouton's experiments of second order and the peculiarities of optics of moving bodies and the peculiarities of optics of moving bodies. Both with the **photon**-genesis theory of substance (chapters 5, 26, 28- 30) they explain the well-known **near-light effects**: longitudinal deformation of bodies, deceleration of processes in them and growth of mass.

II.. Relative absoluteness gives **prediction** of new effects available experimental verification:

weak <u>gravitational</u> induction of electromagnetic radiation (chapters 25- 26, *p*.171),

<u>magnetic</u> display of <u>relative</u> electric current (chap. 21),

dependence of Doppler spectrum shift **not** on frequency, but on the **length** of waves (chapters 22, 23),

 invariability of wave length and radiation frequency in case of **tie-in** of motion of a radiator and a detector (chap. 22, 24),

transformation of substance **particles** at achieving light-speed *c* into electromagnetic **radiation** (chapters 5, 26, 28).

. Einstein's hypothesis *absolutizes* relativity ($\equiv$ asserts its absoluteness). It **contradicts** phenomena of star aberration, Doppler effect, absoluteness and instantaneousness of inertia and gravitation action, laws of conservation and conversion of energy and mass, and all it leads to numerous "paradoxes" – to a euphemism of absurdities having not found a solution in it.

Created to overcome contradictions the "general" hypothesis of relativity nevertheless keeps them, and more than that – it proceeds upon:

a) Impossible absolute identity ("principle of equivalence") of <u>radial</u> gravitation and <u>isotropic</u> inertia,

b) Reshuffle – mixing of reference systems with coordinate systems – in ideally of "general covariance" of physical laws equations and

c) that means *loss* of spatial **dimensions** (chap. 20), and in actual <u>revision</u> it does **not** have neither experimental confirmation or predictions.

Truths being contained in it: existence of gravitation in electromagnetic radiation and dependence of mass from its velocity – had been known **long before** Einstein (chapters 26 - 27), as well as equivalence of energy and mass $E = c^2 m$ (chap. 4).

The great idea of Einstein – the constancy of light speed (c = *const*.). But his near look *loss* of its relations and led to the nonsense.