Decomposition CO₂ and CO in Flow of Gases by Means of Technical Ferrogravitational Field

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ABSTRACT

The author's experimental studies shown that magnetic poles (magnetic charges) are real structural components of atoms and substance. It is the magnetic poles, and not the electrons moving are direct sources of all magnetic fields in nature. The main reasons for ignoring magnetic charges in physical science are the hard conditions for their confinement in the structures of substance, which is fundamentally different from the confinement of electrons, as well as the vicious electric magnetism of Maxwell (1873). True magnetic poles have been "buried alive" in physical theory under such theoretical surrogates as the magnetic moments of electrons. The electromagnetic shells of atoms composed of electric and magnetic charges are the sources of gravitational field which is the vortex electromagnetic field and is described by vortex vector $\text{rot}[\mathbf{E}-\mathbf{H}]$. Depending on the state of vortex vectors $\text{rot}[\mathbf{E}-\mathbf{H}]$ in the composition of gravitational fields (GF) emitted by atoms, these fields are subdivided into paragravitational (PGF) and ferrogravitational (FGF). The sources of ferrogravitational field are repelled from sources of paragravitational field, for example, from Earth. The forces of such repulsion depend on the degree ferropolarization of gravitational field of atom - source of FGF, and the physical manifestation such repulsion is the effect of the ferrogravitational levitation (FGL), which discovered and investigated by the author. The FGL effect is also realized between the atoms emitting PGF and FGF in the formulations of chemical compounds. When an external FGF acts on CO₂ molecule the process ferropolarization of gravitational field of oxygen atom is realized, which should be defined as the gravito-plastic source. In this case, the carbon atom, which is the gravito-stable mass, remains of paragravitational. At interatomic distances $<1 \text{ \AA}$ the forces of the gravito-levitation repulsion may be very significant and lead to the rupture of chemical bonds between oxygen and carbon atoms and to the disintegration of the molecule CO₂. It is highly probable that the process of decomposition of CO₂, similar to that described above, is carried out in the cells of leaves of green plants, which emit precisely the ferrogravitational field. The decomposition of CO₂ by FGF and the supply of oxygen to green plants is natural process that takes place in leaf cells called photosynthesis. However, photons in this process are only a stimulating factor contributing to the ferropolarization of gravitational field emitted by atoms oxygen in the composition of green plant cells.

Keywords: Magnetic charges, Magnetic dipoles, true Antielectrons, S-Gravitons, Gravitational field, Ferro- and paragravitation, Gravitational levitation, FG – generators, decomposition of CO₂.

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I. INTRODUCTION IN PHYSICS OF REAL MAGNETIC CHARGES

The experimental and theoretical studies carried out by the author (period: 1968–present) have shown that the magnetic charges are real structural components of atoms and substance and are the immediate sources of all magnetic fields in nature [1]–[4]. Magnetic particles with a negative charge (g^-), existing in the compositions of atomic shells, received the author's name the **magnetons**, that should not

be confused with such the theoretical surrogates-substitutes of these particles as the magnetic moments of electrons in magnetons of Bohr. Magnetons in its physical parameters are magnetic analogs of electrons. Together with electrons and magnetons in the compositions of atomic shells there are their antiparticles, i.e., **true antielectrons** (e^+) and **antimagnetons** (g^+). It is important to note here that the existing physical theory uses such theoretical surrogates as electron vacancies or Dirac holes for substitution of the real antiparticle of the electron, i.e., true antielectron. These last

fundamental particles, like magnetic charges, found themselves in conditions of hard confinement in substance and, for this reason, dropped out of the sphere of attention of physical science.

Thus, in the composition of atomic shells there are four real spinor particles, i.e., charged fundamental particles: two magnetic and two electric, and not one electron, as is commonly believed. In other words, the shells of atoms are electromagnetic, and not purely electronic, as is now commonly believed [5].

The magnitudes charges of electric and magnetic particles in atomic shells corresponds to the condition $e=g$. It is important to emphasize that the above-mentioned real magnetic poles (magnetic charges) have nothing in common with the known Dirac monopoles [6], [7], and also do not participate in such physical manifestations as the magnetricity [8]. All these last theoretical constructions and manifestations at the formation of magnetic field used electrons and their currents, i.e., they are, in fact, of electrified constructions based on Maxwell's vicious electric magnetism [9].

It is important to note that of the first person which experimentally observe real magnetic charges was the Austrian physicist Felix Ehrenhaft who for more than 40 years (1910-1952) explored these "elusive" fundamental particles that actually exist in atoms and substance [10]. Important to note here that Ehrenhaft's experiments were repeated by his numerous followers, who also came to the conclusion about the existence of real magnetic poles (see, for example, [11]).

In 1968, regardless of Ehrenhaft, the author of this article came to real magnetic charges in atoms and substance based on results of his neutron diffraction studies of the magnetic structures of hexagonal ferrites [12]. The displacements of the so-called the magnetic moments of Fe^{3+} ions from atomic nuclei discovered in this study served as the basis for the author's assumption that these moments are theoretical surrogates invented for replacement of magnetic poles (magnetic charges) which really exist in atomic shells. Subsequent experiments of the author fully confirmed his preliminary conclusions (see [1]–[3]).

Real magnetic poles (magnetic charges) as well as true antielectrons were "buried alive" in physical science as a result of three tragic circumstances.

1. Physics of hard confinement of magnetic charges and true antielectrons in substance which is fundamentally different from confinement electrons

It is the physics of confinement mentioned above that was the main reason why these particles very difficult to experimentally extract from the composition substance and to study in detail. However, it is important to understand that the difficulties of experimental work with real magnetic charges do not mean at all that these particles do not exist [13].

2. Primitive-superficial perception by J. Maxwell in 1873 of the result of Oersted's Experience

The fact is that the well-known so-called the first Maxwell equation $\mathbf{k} \mathbf{J}_e = \text{rot} \mathbf{H}$, in the reality, includes two different physical processes: $k_1 \mathbf{J}_e = \text{rot} \mathbf{J}_g$ and $k_2 \text{rot} \mathbf{J}_g = \text{rot} \mathbf{H}$, where $\text{rot} \mathbf{J}_g$ are eddy orbital current of magnetic charges (rotating magnetic dipole). Electrons moving in

composition of electric current ($\mathbf{J}_e$) are exclusively intermediaries that only unwind real magnetic dipoles, but cannot themselves form a magnetic field under any circumstances. Exactly J. Maxwell miss out sight of real magnetic poles and introduced into physics the vicious and tragic myth that moving electrons are direct sources of magnetic field [14].

3. The inertia of human thinking

For almost 150 years of the dominance of Maxwell's vicious electric magnetism in physical science, theoretical "Himalayas" were built on which, since kindergarten, many generations of scientists were brought up. Antagonism to real magnetic charges which has developed in world physical science can be considered as manifestation of information physical "pandemic". So, for example, articles of the author with the results of study of magnetic charges, sent to the so-called prestigious journals (Phys. Rev, Nature etc.) usually accompanied by expert conclusions: "**This can never be.**"

Physics with real magnetic charges is radically different from existing Physics, in which these fundamental particles are ignored. So, for example, the Gravitational Field in physics with magnetic charges is just a vortex electromagnetic field which is described by the vortex vector $\text{rot}[\mathbf{E}-\mathbf{H}]$. Recall that the magnetic field is described by the vortex vector $\text{rot} \mathbf{H}$.

In addition to the noted of purely scientific circumstances, the vicious ignoring of magnetic charges in physical science has closed all the possibilities of approaching to new very effective technologies. One example of such a technology is method for decomposing CO_2 by means of the ferrogravitational field, submitted in the article which is implemented in the gas flow directly at outlet of the combustion seat and eliminates such labor-intensive processes as capturing and storing this gas. To the example noted above, we can add the technology developed by the author for the generation of an artificial paragravitational field, which can save astronauts from problems with weightlessness [15], [16].

II. PHYSICS OF GRAVITATIONAL FIELD WITH REAL MAGNETIC CHARGES, PARA- AND FERROGRAVITATION, GRAVITATIONAL LEVITATION

The elementary source of gravitational field is the electromagnetic quasiparticle which received the name **S-Graviton** ($S=\text{source}$). The S-Graviton is combination of the electric and magnetic dipoles rotating in antiphase at same atomic orbital. The model representation of the orbital electromagnetic current or S-Graviton can be written in following form: $\text{rot}[\mathbf{J}_e - \mathbf{J}_g]$, where $\mathbf{J}_e$ and $\mathbf{J}_g$ are vectors the density instantaneous orbital currents of electric (e) and magnetic (g) charges. Then the equation process gravitational field formation by means the S-Graviton can be presented in the form:

$$k \text{rot}[\mathbf{J}_e - \mathbf{J}_g] = \text{rot}[\mathbf{E} - \mathbf{H}] \quad (1),$$

where $\mathbf{E}$ and $\mathbf{H}$ are the vectors of the instantaneous electric and magnetic field strength in composition of the vortex

electromagnetic (gravitational) field, k is the proportionality coefficient. The minus signs indicated in the above equation for formation of the gravitational field correspond to both the antiphase of the orbital currents of electric and magnetic charges, so and the anti-directionality of the vectors of the instantaneous electric and magnetic strength at each point of gravitational field [17] (see also [5]).

The Vector-vortex analogy between magnetic (a) and gravitational (b) of fields is shown on Fig. 1. Unlike from vortex magnetic field of every point which is answered one vector of instantaneous strength of $\mathbf{H}$, every point of gravitational field is responsible two vectors of instantaneous strength of fields $\mathbf{E}$ and $\mathbf{H}$ equal by value and oriented antiparallel to each other. In addition, in Fig. 1 shown that the magnetic vortex field, which is determined by the vortex vector $\text{rot}\mathbf{H}$ is formed by means of the rotating the magnetic dipole. As noted above, the elementary source gravitational field is S-Graviton which can be defined as the dynamic EM-bidipole, i.e., two related dipoles (electric and magnetic) rotating in opposite phase on one atomic orbital. The classical equations of the processes formation magnetic and electromagnetic (gravitational) of fields also shows in Fig. 1.

Fig. 1. Schemes of mechanisms formation of the vortex spinor fields: magnetic (a) and electromagnetic (gravitational) (b). By white circles on the Fig. 1 showed negative charged electric and magnetic spinors: electron (e^-) and magneton (g^-) and black circles - positively charged antispinors corresponding to them with charges e^+ and g^+ .

If in the composition of the gravitational fields emitted by physical masses (atoms, nucleons, substance etc.) the polarization of the vortex vectors $\text{rot}[\mathbf{J}_e - \mathbf{J}_g]$ S-gravitons is realized, then by analogy with the magnetic fields of ferromagnetics, the gravitational fields of these masses can be called the **ferrogravitational fields** (FGF). The gravitational fields formed by the physical masses in the absence polarization of the vortex vectors of S-gravitons in their compositions are tensor or quasi-scalar fields. And again, by outward analogy with magnetism, such fields can define as the **paragravitational fields** (PGF).

It is important to note that the system of two coupled of the electric and magnetic dipoles rotating in antiphase in one atomic orbit, is shown in Fig. 1 b is real shell of hydrogen atom (protium). If in the center of Fig. 1 b to place proton, then we get the scheme real atom of protium. Namely the electromagnetic shell of protium that represents the S-Graviton is of the elementary source ferrogravitational field $\text{rot}[\mathbf{E} - \mathbf{H}]$.

The mathematical expression corresponding to the state of FGF is have the form $\langle \text{rot}[\mathbf{E} - \mathbf{H}] \rangle \neq 0$. The gravitational field corresponding to condition $\langle \text{rot}[\mathbf{E} - \mathbf{H}] \rangle = 0$ by analogy with the paramagnetism can be defined as paragravitational field (PGF).

Between the masses (bodies) that emit paragravitational field is implemented generally accepted in of physical science the attraction. Since the overwhelming number of masses in the Universe emit the paragravitational field the processes of attraction noted above between them define the famous Law of universal gravitation.

The masses which emit ferrogravitational field repelled from is masses-sources the paragravitational field, for example, from Earth. This last effect, discovered by the author of the article, called the effect of **Gravitational Levitation** (GL), which can also be referred to as effect of **ferrogravitational levitation** (FGL) [18]. For the purposes of this article, it is important to note that atoms, depending on physical conditions, can emit both FGF and PGF. The forces of gravitational levitation which realized between the atoms emitting FGF and PGF are repel them from each other, in the same way as the Earth's paragravitational field pushes out the sources of ferrogravitational field, for example, atoms of light hydrogen (protium).

It is the noted forces gravitational levitation, which realized between the atoms- sources of FGF and PGF that were used by the author in the technology of decomposition of CO_2 and CO molecules, presented in the article. The nature of the forces that are responsible for the formation of chemical compounds, as well as manifested in the gravito-levitation effects are discussed below in Section 7.

III. WORLD PHYSICAL TRIAD AND "DARK ENERGY" IN PHYSICS OF CHEMICAL BOND AND GRAVITATIONAL LEVITATION

The results of years of research of real magnetic charges allowed the author to formulate the conception of the **World Physical Triad** (WPT) according to which the real World consists of three fundamental phases: **Matter**, **Antimatter** and **Energo-phase** (**Energo-medium**).

Particles of Matter are spinor particles (spinors) of electric and magnetic nature with negative charge, and particles of the Antimatter are antispinors with positive charge. Particles of Antimatter constitute approximately half all of real charged particles in real World, and their absence in the physical representations is determined by Physics confinement these particles in structures of substance. The process so-called annihilation of pair: spinor – antispinor, is accompanied by a strong compression of these particles to one another by forces "**Dark Energy**" ("DE") and, in principle, not lead to their annihilation [19].

Note 1. It is important to note here that, for example, Matter and Substance are completely different physical categories. Matter or Material Phase like of Antimaterial Phase consist from of fundamental charged particles noted above. As for the Substance, these are structural forming consisting of material and antimaterial particles. The most general notion responding for the latest formations is Physical Mass. Masses are, for example, atoms, nucleons, substance and others. Thus, under no circumstances the

Substance cannot turn into Matter. The main reason for the misconception described above, according to the author, is the disregard by the physical theory, for 150 years, of real magnetic charges and domination in it of Maxwell's vicious electric magnetism.

The **Energo-phase (Energo-medium, Power-medium)** is of the global medium which executes all force acts on the particles and masses in real World. In the basic (undisturbed) state the Energo-phase is the isotropic superhigh-density gas-like (maybe even quasi-fluid) medium formed by its own fundamental particles referred to as the **energions** which are spinless and massless (designated by the author as ϵ). These particles are very small, they move in all directions at speeds close to the speed of light and can be only of the Lefts and Rights what linked with the appropriate direction of their own rotation. General state of the energions within Energo-medium is determined as doubly degenerate. Super-high mobility and not-inertial behavior of the energions allow the particles and masses to move relatively freely in Energo-phase when this medium is in basic (undisturbed) state.

Fig. 2 presents a scheme of the World Physical Triad which includes three fundamental World phases: Matter, Antimaterial phase and Energo-medium (Energo-phase). The fundamental particles that constitute Phases of the Triad are indicated on the diagram, i.e., the spinors, antispinors and energions. In Fig. 2 marked and such derivatives from phases of Triad as the spinor fields and "Dark energy". Outside of this scheme remain are condensates consisting of the spinor particles of Matter and Antimaterial phase, called Masses, i.e., atoms, nucleons, substance and others.

Fig. 2. The Diagram of the World Physical Triad.

According to the Physical Triad Concept all forces direct action on the particles and masses in real World are the forces of the so-called "Dark Energy" ("DE") which is determined by nonequilibrium states in Energo-medium in the form of oblasts of local pressures created by its own particles – **energions**. The formation of "Dark Energy" in Energo-phase is induced by spinor fields, i.e., fields of charged particles. In so doing all of spinor fields including

gravitational fields do not have any real of power significance. They only play the role of intermediaries exerting influence on state of the Energo-medium and inducing formation of "Dark Energy" in it. Namely "Dark Energy" is real source of forces which are responsible for the dynamics of particles and bodies, as in the scale of the Universe (the movement of galaxies, stars, planets, and other objects) so and in the microcosm, for example, in chemical bond formation and dynamics of the spinor particles within in atoms, nucleons, etc.

Thus, the forces realized between atoms in CO₂ and CO molecules are determined by the corresponding pressures (P_ϵ) in the Energo-medium, which are induced by their gravitational fields in the interatomic regions. So, for example, between the atoms emitting PGFs reduced pressure P_ϵ is realized, relative to the average regional pressure, which in the author's works is defined as negative "Dark Energy". In this case, forces of "DE" which realized between the atoms press it to each other firmly binding into compositions of molecules.

The measure of the gravitational mass is the magnitude of the force of the gravitational "dark energy" (F_{DE}) which is realized, for example, in pairs of bodies or pairs of atoms. The equation of the so-called Law of universal gravitation should be written in the form:

$$F_{DE} = \pm G \frac{M_1 \cdot M_2}{r^2},$$

where the + sign refers to the case when the gravitational "DE" is implemented in pairs of atoms or bodies emitting PGF. In this case, the masses (bodies) are pressed against each other by the forces of gravitational "DE" which is mistakenly perceived as their attraction, and gravitational constant can be called the paragravitational constant and denoted as G_{PG} .

If the effect of gravitational levitation is realized between bodies or atoms, which, as a rule, takes place in a pair of sources emitting PGF and FGF, then a minus sign is put in front of the constant G in the above equation. In this (levitational) case, the gravitational constant should be called the gravito-levitation constant and denoted as G_{GL} .

Note 2. The **Energo-medium** can also be called as the Energo - ether, and instead of the ethereal particles, known as the Amers, in composition of the Physical Triad have been injected particles of the Energions. The introduction of the prefix "Energo" in the composition of the name third component of PT and its particles is a reflection of the global force significance of this phase in the dynamics of particles and bodies in the real World. The author in his articles show that namely "Dark Energy" is the global driving force of the Universe.

IV. DECOMPOSITION CO₂ MOLECULE BY MEANS OF TECHNICAL FERROGRAVITATIONAL FIELD

The detection by the author of real magnetic poles (magnetic charges) in atomic structures and the elucidation of the physical nature of the gravitational field, allowed him to establish that the basis of the chemical bond are the forces of gravitational "Dark energy", which is formed in

interatomic regions of molecules under the influence of the gravitational fields of atoms. The overwhelming majority of chemical compounds, as well as of masses (bodies) are formed due of forces to the negative "DE", which are realized between the atoms emitting the paragravitational field.

In Fig. 3 shows schema of CO_2 molecule under normal conditions, i.e., in the absence of any external (technical) influences. All atoms in molecule, in this case, emit PGF what and determines the gravitational chemical bonding by forces $\mathbf{F}$ which press of the atoms together. By dashed concentric lines in Fig. 3 show the PGFs of carbon and oxygen atoms. The distribution of pressures P_ε of "Dark energy" in the Energo-medium which determine the forces of interatomic chemical bonds in the CO_2 molecule are shown in the diagram in the lower part of Fig. 3. As for the physics of "DE" and its participation in the processes of chemical bond, all this is presented in article [20], as well as briefly in Section 3 of this article.

Fig. 3. Diagram of structural device of CO_2 molecule and the power manifestations "DE" of responsible for the formation of chemical bonds.

The gravitational fields of atoms depending on the degree of its stability under the influence of external FGF are divided into gravity-stable and gravity-plastic fields. For example, carbon atoms are the gravity-stable sources, and oxygen atoms are gravity-plastic. It is the gravitational plasticity of oxygen that is responsible for its high chemical activity.

When external (technical) FGF is imposed on CO_2 molecule the ferropolarization of gravitational field of oxygen atoms is realized. As for the carbon atoms, they remain paragravitational. In this case the forces $\mathbf{F}$ of "Dark energy" which realises in the interatomic regions (see Fig. 3) and press the atoms together in the original molecule are replaced by forces that push the atoms away from each other which leads to molecular decay.

The process ferropolarization of the gravitational fields oxygen atoms in molecules can be realized both under the action of the FGF of neighboring atoms, for example, hydrogen atoms and under the action of an external technical FGF. Ferrogravitational fields formed in the first process are designated in the author's articles as FGF1, and in the case of polarization by means of a technical

ferrogravitational field, as FGF2.

The scheme of process decomposition of the CO_2 molecule by the forces of ferrogravity levitation (FGL) initiated by technical FGF is shown in Fig. 4. In this case the ferropolarization of PGF of the oxygen atoms is realized what are converted to FGF2. By the dotted concentric lines in Fig. 4 shows the gravitational fields of the carbon and oxygen atoms, i.e., PGF and FGF2 respectively. Between the atoms emitting PGF and FGF the effect of ferrogravitational levitation is manifested and their mutual repulsion is realized which leads to the decomposition of CO_2 .

It is important to note that the role of technical FGF in the process of decomposition of the CO_2 molecule within the framework of this technology is not limited only to the ferropolarization of the gravitational field of the oxygen atom and the formation of the above-mentioned forces of FGL. In the process of decomposition of CO_2 molecule, in addition to the noted forces of ferrogravitational levitation, take part in the forces of positive "DE" which are formed as a result of the direct action of the external FGF on the state of the "Energo-medium" in the interatomic regions. These forces, which can be referred to as the entropic forces, are the result of a violation of the order in systems of atomic gravitational fields in interatomic regions and the manifestation of some gravitational chaos.

Thus, the forces $\mathbf{F}$ (shown in Fig. 4 by bold arrows) represent the combined forces leading to the decay of CO_2 , which were formed as a result of the implementation of the two physical mechanisms described above. The above forces are directed to the decomposition of the molecule and, at the same time, are competing forces, the magnitude of which depends on the strength of the external FGF.

Fig. 4. Scheme of process decomposition CO_2 molecule by the forces of the ferrogravitational levitation which are initiated by technical ferrogravitational field.

The molecule CO_2 in Fig. 4 is located in ferrogravitational field is created by technical FG-generator which is the ferrogravity analog of permanent magnet. The physics and methods of generating technical FGF are

presented below in section 4 of this article. Pressure distribution diagram of the "Dark Energy" pressure P_E which determines the forces F that decompose the CO_2 molecules, is shown in the lower part of Fig. 4.

It should also be noted that within the framework of the ferrogravitational field, it is necessary to consider not two, as in ferromagnetism, but four poles, i.e., two magnetic (N_H and S_H) and two electrical (N_E and S_E). This is not difficult to imagine, given that the gravitational field is a vortex electromagnetic field.

V. DECOMPOSITION OF CO_2 BY CELLS LEAVES OF GREEN PLANTS

The aforementioned physics of carbon dioxide decomposition is realized in the green plant leaf cells (phototrophs) which, in the author's opinion, generate it is the ferrogravitational field. The decomposition of CO_2 and the nourishment to green plants of oxygen are components of a complex physicochemical process, which is realized in leaf cells and called photosynthesis. However, photons here are the additional factor that only stimulates process of the ferropolarization gravitational field emitted by plant cells. The decomposition process itself of CO_2 by green plants is carried out by means of the noted forces of gravitational levitation which in the role of an intramolecular "bomb" break chemical bonds between atoms.

As you know, existing technologies use high-energy influences to decompose CO_2 , for example, high temperatures or laser irradiation. Therefore, the existing version of the decomposition of these molecules in the leaves of green plants by means of a natural photonic background is very naive.

It is not hard to understand that that the strength of FGF emitted by plant cells is most likely low. Against this background, the process of decomposition of molecules CO_2 in region with high strength of ferrogravitational field, generated by technical FG – generators, should occur almost instantaneously and carried out in the large flows of gas on exit from the hearth of its formation.

Here it is important to emphasize once again that, in the optimal version, the technology we propose for the decomposition of CO_2 is carried out directly in the gas stream at the exit from the combustion zone and does not require such complex and expensive operations as the capturing and storing this gas. Moreover, these latter operations do not preclude the need for decomposition of the collected gas.

Technical generators FGF, creating high-strength fields, are able to replace large forest areas in terms of the efficiency of decomposition of CO_2 and CO . Such generators are especially promising in urban areas with dense buildings, where high level of gas contamination and same time the great difficulties with landscaping.

VI. TECHNICAL GENERATING OF FGF. FG – GENERATORS

As a result of experimental and theoretical studies of magnetic charges extracted from the composition of substance (period 1968–present), the author has developed a

technology for enriching the magnetic charging of solids. The experimental difference of the magnetic charging potential of solids allowed him to realize currents of magnetic charges in a superconductor. The final result of the noted works of the author was the experimental ferrogravitational field, which was obtained as a result of passing joint linear currents of electric J_e and magnetic J_g charges in a superconducting solenoid (see [3]).

The FGF is formed as a result of two successive processes:

$$1) k_1 (J_e + J_g) = \text{rot}[J_e - J_g]$$

and

$$2) k_2 \text{rot}[J_e - J_g] = \text{rot}[E - H].$$

In the first process, a vortex electromagnetic current is generated in a superconductor in the form of coupled electric and magnetic dipoles rotating in antiphase, described by the expressions $\text{rot}J_e$ and $\text{rot}J_g$ respectively. Within the framework of the second process, a gravitational field is formed around the bundle of two marked electric and magnetic dipoles $\text{rot}[J_e - J_g]$ which is described by the vortex vector $\text{rot}[E - H]$. The considered above bunch of two dipoles (electric and magnetic) is an elementary source of the gravitational (ferrogravitational) field.

In the author's publications, this dipole bunch is referred to as S - Graviton, where S is from the word source. It is S - Gravitons, which should not be confused with Bohr's gravitons, that are the sources of all gravitational fields in Nature. S - Gravitons make practically all the electromagnetic density of shells atoms and nucleons, forming their gravitational fields.

The results of many years of research on magnetic charges and their currents, as well as his experiments with the generating of ferrogravitational field allowed the author to propose for practical implementation three design schemes for technical generating of ferrogravitational field.

1) solenoidal generator of FGF;

2) solenoidal generator of FGF with a gravito-soft core, i.e., the ferrogravity analogue of electromagnet;

3) permanent ferrogravitogenerator, i.e., the ferrogravity analogue of permanent magnet.

This article provides a brief description of each type of FG – generator. A detailed description of these devices can be found in [17].

The solenoidal FG-generator (see Fig. 3) is a coil 1 with a winding 2 made of a wire in which the superconducting state can be realized. From electric 3 and magnetic 4 source the constant currents of electric and magnetic charges, coordinated by physical parameters, are supplied to the winding.

The parts of the generator that must be superconducting under the conditions of FGF generation are outlined in Fig. 3 by a dashed circle. By analogy with the magnetic field that forms around a solenoid with a constant electric current in Fig. 3 shows the poles $N_H(S_E)$ and $S_H(N_E)$ related to the FGF emitted by the solenoidal FG-generator.

The letters H and e with the symbols of north (N) and south (S) poles of the solenoid on Fig. 3 refer to the vortex magnetic (H) and electric (E) fields in composition the FGF. Recall that the last field at each point is described by the vortex vector $\text{rot}[E-H]$.

Fig. 5. Schematic diagram of the device solenoidal generator FGF.

The solenoidal FG-generator with gravity-soft core is the ferrogravity analogue of electromagnet. Unlike the generator described above, this device uses a core made of a soft-gravity material in which, under the influence FGF of solenoid, the polarization of the vortex vectors $\text{rot}[\mathbf{E}-\mathbf{H}]$ is realized. At the same time, similar to what happens in an electromagnet, the multiple increase in density of the FGF emitted by it can be realized.

Permanent ferrogravito-generator (PFGG), i.e. the ferrogravity analogue of permanent magnet is the monocompact FGF source with stable ferropolarization of the vortex vectors $\text{rot}[\mathbf{E}-\mathbf{H}]$ of atomic S-Gravitons in its composition (see Fig. 4). The creation and practical use of PFG is an extremely promising direction in ferrogravity technologies.

Fig. 6. The permanent ferrogravito-generator (PFGG) i.e. constant source of ferrogravitational field (the monocompact gravitational analogue of a permanent magnet).

The creation of such sources is capable of producing energy revolution since will allow directly and without much cost to use the huge energy potential associated with the Earth's gravitational field. The use of PFGG is possible at normal temperatures (20 °C) and at significantly higher temperatures, which greatly simplifies the technological process of CO₂ utilization and implies the creation of universal and mobile gas decomposition reactors its basis. So, in the case of a successful PFGG creation is possible, for example, to install miniature FG – generators on cars and

get pure oxygen right at the exit from the muffler.

As for the solenoid generators of FGF so the experiments carried out by the author allow us to evaluate them as fully working devices. However, the use of an FGF obtained with a superconducting solenoid (see Fig. 3) is costly and difficult of way, given the problems associated with working in ultra-low temperatures.

VII. TECHNOLOGY OF DECOMPOSITION CO₂ AND CO BY MEANS OF TECHNICAL FERROGRAVITATIONAL FIELD

A schematic diagram of plant for the decomposition CO₂ and CO using FGF is shown in Fig. 5. The flow of molecules of gases (in this case, CO₂) through the pipe 1 is fed to the FGF oblast which is formed by the FG-generator 2. In the optimal variant, such a generator should be the PFGG described above. However, this field, as shown by the author's experiments, may well be created by means of a solenoidal generator (see Fig. 3).

Fig. 7. Schematic of a plant for the decomposition of CO₂ and CO by means of technical ferrogravitational field.

At the exit from the FGF zone (molecular decomposition zone), the flows of oxygen and carbon atoms, after decomposition, are directed to the separator (3), in which they are finally separated using the differences in their gravitational properties. A heater (4) is placed at the inlet to the pipe 1, which is designed to heat the gas in the flow, which, in the author's opinion, can stimulate the efficiency of the subsequent disintegration of molecules.

VIII. CONCLUSION

The author is convinced that within the framework of the existing electrical physics, which does not take into account real magnetic charges, the technology presented in the article, there is not even a close alternative. The fact is that carbon dioxide is a very stable molecular structure and the possibilities of its effective decomposition within the framework of generally accepted physical techniques are very limited. All currently used methods are based on of the energetic pumping CO₂ molecules, with the expectation that the chemical bonds will be broken as a result of amplified interatomic dynamics. Cording to literature data, both high temperatures (~2700 °C) and various high-energy radiations (laser radiation, proton beams, microwave plasma, etc.) are used for the decomposition of carbon dioxide. According to experts, the practical use of these methods, both

technologically and constructively, is very difficult and, most importantly, not very effective.

The technology we propose is only a technical reproduction of the well-known natural physicochemical process of CO₂ decomposition, which is realized in the cells of leaves of green plants. The author is convinced that the results of his many years of experimental research are a reliable basis for the creation of efficient technical FG-generators. With sufficient funding and modest cryogenic capabilities (liquid helium) of the effective FG-generators for the decomposition of CO₂ and CO in relatively short period of time can be created and delivered on combat harmful gases.

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