GEODYNAMICS ENERGY ON THE INTERRELATED POLARIZED MEDIA UNIFORM THEORY BASIS INCLUDING SUPERSTRINGS, TEARING-TOPOLOGY, "NODES AND NETS", LOOP QUANTUM GRAVITY AND ALL …

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Abstract

Polarization mechanisms at pulse action in the anisotropic medium, mass (volume) generation with asymmetric and symmetric connections, kinetic and potential energy development are established. The connections with external and internal media are formed by asymmetric parts of the volume. The mechanism of chaos development in geodynamic processes within definite structural level and energy addition with its future dump to the environment is established. This allows energy generation without non-renewable sources usage. Geodynamics researching on the basis of Lobachevsky function and the topological concepts of the polarized media, together with the "empty set", had allowed the gravitation, kinetic energy, mass, electric charge, magnetism, volume nature definition and practical solutions for energy generation without natural resources costs finding.

The modern scientific knowledge about surrounding comprehensive polarized medium (CM) had been systematized on the basis of the following dependence for the problem of energy generation from an environment solution [1]:

$$A_{t} = \mathbf{h}^{n} 1,62^{t} \qquad (1)$$

here n – is any integer number, associated with the stratified spaces, volumes, structures within the CM, t – is the integer natural numbers set; $1,62$ – is the base defining the CM volumes discrete intermediate values in the unit segment of the applied scale number; $\mathbf{h}$ – is the action constant – the association coefficient of some structural compounds within any CM volume (in our galaxy $h \in \mathbf{h}$ – the Planck's constant)

The following conditional scale had been generated in conformity with this dependence:

$$-\infty.... \leftrightarrow \mathbf{As}_{ac} \leftrightarrow \mathbf{As}_{a} \leftrightarrow \mathbf{As}_{m} \leftrightarrow \mathbf{As}_{s} \leftrightarrow \mathbf{As}_{p} \leftrightarrow \mathbf{As}_{st} \leftrightarrow \mathbf{As}_{g} \leftrightarrow \mathbf{As}_{mg} \leftrightarrow ....+\infty . \qquad (2)$$

here $\mathbf{A}_{t}$ – are the discrete values of the scale (2) associated with definite volume – matrix V with indexes: ac – atom cores; a – atoms; m – molecules and crystals; s – substances; p – planets; st – stars; g – galaxes; mg – metagalaxes etc. [1].

Each matrix always has a combination of the masses – charges generating the polarization motions with various directions. These masses-charges distribution provides matrix integrity. The following process is considered to be polarization. The primary impulse unbalancing the CM with the definite vector orientation, should be referred to as $div\mathbf{U}_1$ and the conventional sign "+". This impulse intensity distribution in space – the CM point would have descending form with changing orientation, like an evolvent. The evolvent would be alternating one within the definite time intervals – points. That is the result of this impulse generation would be followed by CM stagnation response. This response would be realized by a counter impulses complex within the CM anisotropic space bounded volume. "Counter" action would be realized in the same way by descending evolvent with the opposite intensity and vector orientation. Therefore this counter motion always would represent the integrated sums of rotating spaces with a total conditional sign "-" with respect to the primary impulse. Thus, the conservation laws mechanism is realized: there is the polarization and associated potentials. Total or final process would be characterized by the potentials with greater distance from the CM unbalance center. It has its mathematical representation (following Vlasov) [1, 3]:

$$\mathbf{V}_P\left(\mathbf{r}_M, T, \frac{1}{T}\right) = \int\int \mathbf{E}_i\left(|\mathbf{r}_M - \mathbf{r}'|\right)\mathbf{p}\left(\mathbf{r}', \mathbf{V}_{n.str.}\right)\partial\mathbf{V}_{n.str.}\,\partial\mathbf{r}', \qquad (3)$$

here $E(r,r')$ – is the primary impulse kernel with the essence of the total and precise energy of interaction with CM. It is integrated by every distance following the nuclear topology;

$\mathbf{r}_M$ – is the topological size of the considered system mass – volume;

$\mathbf{r}'$ - is the topological size including the polarized volumes resulted from the system primary polarization processes;

$\frac{1}{T}(\mathbf{V})$ – is the topological time in the form of frequency characteristics cascade for each of the stratified spaces – the volumes of the global space – the system volume (planet for example) $\mathbf{V}_\Pi$;

$T(\nu(\mathbf{V}))$ - is the topological temperature representing the generation processes set of the structures and the associated combinations of high and low frequencies υ_i in the potentials correlations; $\nu(\mathbf{V})$ – is the frequency distribution function of the associated volumes represented by the frequencies definite combination of extra low and high – frequency ranges, with various topological time intervals $\frac{1}{T}(T)$;

$\mathbf{V}_{\Pi.}$ – is the considered volume associated with the definite topological temperature T and time $\frac{1}{T}$ contents being adequate for the following relation $T = f(\frac{1}{T})$. Therefore $\|M_p\| \in \|\mathrm{V_n}\|$ – are

the volumes in the system stratified spaces.

By combining the available data of the Universe structure and its mathematical description variants collected by the modern science, the following conclusion had been established: Lobachevsky's space theory is the most comprehensible; it is based on Lobachevsky so-called function [Lobachevsky, 1946-1951; the Mathematical Encyclopedia. Volume 3. 1982]:

$$\square a = F(l) = 2arctg(e^{-l/k}) \qquad (4)$$

here $F(l)$ – is the definite space conditioned vertical – the function of a line segment l, concerned with Lobachevskian parallel angle $a \equiv F(l)$. As is known, this angle is $a = p/2$ at $l = 0$. With increase in l the angle a decreases within the limits of: $0 < a < p/2$ and $l \to \infty$ at $\lim F(l) = 0$. Therefore there is the definite value l for each desired angle a;

k – is in accord with the distance measurement scale, and it also defines Lobachevsky space radius of curvature and, in our own opinion, it also corresponds the association of the subspaces within Lobachevsky space constant. The global infinite set of Lobachevsky spaces of within the comprehensive medium would be differed by the value k.

The spaces interaction is based on the principle of Lobachevsky space: “the proper planes poles are ideal points, and the proper points are the poles of the ideal planes” and that is the principle of the polarization center formation – the oval (n-1) – quadric [Lobachevsky, 1946-1951].

The quantity $k = \mathbf{h}^n$ in formulas (1) and (2) defines the anisotropic volume ungula V with the fixed size being the CM part which is referred to as Lobachevsky space radius of curvature, and it is a similarity constant for various geometrical formations in this space. Therefore **h** - is the coupling coefficient of structural compounds within the definite CM volume with the geometry defined by the coefficient – a space curvature angle k in Lobachevsky function. Thus, Lobachevsky space is non-Euclidean hyperbolic space associated with the concepts of pseudo-Euclidean space geometry. The pseudo-Euclidean (n+1) space with an index n on the definite space sphere in the form of Lobachevsky function is designated ${}^1S_n$; it is considered as a set of points pairs, with the potential differences representing coordinates (following Vlasov) [Vlasov, 1950], for each of them. Therefore Lobachevsky's (1) function, defines the physical essence of $k = \mathbf{h}^n$, containing Hermitian operators and Hamiltonian operators and Hamiltonian operators for the processes within Lobachevsky spaces, that is the reason for the operator of Lobachevsky space concept with its designation in the form of $L_{op.}$ introduction:

$$\left|\Psi_j\right\rangle \otimes \left\langle \mathbf{m}_k \right| = \frac{1}{2}\sum_n \int_{n_k} q_j \left(\frac{\left| rot^{+e}\mathbf{q}_k \right\rangle \otimes \left\langle rot^{-e}\mathbf{q}_j \right|}{\mathbf{r}_k \, \mathbf{I} \, \mathbf{r}_j} \right) \partial q_j = F(l) = 2\, arctg(e^{-1/k}) = k_n \nabla_0 \left| L_{.j} \right\rangle \otimes \left\langle L_k \right| = L_{op.} \qquad (5)$$

here $\left|\Psi_j\right\rangle$ – is the CM impulse; $\mathbf{m}_k$ - is the quark matrix mass;

$\mathbf{r}_k$ - are the quark matrix parameters; $\mathbf{r}_j$ – is the potentials correlation frequency – the CM wave phase matrix size;

$\mathbf{r}_k \setminus \mathbf{r}_j$ – is the topological difference between the sets $\mathbf{r}_k$ and $\mathbf{r}_j$;

$\dfrac{\left| rot^{+e}\mathbf{q}_{k_j} \right\rangle \otimes \left\langle rot^{-e}\mathbf{q}_j \right|}{\mathbf{r}_k \setminus \mathbf{r}_j} = L_{op.} + \varnothing$ – are the physical foundations of Lobachevsky operator, here

$rot\,\mathbf{q}_k$ - is an elementary vortex of the quark matrix; $rot\,\mathbf{q}_j$ - is an elementary vortex of the matrix – CM wave phase;

$\sum_{n_k}$ - is the sum of wave association processes within the quark level;

q_j – is the dynamic capacity of the quark matrix coherence with CM wave space in a level of the associated space curvature factor – k_j. [Prigogine, 1985; Vasilyev V.A. 1994]

The potentials generating any matrix of the spaces – the volumes of our world correlations are based on the potentials correlations within the elementary level – i.e. the operator $Л\mathbf{I}_{on.}$ definite value which is defined by Lobachevskian function and k factor in the formula (1) in absolute conformity with the Nobel Prize 2004 for the "asymptotic freedom" discovery: "… *the usual substance mass results from the energy of the massless gluons and almost massless quarks being the protons, and consequently the atomic cores components… The quark's color charge can be contracted by either the antiquark (then the meson would be generated), or by the quarks couple with the complementary colors (in this case the baryon would be generated)… Quarks and antiquarks could be described by the wave functions, and their space gradients represent the energies"* [Discovery …, 2005; Wiczek, 2005].

That is the reason to consider Lobachevsky space polarization centre elementary "quadric" to be the composition of the definite potentials correlation representing the CM waves various combination, and here "the proper planes poles (the primary impulse from the more global space with a higher rank sources) are the ideal points, and the proper points are the poles of ideal planes within the more global space"; and this quadric could be considered as the energy interaction elementary operator being the base of every interaction form in the world around us in absolute conformity with A.Vlasov's works [Vlasov, 1950; Vlasov, 1966; Vlasov, 1978].

On the stated basis the polarization generation mechanism could be represented: the primary impulse $L_{op.}\, div\mathbf{U}_0$ polarizes and unbalances the definite volume $\left|L_{op.} div\mathbf{U}_{m-n+1}\right\rangle = \mathbf{V_0}$ of the CM topological space. This process is followed by the processes complex in the form of:

$$\left|L_{op.} k_n div\mathbf{U}_{m-n+1}\right\rangle \otimes \left\langle k_n \sum_n L_{op.} \left|rot\ \mathbf{U_n}\right|\right\rangle = k_n \mathrm{V}0 + k_n \iiint_{n-m-1} (\sum_{n-1}^{r+y} k_n L_{op.}) \partial\partial\partial L_{op.} + \varnothing, \qquad (6)$$

here the degree index "r+y" marks the new structure generation process within CM space, including its topological form of Lobachevskian oval – quadric;

$\iiint_{n-1} (\sum_{n-1}^{r+y} L_{op.}) \partial\partial\partial L_{op.} + \varnothing$ – is the subspace part associated with the primary impulse $L_{op.} div\mathbf{U}_0$ action, but it is not compensated by the impulses sum $\sum_n L_{op.} \left|rot\ \mathbf{U_n}\right|$, and it contains null set $\varnothing$.

At the same time in topological notions the formula (5) could be represented in the form of:

$$\sum_n L_{op.} \left|rot\ \mathbf{U_n}\right| \supset L_{op.} k_n div\mathbf{U}_{m-n+1} = k_n L_{op.} \mathbf{V}_0 + L_{op.} \varnothing. \qquad (7)$$

In other words, the set $\sum_n L_{op.} \left|rot\ \mathbf{U_n}\right|$ is a subset of the set $L_{op.} div\mathbf{U}_{m-n+1}$, and it means that some part of the CM space definite system excited by an impulse $L_{op.} div\mathbf{U}_0$ had remained to be non compensated by this process despite of the realized compensatory process. At the same time the space, excited by an impulse $L_{op.} k_n div\mathbf{U}_{m-n+1}$ or by the similar impulses in early processes within the CM medium or within any of the CM medium more globally unbalanced parts non – compensated by internal processes within that generated system, is responsible for this system interaction with the environment, and it is also responsible for the interaction processes within the system via the "empty set", i.e. it represents the concept of "free energy".

In accordance to the exponential topology the following sets are generated:

$$< U_1 ....., U_n >= \left\{ \text{Ë} \exp U : K \subset \bigcup_1^n U_i \,\&\, E \,\text{I}\, \mathrm{U_i} \neq \varnothing, i = 1, ..., n \right\}, \qquad (8)$$

here Ë is the polarization center and it could be positioned as the point expUi, associated with the considered closed set K⊂Un with the opened subsets, following Vlasov's formula (3).

The core of the complicated system, for example – the planet core, and its total structure are characterized by the associated potentials frequencies correlations in their topological

(volumetrically geometrical) contents, they are reducing with drifting away from the system, for example – planet, volume polarization center

$$\boldsymbol{\nu}_{internal\ core} > \boldsymbol{\nu}_{external\ core} > \boldsymbol{\nu}_{mantle} > \boldsymbol{\nu}_{lithosphere} > \boldsymbol{\nu}_{atmosphere} > \boldsymbol{\nu}_{stratosphere} > \boldsymbol{\nu}_{mesosphere} > \boldsymbol{\nu}_{near\ space} \quad (9)$$

here $\nu_{\text{internal core}}$ – is the topological frequency of the planet internal core; $\nu_{\text{external core}}$ – is the topological frequency of the planet external core; ν_{mantle} – is the mantle topological frequency; $\nu_{\text{lithosphere}}$ – is the lithosphere topological frequency; $\nu_{\text{atmosphere}}$ - is the atmosphere topological frequency; $\nu_{\text{stratosphere}}$ - is the stratosphere topological frequency; $\nu_{\text{mesosphere}}$ – is the mesosphere topological frequency; $\nu_{\text{near space}}$ - is the topological frequency of the near space.

The following generalized thermodynamic potentials distribution, for example for the Earth planet, according to conservation laws and masses (potentials) correlations, could be represented in a more general sense in absolute conformity with Markoff chains mathematics:

$$\bar{\nabla}_0 \mathbf{U}_{pl.} \geq \bar{\nabla}_1 \mathbf{U}_{c.} + \bar{\nabla}_2 \mathbf{U}_m + \bar{\nabla}_3 \mathbf{U}_{lith.} + \bar{\nabla}_4 \mathbf{U}_{atm.} + \sum \bar{\nabla}_{\iiint x \partial x} \mathbf{U}_{L_{op.}}, \quad (10)$$

here $\bar{\nabla}$ - is the Hamiltonian operator, it is the confirmation of the fact that the interaction energy is distributed in agreement with any spaces – structures and generalized thermodynamic potentials interaction vectors signs; $\bar{\nabla}\mathbf{U}_{pl.}$ – is the planet generalized thermodynamic potential; $\bar{\nabla}\mathbf{U}_{c.}$ – is the generalized thermodynamic potential of the planet core, $\bar{\nabla}\mathbf{U}_m$ – is the generalized thermodynamic potential of the mantle structures, $\bar{\nabla}\mathbf{U}_{lith.}$ - is the generalized thermodynamic potential of the lithosphere structures, $\bar{\nabla}\mathbf{U}_{atm.}$ – is the generalized thermodynamic potential of the atmosphere structures, $\sum \bar{\nabla}_{\iiint x \partial x} \mathbf{U}_{L_{op.}}$ – is the generalized thermodynamic potential of the other substructures.

At the same time, the local volume of each specified structural level (in conformity with the scale (2)) has its definite polarization center associated with the CM polarization depth (the depth – level of the solar system disequilibrium) and the local potential gradient associated with the definite frequency on the scale (2). The local potentials interaction frequency within the limits of this local volume with greater distance from the polarization center is subordinated to the same rule: high frequency of the local volume substructures potentials correlation in proximity to the local polarization center reduces with greater distance away from this local center. At the same time topological temperature of the total planet system, as well as the potential gradient that generated it, on the whole remain close to a constant in accordance to the

integrated entropy values fluctuations at about some optimum constant value. Within the separate volume in the result of its generating potentials frequency correlations drop there are the specific structural formations in absolute conformity with the same principles: the medium polarization center and this polarized space reaction are associated with the real temperature and medium anisotropy.

$\mathbf{V}_{nstr.} = \mathbf{V}_{м\mathbf{h}}$ – is the newly generated volume with mirror reflections in another system structures in the form of periodic fluctuations resulting from the "flop-transitions". These processes provide the global system stability within the long period of social time; $\mathbf{r_i}$ - is the parameter of the system space layer $\mathbf{r'(v}_n\mathbf{)}$ in which the process of new structure generation is the most evident [1].

$$\mathbf{m} = k_n \mathrm{H}_{n+y} \mathbf{V}_{м\mathbf{h}} \iiint\limits_{n+y-1} \left(\int k_{n-1} L_{op.} \mathrm{H}_{n+x} V_n \left(\sum k_n L_{op.} H_n V_n \int\limits_n L_{op.} V_i \partial L_{op.} V_i \right) \partial L_{op.} V_{n+y} \right) \partial L_{op.} \mathrm{V}_{м\mathbf{h}+L_{op.}\varnothing}, \quad (11)$$

here $\mathbf{V}_{м\mathbf{h}}$ – is a volume with mass $\mathbf{m}$ – i.e. it contains definite matter amount in the form of polarized partial volumes Vn; $L_{op.}$ – is the Lobachevsky operator; $\mathbf{H_{n+y}}$ – is the Hamiltonian associated with the volume $\mathbf{V}_{м\mathbf{h}}$ interaction with an environment; $\mathbf{H_{n+x}}$ – is the Hamiltonian associated with interactions within the considered volume $\mathbf{V}_{м\mathbf{h}}$; $\mathbf{H_n}$ – is the Hamiltonian associated with interactions within each of the separate volumes $\mathbf{V}_n$ consisting of the integrated sum of volumes $\mathbf{V}_i$ [4]. Compensatory processes take place on the set of CM excited part levels. But each of CM levels (volumes) will response within various time and vector characteristics, including various frequency periods and impulses $\boldsymbol{\upsilon}_n$ interaction frequency ranges, wave levels with the period (mode) $\mathbf{P}_n$, etc.

Generally it can be presented as:

$$\left|\Psi_1\right\rangle = k_n L_{op.} \mathrm{H}_{n+y} \left| \left(\left| k_{n+m} L_{op.} \mathbf{div} \mathbf{U}_{n+1} \right\rangle \otimes \left\langle k_{n-1} L_{op.} \sum\limits_{n+x} \iiint\limits_{\partial\lambda(\mathbf{U}_n)} L_{op.} \mathbf{rot}^{\mathbf{m}} \mathbf{U}_{\mathbf{n}} \partial \mathbf{U}_x = L_{op.} \mathbf{m} \right\rangle \right) \right\rangle \cong L_{op.} \left| \mathbf{V}_{M\mathbf{h}} \right\rangle, \quad (12)$$

here $\left|\Psi_1\right\rangle$ – is the CM wave excitation containing $L_{op.}\mathbf{div}\mathbf{U_1}$ field system generation and secondary compensatory processes: $\sum\limits_{n+x} \iiint\limits_{n} {}_{\partial v(\mathbf{U}_n)} L_{op.} \mathbf{rot}^{\mathbf{m}} \mathbf{U}_{\mathbf{n}} \partial \mathbf{U}_n$ matrixes sum response to this field following the conservation laws; $\boldsymbol{\nu}$ - is the primary and secondary impulses correlation frequency; $\mathrm{H}_{n+y}\left(\sum \mathbf{D}\right)$ – is the Hamiltonian in the form of the Liapunov characteristic indexes

defining the compounds energy interactions function. [4] Liapunov characteristic index $\mathbf{D}$ establishes the system instability processes resulting the finite matter density generation within the considered volume $\mathbf{V}_{\mathbf{Mh}}$. The resultant density corresponds Markov chains of the polarized and self-embedded spaces association that gives definite combination of the entropy rank values $S = \sum \mathbf{D}$ nearby its definite value. [1-9] The equation (8) represents any structure, any substance, any mass generation physical essence and both its potential and kinetic energy. Simultaneously it represents the gravitational field nature, as $L_{op.} div\mathbf{U}_1$ is a separate part of the process $L_{op.}$ RotU1+Γ within more global polarized CM field for our anisotropic galaxy is one of the galaxies set within our anisotropic metagalaxy, etc. The specified processes physics is associated with the processes resulting "black holes", galaxies, metagalaxies and so forth generation. At the same time the process associated with an impulse $div\mathbf{U}_1$ would never be compensated absolutely. The resultant action of the fields with the different polarization depth and various vector directivities in some system (substance, matter form) structural level compensation absence should be associated with the kinetic energy concept.

I.e. the kinetic energy results from the processes associated with the fact that the primary impulse compensation processes would not polarize the volume by the opposite sign to the primary action, therefore the kinetic energy E_k would be

$$E_k = \left| k_n L_{op.} div\mathbf{U}_1 + \varnothing \right\rangle \subset \left\langle L_{op.} k_{n-1} \sum_{n+x} \iiint_{n} {}_{\partial v(\mathbf{U}_n)} \mathbf{rot}^{\mathbf{m}}\ \mathbf{U_n} \partial L_{op.} \mathbf{U}_n \right|. \qquad (13)$$

That defines the system interaction opportunities with another field systems and substance forms within the associated CM volumes. That is the nature of the world poly fractality, the endless set of the infinite CM varieties, anisotropy and asymmetry, any radiation, interactions, Belousov's reactions physics, magnetism, electrically charged particles and the associated fields etc., and also the evolution mechanism development.

Each of the matrixes would be characterized by the symmetry zones, in which the primary impulse would be "compensated" by the contrary impulses, including "screening" and anti-screening, supersymmetry, etc. and the asymmetry zones up to the "asymptotic freedom" – the kinetics base – presence in it. The dissipation, bifurcation processes, the chaos state in the symmetric and asymmetric complicated system structural components relations steadying, and generally all the interaction forms within the levels from the substructural one up to the mega-, giga- and the more high levels, and also the processes of the controlling chaos by the more

global, more low-frequency in impulses relations CM volumes are realized via the asymmetry zones; that is the physical essence of the system complication mechanism and system entropy constancy or in its vicinity assurance – the main evolution, i.e. the global system complication condition. All these processes are generally subordinated to the conservation laws, and it could be simply and generally represented as [1]:

$$L_{op.} div \mathbf{U}_1 \geq \mathbf{h} \mid \sum_{\mathbf{n}} L_{op.} rot\ \mathbf{U}_{\mathbf{n}} \mid . \qquad (14)$$

Formulas (6), (7), (11)-(13) confirm I. Newton's representation: "The matter amount (mass) is its measure, it is directly proportional to its density and volume." [10] Lobachevsky's spaces S^n, Riemann's space (R^n) definite polarization depth volume being the inseparable part of our space, our universe, would be in strict agreement with the extension – the potentials gradient within the CM polarized space adopted by us to be the initial value [1]. Therefore:

$$k_n L_{op.} \mathrm{H} div \mathbf{U}_1 = k_n L_{op.} \mathrm{H} \frac{\mathbf{h}_1 \mathbf{P}_1}{\mathbf{v}_1} = k_n L_{op.} \mathrm{H} \mathbf{h}_1 \mathbf{P}_1^2 = k_n L_{op.} \mathrm{H} \frac{\mathbf{h}_1}{L_{op.} \mathbf{v}_1^2}, \qquad (15)$$

here $k_n L_{op.} \mathbf{P}_1$ – is the exponentially topological (volumetrically-vector) CM polarization parameter (period-mode) and also it is the latent matter part (LMP) polarization parameter implemented within the strictly definite CM volume with strictly definite frequency $k_n L_{op.} \mathbf{v}_1$ associated with our "baryon" level "n_1" polarization depth, i.e. it is associated with $\mathbf{h}_1^n$ and the wavelength (or the mode parameter) $k_n L_{op.} \mathbf{P}_1 = \frac{1}{k_{n+1} L_{op.} \mathbf{v}_1}$. It should be always mentioned that the lower was the primary polarized wave frequency, the larger is the space volume polarized by it and the converse. Therefore this parameter generally in close unity of space $L_{op.}$ and of pseudo-Euclidean geometry and Riemannian space is as a matter of fact the parameter of Minkowskian spacetime and one of the basic criteria for the forthcoming events coordinates definition by energy release into the environment. The coefficient $\mathbf{h}$ would have the identical physical essence in the topological contents for our, visible, baryon Universe part, and for those part of the Universe – a dark matter, that resulted our baryon CM part generation. But in this case the new information transceiving by holograms immersed into the field $\mathbf{J}_{on.} \mathrm{H} div \mathbf{U}_1$ and LMP level possibilities would be opened up. The signal values of the uncompensated polarized CM fields vector directivity level are the associated values and conventionally accepted signs "+" and "-" of the charges $\mathbf{q}$ or ξ representing essentially the processes associated with the

physical contents of $\sum_n \left| rot\, \mathbf{U}_\mathbf{n} \right|$ in any structural level. The right parts of (7-9) represent the topological concept of the CM hierarchical polarization in our world; therefore it is necessary to consider the total cascades, total hierarchy of the frequencies embedded into some values. Plank's constant in equation (8) could be represented in the form of

$$\mathbf{h} = \sum k_n L_{op.} \mathrm{H}_n \xi_n \text{ or } \mathbf{h}_i = k_n L_{op.} \mathrm{H}_i \int f(\xi_n) d\xi_i . \tag{16}$$

Entropy is the entanglement measure for the wave function $\left| \Psi(\mathbf{T}) \right\rangle$; it should be calculated on the base of the above stated principles solutions complex. The following expression results from the works of Markov, Lyapunov, Kolmogorov, Prigogine, Engell and also on the basis of geodynamical processes analysis under the stated conditions

$$S_{inf.} = S_{top.} = -\sum_{j-\infty}^{n} x_j \ln x_i , \tag{17}$$

here x_j – are the denseness reduced matrix characteristic values associated with Lyapunov's characteristic indexes specter with the sign "-"; it is associated with the bifurcation modes generation, the most unstable planet structure part immersion to the chaotic modes and the global system transition to the space with the more low-frequency driving characteristics. It also applies well to the new formation dynamics characteristics within the planet volume in association with its global geodynamics [1, 4-9].

For the definite level i associated with the considered substance (the matter form), in our galaxy

$$\xi_n = \left\{ L_{op.} \xi_i \right\}, \mathbf{h}_n = \left\{ L_{op.} h_i \right\}, \tag{18}$$

here ξ_n – is a coefficient of substructures association within the global system.

System medium state is defined by the depth of its polarization – information capacity in the CM either in the level of the asymptotic freedom, and the associated structures, for example "solitons", "branes", "quarks", planets, galaxy "star system", "black holes", "white dwarfs", "metagalaxies", "Great Attractors", and so forth But the following dependence is always realized in any level

$$\mathbf{h}^n = \frac{L_{op.} div \mathbf{U}_1}{\sum_n L_{op.} \left| rot\ \mathbf{U}_\mathbf{n} \right|} . \tag{19}$$

The equation (14) represents definite structures association by holographic forms of exchanging, with the so-called “dark mass” and “dark energy” or “latent matter part” (LMP) also, whether the associated values $\mathbf{h}^n$, n and ξ_n could be determined in it, all the more so our visible world amounts to only 4-6% of the LMP. Thus, any process physical essence should be subject to the conservation law principles. The same seems to be true of Crone’s tearing – topology together with “nodes and nets” and Smolin’s loop quantum gravity, customary “rubber belt” theory and “M-theory” with “flop-theory” being the base of modern representations of the superstrings and so forth [11-13].

This monumental complex of nonlinear processes can be represented on the base of some structure hologram development only. Any structure at any stage could be mapped into the environment by the hologram. The hologram is formed and mapped on the base of its generating potentials frequencies combination. Even so, the driving frequencies would be the extra low frequencies and the carrier would be more high frequencies within that frequency complex. Therefore the process should be considered from the system core (planet mass centre) where the carrier extra low frequency impulse was represented and the driven ones were realized within more high frequency ranges in the form of some natural accidents in different geographic and geodesic planet coordinates. Roughly speaking, the chain is no stronger than its weakest link

B.Greene define as follows one of the superstring theory assumptions: “… But as physical properties are dependent only on global energy of a string configuration, instead of this energy distribution over the oscillatory and topological compounds, *there is no physical distinction between these geometrically various* Universe states ….” [12]. The substantive suggestion defining energy generation opportunity for the humanity needs without nonrenewable resources usage and natural geodynamic processes disorder follows from it: to “pinch” the necessary and definite energy off the huge CM energy ocean defining world integrity, by using or intentional generation (for the concrete problem) the system unstable state (controlling chaos) in the definite level, with the subsequent return of this system to the previous conditionally equilibrium state.

The instrumental multi-channel system of the wide-range gradientmeters (WRG) operating on the principle of the “Cavendish's balance” had been developed on the basis of the above stated theoretical researches. Each channel contained the special antenna. The WRG system data allowed the geodynamical processes monitoring on the basis of the stated physical-mathematical principles and the instrumental system real indications. This monitoring is based on the new structure generated within complicated system, for example – planet, hologram real-time construction. The example of the hologram is adduced on the fig. 1.

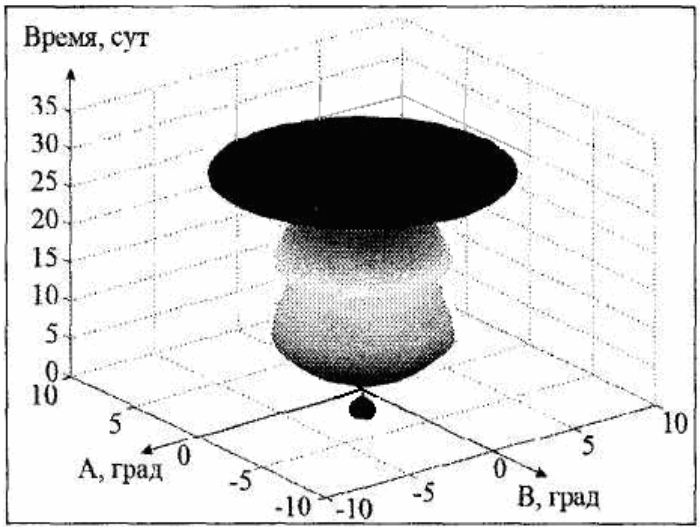

Figure 1. The hologram of the generated new structure within the planet system being the reason of the great energy generation wasting to the environment in the form of the disaster, particularly in the form of the earthquake with M=8, that provides planet system return to the equilibrium

It is necessary to emphasize the hologram basic part connection with the deeper CM level, than the planet CM environment on the fig.1. The hologram contains the potentials correlation frequency complex distributed by the time intervals of a chart vertical axis. Thus, the initial impulse is represented within the planet core level in a range of potentials correlations about a few nanometers. It would further change from $\geq 4{,}22 \cdot 10^{5}$ Hz up to $\leq 10^{-9}$ Hz. That is, the initial impulse is associated with the definite level of anisotropy – so-called relic radiation. It would be later manifested through infrasonic, ultrasonic, ultraviolet, etc. radiations. It depends on screening processes; and it would be realized in the form of either radon, or chlorine, or et cetera, including various combinations with electric, magnetic, complex fields fluctuations as it is the subject of screening processes character. These radiations and complex fields have a negative exposure to the biological objects, as a rule. In this connection, there is a wave even at the rate of about nano-meters, this means, that there is a potential difference. The CM space fluctuations high frequency osculating with the anisotropic medium characterized by the lesser fluctuations frequency, changes the topological parameters to the greater wavelength and lesser frequency. But, somehow, any point would never have the equal-zero and isotropic potential within any real space. In other words, we reiterate to A.Vlasov's general statement about the dot nonlocality stated by him on the eve of the World War II.

That is, primary CM excitation absolute compensation would never happen in a varying degree, which is the "asymptotic freedom" (the Nobel Prize in Physics 2004), relic radiation

anisotropy (the Nobel Prize in Physics 2006) and “quark asymmetry” (the Nobel Prize in Physics 2008) and all other variants of our world nonlinearity manifestation.

Thus on the stated physical principles base applied to the geodynamic processes and WRG system data geodynamic processes real-time monitoring and absolute opportune natural accidents forecast (severe earthquakes with M > 7 or hurricanes with a category > 3) had appeared to be realistic and sufficient. The accumulated experiences had allowed foundation and then design the devices for the unlimited energy generation without nonrenewable natural resources usage. It had been realized in the level of the elements with various nuclear masses (various potentials) nano-correlations for the energy consumption over the range of watt fig. 2.

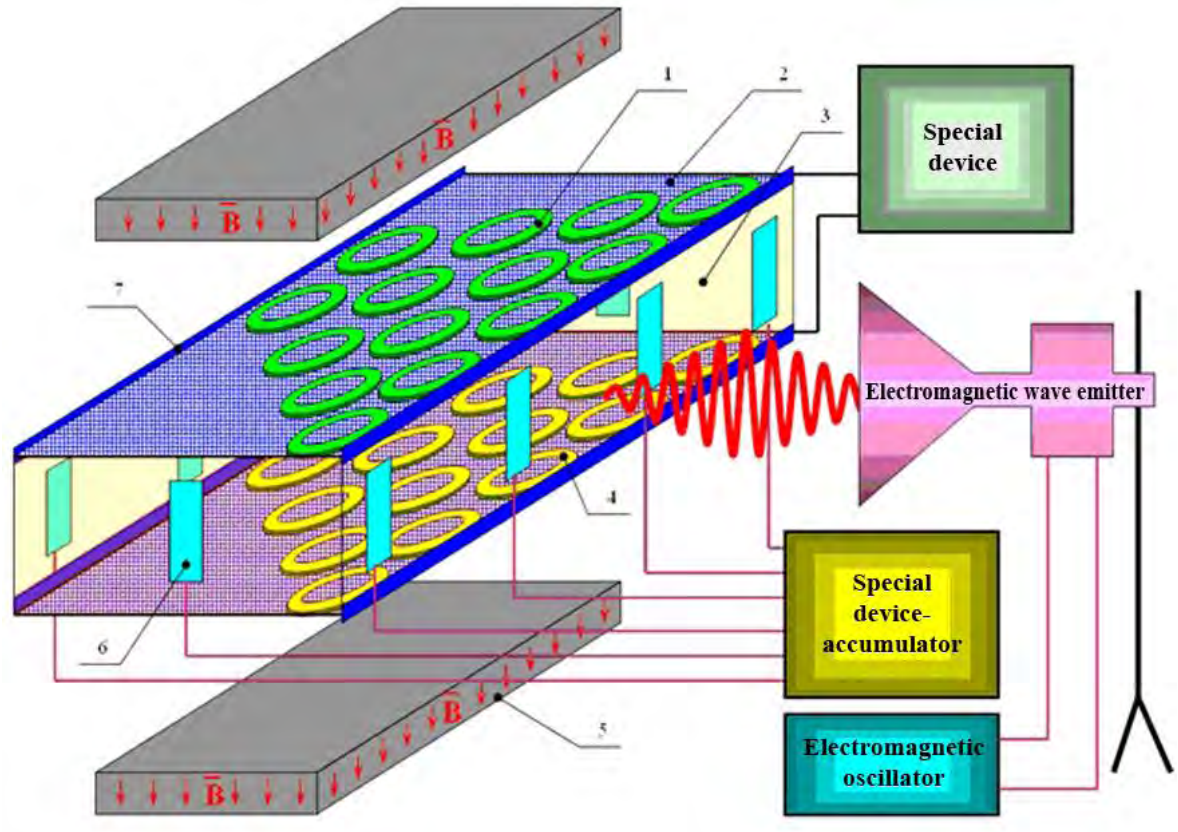

Figure 2. The device scheme: 1 – the first layer made of the metal with open Fermi surface; 2 – the second layer grid; 3 – the composite molecular solution of the second layer; 4 – the third layer; 5 – the permanent magnets on the base of SmCo compound; 6 – the electrodes; 7 – the current collectors.

But it also allows the macro – and mega-levels transition for giga- and mega-watt consumption on the basis of uniform polarized media complexes of high- and low- frequency ranges which generate the streams of “vortexes” – electrons, embedded into the low-frequency, long-wave, up to the so-called, gravitational mega – oscillations.

Conclusion

- The uniform concepts of mass, volume, matter, electric charge, magnetism, gravitation, entropy were formulated on the base of the performed researches. The concept of Comprehensive Medium polarization and conservation laws action in the case of this medium unbalance had been employed into the base of all terms. Any CM unbalance results this medium response in the form of the processes compensating the unbalance generation.
- The associated spaces cohesion within definite geometry in the form of Lobachevsky space analogue results from the unbalancing and compensation processes complex. These spaces could be formalized by Lobachevsky function with the curvature factor k representing itself the factor of similarity for all another spaces within our world and comprising the same physical basis as Planck's constant and the other constants: Newton's, Boltzmann's, Faraday's, Wien's etc. ones.
- The factor of similarity k predefines the infinite set of spaces generation resulting from the various vector directions compensation processes. In turn it defines primary impulse absolute compensation absence, and the so-called null sets generation which are the basis of anisotropy, asymmetry, spaces cohesion, kinetic energy, gravitation, every interaction form.
- Kinetic energy is generated by the reason of the primary impulse non absolute compensation which have resulted the analyzed mass – volume and also the "empty set" generation comprising the submicrolevel polarization and thus predefining the Universe development infinity simultaneously with the flop – transitions within separate partial subspaces of the Comprehensive Medium compensation processes. As this primary impulse is associated with the space of higher hierarchy level, it generates the connections with the space with empty space of higher level within the considered mass – volume. This connection mechanism is realized on the basis of the proper planes poles transition to the ideal centers (the crystallization centers), and those are the ideal planes poles. Riemann space with the Bolyai, Poincare, Cheli – Klein, Beltrami interpretations and much, many other things, including the fancies of Einstein and Friedman and their admirers about the Universe scantiness, the singular point and the world finiteness satisfy this mechanism – Lobachevsky breakthrough.
- Therefore the concepts of gravitation, energy of binding with another spaces or systems, masses, electromagnetic interactions, magnetism, various chemical bonds

and chemical interactions and so forth reach the field of kinetic energy from the viewpoint of Lobachevsky polarized spaces. Any mass – volume always will be the open system in interacting with CM where the global space of a scale (2) comprises the global space potentials gradient: grad U, that defines the conservation laws action, infinite light velocity(electromagnetic impulse distribution velocity) and the associated evolution laws based on Lobachevsky mechanisms within extremely low-frequency range of the potentials correlations via the subspaces proper planes poles which are the ideal points and the proper points are the poles of the new subspaces ideal planes within any subspace of this space, and this principle is the base for any polarization center and evolution infinity generation [28].

- New structure generation within the complicated system is subject to Lobachevsky function action, i.e. "Markov chains" mechanisms are realized. Following these mechanisms the temperature – time relationship within new space can be correlated by the expression $T = \kappa \frac{1}{T_n}$. I.e. the temperature decreases in process of increase in distance away from the new structure generation center (the crystal center) or increase in time of its generation. In other words, the interactions frequency of potentials forming the new structure is high in its center, and this frequency descends, and time of generation increases in process of distance away from the center increase. This process defines the generating structures geometry providing the integrated global system entropy constancy and it depends on the factor k defining Lobachevsky space curvature.
- By reason of Lobachevsky function action in sub – micro quantum levels, particularly in the form of thousand spaces like Calabi – Yau space generation, these processes consideration in practice becomes rather complicated. At the same time a knowledge of these processes nonlinear physical parameters features supplies mathematical programming on the basis of rank entropy physics, Lyapunov's characteristic indexes and Markov chains, this also allows the hologram design for the rather complicated and inconsistent process stage-by-stage development consideration and control if desirable.
- These principles aided in understanding the nature of electron. The observed material will be considered in the further article.
- Thus on the basis of theoretical researches and representations about the inhomogeneous asymmetrical world around us new in principle decisions of the

ecologically sound energy generation, without wasting non-renewable energy sources had been obtained, they had allowed the effective energy generation basing on the essentially new physical foundations

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