Prospective applications for idea of multi-scale energy transfer

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Due to appearance of theories taking to account effects of multi-scale energy transfer, several practical applications of these theories possibly applicable for development of new energy sources are described and discussed.

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1.   Introduction

As it comes from recent publications of so-called scale theories [1–3], and from our recent publication [5], there is possibility for practically valuable qualitative generalization of different models of multi-scale spatial structuring. This generalization gives logically non-contradictory basis for building of quantitative theory, able to provide experimenters with quantitative predictions of values to be measured as new effects. The effects might come from experimental setups built on the base of qualitative general view arising from generalization of approaches developed in the scale theories [1–3]. We propose several such setups together with discussion of methodological aspects of the proposed experiments.

2.   Experimental setups for proof of idea of multi-scale energy transfer

2.1.   Oscillating vortex

As it could be concluded from the scale-theories listed above, astronomical observations of mass distribution in space may serve as partial proof of the theories.

While motion forward to provide a proof on more close to experimental setups scales, their authors has recently developed several approaches for building of such setups. For example, author of theory of Scale Relativity, has published work with analysis of simulations of so-called macro-quantum wave packet [4]. The model [4] is directed for experimental proof using "retro-active loop of force field" to be applied onto some liquid.

As we can conclude, such a force field was experimentally created in a form of oscillating toroidal vortex by founders of commercial Russian venture Vortex Oscillation Technology Ltd [6].It was applied as a basis for creation of venture itself and for its practical applications, described on the site of the venture [6]. The founders of the functional form of the external

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oscillating force applied to a volume with liquid have this form as their "know-how". The trajectory of motion for particle inside the vortex is presented on Fig.1. The form of vortex is presented on Fig. 2.
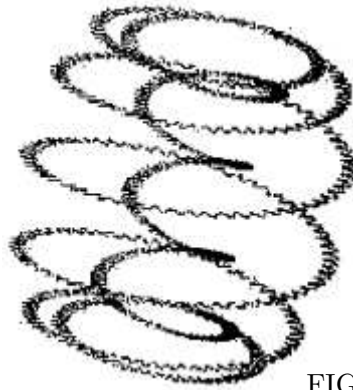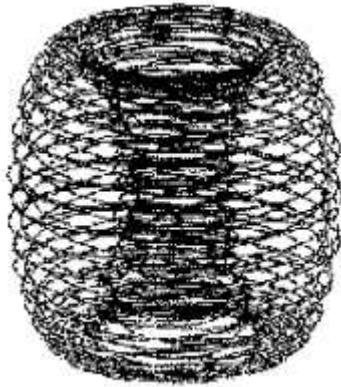

FIG.1

FIG.2

The first suggested in this paper experimental setup takes described on the site [6] idea of application of external oscillator to a volume with a liquid as basis for the test of model of a macro-quantum wave packet [4] together with the model and idea of universal measurement scale, which use is described in [2]. The scale is based on linear combinations of fundamental constants of π and the same of a fine-structure (1/137). Application of such a scale coincide in its idea with a note about construction of macro objects from micro helical spiral kernels, described in the theory [7]. Both authors suggest to apply linear combinatorics for construction of macro objects from the basic elementary ones. In contrast with the theory [2], the theory [7] has proposed concrete form of dynamics for basic helical spiral kernels, moved in a phased net of counters by module in modelled cellular space. Taking form of helical extending spiral as a base for fractal form of motion for considered in [3] geodesics, one can join three approaches to obtain best form for dynamics on macro scale to come into interaction with fast motion of energy from micro scale.

To make this, we should apply idea of fractal reflection of some characteristics of the dynamics on micro scale. For that we would like to propose experiments with creation of macro conic vortex with axial oscillation rising to its base. Such a form of motion corresponds to a described in [7] form of motion of elementary particles possessing with characteristic of charge. As it is described in [7], motion of such particles can be presented as forward motion of extending and vibrating spirals. The form of dependence of the counters' phase on the front of propagating spiral, interpreted as proton:

$$f(s) = A_1 e^{s \frac{b}{v}} \tag{1}$$

The same of electron:

$$f(s) = A_2 e^{-s \frac{v}{D_1}} \tag{2}$$

Their superposition described as uncharged neutron has frontal phase in form of superposition of the two forms above:

$$f(s) = A_1 e^{s \frac{b}{v}} + A_2 e^{-s \frac{v}{D_1}} \tag{3}$$

The s variable in the equations is the counters phase, constants in the equations are fully described in [7] in the context of general solution for diffuse type equation determining formation of steady structures of the phase differences in the net.

For us the most important fact in these equations is the character of exponential dynamics for protons and electrons, which should be resembled on macro scale with a hope for finding out of conditions for interaction between oscillations on these different scales. To estimate the sizes and frequencies of oscillations for vortices on macro scale, one should apply estimations for that on micro scale from [7]. Standard time of the whole round rotation for the kernel is 10^{-25} sec. The sizes of nearest to the kernel moving synchro-formations mediating charge interactions are estimated as sizes of elementary particles 10^{-15}m. Periods of axial oscillations have to be much more short in comparison with kernel's overall rotation period. That is evident also on the form of the particle motion on the pictures of oscillating vortex on Fig.1 and Fig 2.

With assumption of linear self-similarity of the extending conic spiral formed on the base of the helical kernels, one can multiply their lengths and periods by the same constant to receive resulting size and effective oscillation frequencies of the conic vortex on macro scale able to interfere into multi-scale energy transfer.

Another linear approach for that is described in [2] regarding application of universal measurement scale.

If the spiral forms a fractal with dimension changing with a change of spatial scale, one should apply theory of Scale Relativity [3] and simulate form of this fractal up to useful for experiment sizes on macro scale.

Due to the fact, that first such experiments should be performed regarding charge interactions, important condition for success in such experiments is application of dielectric liquid and wall materials for vortex with ones' good properties for mutual electrifying.

Such a choice of conditions for vortex will create possibilities for involvement of charge interactions into hypothetical multi-scale energy transfer. This involvement or interference should reveal itself on dependence of produced static electricity from the sizes of vortex and from the form of its oscillatory dynamics.

As it is easy to conclude, due to extending rotation of conic vortex, magnitude of its self-oscillation rises up to its wide end. These oscillations in its wide end topologically transform into the form of torus with spiral motion on it. As it looks problematic to organize experimentally such a rising of oscillations to the extending end of conical vortex, it looks reasonable to make experiments just with torus like one formed on the end of this conic vortex.

Thus, we propose to make series of experiments with toroidal or cylindric volumes made up from organic materials filled with easy electrified organic liquids. If rotation of oscillating toroidal vortex will be achieved in a winded torus or cylinder, electrification of moving liquid and consequent induction of electromagnetic force in the winding will give mean to measure its dependence from the form of oscillatory dynamics and from the size and diameter of the torus.

Such a simply setup will provide with mean for experiments with a form of external oscillating force in accordance with simulations of macro-quantum wave packets [4] and with universal measurement scale in a frame of general idea of multi-scale energy transfer [5].

These experiments also can provide with some insights on the change of fractal dimension of particle trajectories with change of spatial scales, introduced as basic idea in the theory of Scale Relativity [3].

Also the experiments, as it is described in [5], may help to find specially effective coincidence of the fractal forms of motions of basic particles (which are building blocks for atoms and molecules of liquid) with forms of dynamics of motion of liquid in the whole in the oscillating vortex. Such a coincidence, by main idea in [5], may provide with possibility for energy transfer between definite micro and macro scales, thus helping to make new energy source.

Energy in such a source has to come from micro scale. Its appearance and release on macro scale has to be detected by measurements of inductance on winding around oscillating volume. On micro scale such an energy outflow to macro scale has to cause reforming of a substance, as substance itself, by idea described in [5], is formed in multi-scale energy transfer taking place in the scales of the whole bounded universe. Interference with this hypothetical energy transfer with oscillating vortex may provide with proof of this idea together with systematic steps towards creation of new energy sources.

The systematic research based on the theories listed above is definitely needed by such production ventures as Oscillating Vortex Technology Ltd and the other ones, selling commercial heat generators utilizing motion of heated liquid in the form of self-organized torus.

The sellers write on their sites about obtained heat energy in excess from 2 to 3 times in comparison with consumed electricity. They explain this excess energy by release of bind energy of different solvents and impurities in the rotated liquid. By their observations, with work of these devices the substances are transformed. That provides with self-cleaning of the work liquids. Advertisement of such a device can be found,for example, at the site [9].

Despite the fact that these claims have no serious theoretical background, they directly coincide with presented above logical conclusions about effects of nonlinear interactions in multi-scale energy transfer.

2.2. Specially organized gradients

Logically following main idea of [5], one can conclude about possibility to interfere into multi-scale energy transfer and into associative forming of substances using special geometry and parameters of physical gradients in surrounding substances.

Such a possibility can be explained in general terms using ideas of interaction between basic binary structures of phase differences forming atoms as some kind of standing waves in their cyclic global motion. By estimations in [7], time of round trip for such a structures is in the scale of $10^{-30}sec$. Making of systematic experiments taking to account this value and estimated delays in such a fast motion can help for better estimation of size of universe. As the size even for visible universe is not determined exactly, such experiments can bring valuable results for this.

The other valuable results may come if these delays will destabilize formed in motion structures on micro scales. In case of radical destruction of micro structures formed in memory-like associative recall, release of their energy can leave its part on different structures on micro scale, and on nearest structures on macro scale able to come into interaction with the global motion.

Not ordered energy release on micro scale can give heating of the substance. Ordered energy release might give a thrust for propulsion. Delays in the fast motion on macro scale might give acceleration of ionic flows in the whole and also thrust in propulsion-like devices. The first one case was discussed in previous section regarding creation of delays in multi-scale energy transfer using accelerations of toroidal or cylindric volumes with electrified liquid. All these possibilities for creation of delays are based on creation of relatively small, but specially organized gradients of the three physical values having common background in explanation of ones' work. These gradients are gradients of pressure, temperature and electric potential. Their common background is in possibility for all of them to create small, but ordered differences in dynamics of collisions or interactions between atoms and molecules in the substances, where these gradients are created.

Importance of collisions and some experiments with ones are described in detail in [8].

Qualitatively, due to the so extremely fast motion of so-called "memory carriers" [8] or "waves of phase differences" [7], only colliding particles with the small differences in dynamics of collisions may come to interaction with motion mediating multi-scale energy transfer.

Another necessary condition for such an interaction is geometry for application of the gradients. On macro scale it should be some kind of a fractal-like geometry, which should coincide by its form with the part of a fractal-like geodesic motion of memory carriers.

All the other conditions on micro scale are satisfied in experiments with composite substances subjected to the above mentioned gradients [10] and in experiments on new ways for atomic transmutation and consequent creation of atomic reactors using alternative Bolotovs' theory of substance [12, 13].

Authors of this paper are not inventors for the way and idea of application of the gradients. Such a way for influence on the substances was invented and successfully implemented by two Ukranian chemists[10]. As this way is in a process of patenting, its general description is accessible only on the site [10]. Due to a personal communication with developers of this technology, we can outline conceptual difference in our approaches.

Their approach and technology is based on $6-$dimensional theory of presentation of substances in different phase states. The theory has been developed in 13 years, software to calculate presentation of different chemical properties of substances in 6 dimensions in 7 years. Using the software, one can determine set of characteristic properties of some substance and then create "virtual" presence of this substance using composite substance activated by creation of gradient inside it. As this "virtual" presence of the chosen substance appears on some distance $(150 - 200mm)$ from a layer $(30 - 40mm)$ with mixture of composed mainly in solid state different substances, one can obtain effect of presence of H_3, for example, in a wooden stick. Such a virtual presence allows easy gasification of wooden sticks using water steam under temperatures around 140^oC. As virtual H_3 helps to break long aromatic molecules in wood, the process gives out almost no waste oils.

Another good example of the developed technology is methane conversion. It assumes creation of such conditions in space with the gas, that one element of the gas, namely carbon, cannot stay in that spatial area in gaseous form. The carbon drops from the gas as very small ash particles thus allowing also very efficient use of energy for production of hydrogen from methane. Methane has chemical formula CH_4. The process again goes under extremely low temperatures (80^oC) and with around 7 times less total energy ordinarily used for the substance conversion.

The whole list of possible technological applications for the software and theory is accessible at [11].

As authors could conclude from personal communications with the chemists, their key idea, which made possible all the applications, is the idea to change the ratio between rotational and translational components of element's energy of motion in space.

That reminds considerations in the first part of the paper about spiral kernels rotating and simultaneously moving forward in oscillations.

Despite the fact that the general theory of this method described at [10] uses terms of a "field" from a subjected to the gradient composite, which acts locally, we consider action of the composites as modulator type action. Not the substance produces "field", but rather it comes into interference with the fast motion mediating multi-scale energy transfer due to the gradient and complicated structure of inter-atomic interactions. As this interference occurs, it destabilizes steady way of associative dynamical formation of locally placed target substance.

Creation of the "virtual" presence of some substance in chosen spatial areas also can be regarded as modulator type action due to the same interference and not as a "field" with its source in the composite substance.

The same should be noted about Bolotov's findings for the ways to obtain energy from transmutation of substances in reactors subjected to action of asymmetric electric impulses [12, 13]. Such impulses create ordered dynamical gradients in the substances inside the reactors. Due to the same influence of the gradients onto the global motion of memory carriers in multi-

scale energy transfer, substances inside reactors become unstable. Ones' transmutations give out energy in form of a heat.

Another way to destabilize self-assembling of a substance can be tested using creation of ordered gradients organized with help of acoustic waves from plate sound sources installed in the geometry depicted at FIG. 3.
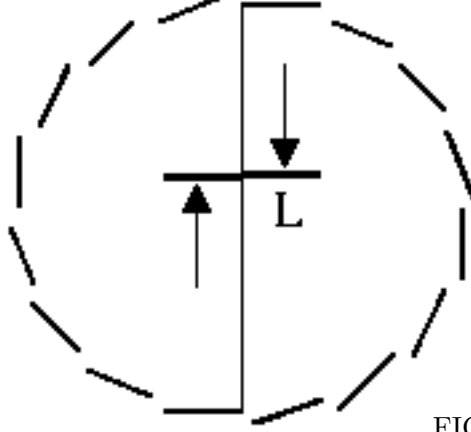

FIG.3

Such an experimental setup gives additional possibilities for testing of role of ordered gradients as modulators for moving memory carriers thus influencing on associative self-assembling of substances. By our opinion, such a self-assembling is described in theory [12] as order of appearance for positive and negative half-spheres of elementary charged standing waves forming atoms.

As the sources are plate and their relative positions are around opposite ends of diameters inside the cylinder, the wave fronts from them will pass alongside the diameters as moving gradients. The points around center of the line dynamically formed by two meeting wave fronts should be considered as points of destabilization due to interaction there between memory carriers modulated differently during passing along the lines of the two wave fronts.

As the wave fronts move relatively slowly in comparison with memory carriers, one can estimate destabilization action S as a function of number of memory carriers passing along the fronts during the time of motion of the fronts on the distance of atomic diameter. This number depends from an atomic diameter A_d, traversal speed V_t, length of the wave front L and hypothetic speed of motion of memory carriers V_f.

$$S = F(\frac{A_d V_f}{V_t L}) \qquad (4)$$

One can also assume dependence of the destabilization effect from parameters of the wave fronts. Yet development of hypotheses on this subject needs practical proof for this way of influence on substances. Such a proof can be found in experiments using combustion in cylinders or nozzles with a described on a figure profiling. Another proof might be found in application of astrophysical theory for the task of creation of new energy sources in a form of a focus fusion device currently developed in international cooperation [14–17]. As the device functions in discharges creating toroidal filaments in boron-hydrogen plasma decaying with emittance of ray of alpha-particles, special profiling of outer and inner electrodes using the described on the Fig. 3 profile may help for a better decay of the boron-hydrogen filaments. If application of electrodes with such a profiling will increase energy output of the source, it will partially prove presented approach.

3.   Conclusions

We presented several experimental setups aimed to prove the general idea of multi-scale energy transfer. This idea has its roots in astrophysical theories and its partial proofs in local experimental experience. We hope for its definite proofs in the described experiments and for its prospective technological applications.

References

[1] V. Christianto (2004), Comparison of Predictions of Planetary Quantization and Implications of the Sedna Finding, Apeiron, Vol. 11, No. 3 http://redshift.vif.com/JournalFiles/V11NO3PDF/V11N2CHR.pdf

[2] Ilyanok, Alexander M. (1999), Quantum Astronomy. Part II, eprint arXiv:astro-ph/0001059, in Russian: 29 pages; Vesti of the Institute of Modern Knowledge, vol. 2-3, p.71-102 (http://arxiv.org/astro-ph/0001059)

[3] L. Nottale (2005), Fractality field in the theory of scale relativity, Progress in Physics, V. 1, pp. 12-16
http://arena.obspm.fr/~luthier/nottale/arprogr1.pdf

[4] Nottale, L., Lehner, T. (2006), Numerical simulation of a macroscopic quantum-like experiment: oscillating wave packet, eprint arXiv:quant-ph/0610201 http://arxiv.org/quant-ph/0610201

[5] A.Yu. Olevanov, O.P. Kuznechik (2006), Application of general concepts and methods of theory of self-organization to the questions of motion and transformation of energy in nature, Nonlinear Dynamics and Applications. Vol. 13, pp. 171-176 http://www.matrixf.com/shortarticle.pdf

[6] http://www.vortexosc.com

[7] S. Berkovich (1993), Cellular automation as a model of reality: search for new representations of physical and informational processes, Moscow, Moscow University Publisher (Russian)

[8] A.Yu. Alevanau (2003), New Devices and Approaches for Medical Imaging, Open Academic Journal, Vol.10 http://www.acadjournal.com/2003/v10/Part5/p3/index.htm

[9] http://4736.ukrindustrial.com/cat.php?oid=109007

[10] http://forum.membrana.ru/forum/scitech.html?parent=1052395564

[11] http://www.matrixf.com/spisok.pdf

[12] B.V.Bolotov, N.A.Bolotova, M.B.Bolotov (2003), THE PHYSICOCHEMICAL TABLE OF A MATTER STRUCTURE, Spacetime & Substance International Physical Journal, No. 1 (16), pp.7-21, Kiev, Ukraine, ISSN 1726-4429 http://spacetime.narod.ru/16.html

[13] B.V.Bolotov, N.A.Bolotova, M.B.Bolotov, I.M.Bolotov (2003), SOME FUNDAMENTALS OF A SUBSTANCE STRUCTURE, pp. 152-163 Spacetime & Substance International Physical Journal, No. 4 (19), pp.7-21, Kiev, Ukraine, ISSN 1726-4429
http://spacetime.narod.ru/19.html

[14] E.J.Lerner (1986), "Magnetic self-compression in laboratory plasmas, quasars and radio galaxies", Laser and Particle Beams, Vol. 4, pp. 193-222
http://www.health-freedom.info/pdf/Magnetic Self Compression No 1.pdf
http://www.health-freedom.info/pdf/Magnetic Self Compression No 2.pdf

[15] E.J. Lerner (1986), "Magnetic Vortex Filaments, Universal Scale Invariants, and the Fundamental Constants", IEEE Transactions on Plasma Physics, Vol. PS-14, pp. 609-702, No. 6
http://www.health-freedom.info/pdf/Magnetic Vortex Filaments.pdf

[16] http://www.focusfusion.org

[17] http://www.cmef.eu