

Is Unitary Quantum Theory able to change civilization?

Leo G. Sapogin

Department of Physics, Technical University (MADI)
Leningradsky pr.64, A-319, Moscow, 125319, Russia.

V.A. Dzhanibekov

Department of Cosmophysics, Tomsk State University,
36 Lenina st., 634050, Tomsk, Russia.

A.A.Kostin

Department of Physics, Technical University (MADI)
Leningradsky pr.64, A-319, Moscow, 125319, Russia.

M.A. Mokulsky

Institute of Molecular Genetics RAS
Kurchatov Sq. 2, 123182, Moscow, Russia.

Yu.A.Ryabov

Department of Mathematics, Technical University (MADI)
Leningradsky pr.64, A-319, 125319, Moscow, Russia.

V.I.Utchastkin

Department of Physics, Technical University (MADI)
Leningradsky pr.64, A-319, Moscow, 125319, Russia.

Abstract

In this article we are discussing possible change to civilizations.

Keywords: Superluminal light propagation, Energy generation, Corpuscular-wave dualism, Fine structure constant, Wave function, Catalytic Process Theory.

The question taken as the title of this article was asked Professor F.A. Gareev (Laboratory of Theoretical Physics-JINR, Dubna) more than 30 years ago at seminar during discussion of Unitary Quantum Theory (UQT) and it wasn't answered. But 30 years ago we had only bare mathematical ideas and images without exact figures, fine-structure constants calculated later and numerous particles' mass-spectrums. We should recollect here the words of R. Feynman from his book [1]: *"The main aim of physical theories - to find a number and besides with adequate accuracy"*(back translation).

This article can be difficult for reading for those who have no idea about UQT even in the volume of [2,3,16]. To start with we would like to define the main task of the science from the point of view of world civilization: to create closed integrated description of the whole world – exactly that was called in Newton times as natural philosophy. Despite of great investments in science during the last 60 years valuable results were achieved only in space exploration, as for

microcosm – the progress is not so evident. We will try to analyze the reasons of this discrepancy.

Popular contemporary picture of the world represents a joyless spectacle. There are two absolutely different approaches to the world understanding: General Relativity Theory and, on the other hand, Quantum theory. First describes everything in terms of continuous field, other uses “discrete” approach to description, nobody has managed to combine them. The similar problems have been already discussed by the authors in the works [4] and we are not going to dwell the issue once again.

Despite somebody’s attitude the ideas of General Relativity Theory (GRT) are very visual and simple for understanding, but they have no experimental confirmation [4,5] in spite of general quantum theory. The last has no visualization at all but has experimental confirmation with accuracy up to 9 significant figures. Notwithstanding its success Quantum Mechanics (QM) remains mysterious for everybody who encounters it. Starting from Bohn till now we can see step-by-step retreat from intuitive understanding of nature in images and movements and that is why physical reality expands to abstractions. The relation between QM and reality - is more than a pure “philosophical problem”. It shows that Quantum Mechanics cannot be reliable and complete theory of physical world. And any attempt to “correct” it with mathematical “instruments” results in inevitable self-contradictions and incompatibilities.

The starting ideas of UQT came to one of the authors (L.S.) as far back as 1957 when he was a student as a reaction to the absence of crisp picture of corpuscular-wave dualism. It was absolutely unclear, for example, how in the case of quantum harmonic oscillator (even in spherical coordinate system) a particle was able to pass the points or closed spherical surfaces if probability density of its disclosure strictly equaled zero. Standard “explanation” that particle did not have path simply replaced one enigma by another. Solution for this problem was proposed by Niels Bohr who developed new “rules for the game” (called by Langevin as “intellectual dissipation”) but not new field pattern of the world.

According to UQT particle is not a point but a wave packet of some uniform field that periodically appears and disappears at de Broglie wave length. This unitary program under M. Jammer nomenclature [5] can be perfectly described by the words of A. Einstein: *“We could regard substance as those areas of space where a field is immense. From this point of view, a thrown stone is an area of immense field intensity moving at the stone’s speed. In such new physics there would be no place for substance and field, since field would be the only reality . . . and the laws of movement would automatically ensue from the laws of field.”*

In UQT the nature is defined as integrated field and statistical interpretation is not postulated but results from the theory [3]. It’s clear that equations are slightly different (non-linear intergo-differential) but main equations of quantum theory can be derived from them. The UQT allows making convincing explanation of tunneling effect has predicted nuclear reactions at extremely low energies and gives general approach to theory of catalytic reactions [3].

In UQT the relativistic correlations between impulse and energy are strictly maintained but the reason of their appearance is absolutely different. The time is Newtonian again, and with the change of gravitational potential (equivalently to acceleration effect) the speeds of all processes change too, at the same time the lines reduction is absent at all [4]. The authors realize in full the panic, which their investigations can create among scientists working in the field of high energy physics. And of course the position of modern science is quite evident: to

keep the financing of future projects where the UQT should not be noticed at all. Of course such results cannot be obtained without oblation. What would be offered in sacrifice if Ordinary Quantum Mechanics were replaced by the Unitary Quantum Theory (UQT)?

1. There are no strict principles of superposition in UQT. It is violated if wave packets are colliding.
2. There are no strict close systems in UQT and the Conservation Laws work for big energies only. Note that the Conservation Laws forbid beginnings of the Universe.
2. The classical relativistic relation between energy and impulses is valid in UQT only after averaging of observed phenomena and Relativistic Invariance itself is not “the sacred cow”.
3. The Space in UQT is not homogenous and not isotropic and has complex geometry.
4. The particles and their interaction are not local.
5. The existing Standard Model Quantum Theory of Elementary Particles requires much alteration.
6. The velocity concept as quotient from division of the traversed path to sometime interval is not quite appropriate in UQT. If a wave packet (particle) is spreading along the Metagalaxy and then appearing somewhere else, what should we do with the rate, if nothing moves between the points of disappearance and arrival, does it mean that particle has just simply disappeared and then appeared in a new place? There was observed resembling crushing defeat of physics 50 years ago as “weak interaction” burst, so to say, into physics. As soon UQT is nonlinear, it automatically combines all four interactions that can pass from one into another distance.

The most valuable result of the unitary quantum picture of the world – serious suspicion in validity of Lorentz transformations for every aspect of the world pattern. The World is not only electromagnetic waves, the matter was earlier examined by the authors in their works [3,4] and we are not going to recur to this subject again. The main result – four-dimensional relativistic space of time does not exist at all. According Unitary Quantum picture of the world time is Newton number and it is used by our minds for description of dynamic processes only, nature have no idea of time at all and consider the world as complex geometry of space. The direction of time arrow is determined by entropy. But today the world science is protecting both special and general relativistic theories. ***Statement “velocity lights this at most possible velocity in nature” is mistake. Any deflection of the light from rectilinear (for example in gravitation field) will be an impossible, since module of velocity after deflection will become more velocities of the light.*** But today amicable agreement science protects as special, so and general theory of relativity.

It's quite clear that scientific discoveries like Higgs boson or calculation of mass spectrum or value of electron charge cannot change civilization as it was done by electricity or internal-

combustion engine... But there is one **Prediction** that can alter our civilization – ability (in terms of UQT) to create “Perpetuum mobile”... Only in Newton mechanics “Perpetuum mobile” is still impossible.

Let’s discuss the application of main ideas of UQT for new energy sources creation. Imagine one-dimensional problem with particle reflecting from Coulomb potential. If we solve Schrodinger Equation or make an experiment the falling particles with similar impulses creates the whole range of reflected particles with impulses both greater and smaller than initial impulse. Of course some particles will have impulse equal to impulse of falling ones. But if we sum impulses of all reflected particles it will be equal to the sum of impulses of all falling particles – conversation law appears at averaging. But it does not work for a separate particle.

Fathers of quantum theory understood it well and to get out of these contradictions they had announced that quantum theory did not describe behavior of separate particles. But it’s all just words; in fact quantum theory for single particle can predict only the probability of appearance of this or that impulse value.

In UQT it is not like that but it’s much more interesting. The value of reflected impulse correlates directly with the phase of wave function that does not appear in standard quantum mechanics (QM) at all because if we square the wave function module its phase disappears. In UQT the probability of tunnel effect depends on the phase of wave function but not in standard QM and it would be nice if someone tested this experimentally because it have not been done till now.

Have a look at the reflection of a single particle from Coulomb wall again. Let her reflect with the rate higher than rate of falling. What can prevent us from creating another parallel wall in such a way that the rate of reflected particle will be higher than the rate of falling one again? In this case we obtain **free** energy growth and the question about the energy source becomes imposed by atavism of classical mechanics. We can forget about this atavism because the base is quantum theory and Newton mechanics is derived from it and not vise versa. In UQT new equations of motion are not invariant with respect to spatial and time transmission and conversation laws appear at averaging by ensemble i.e. like in common quantum theory.

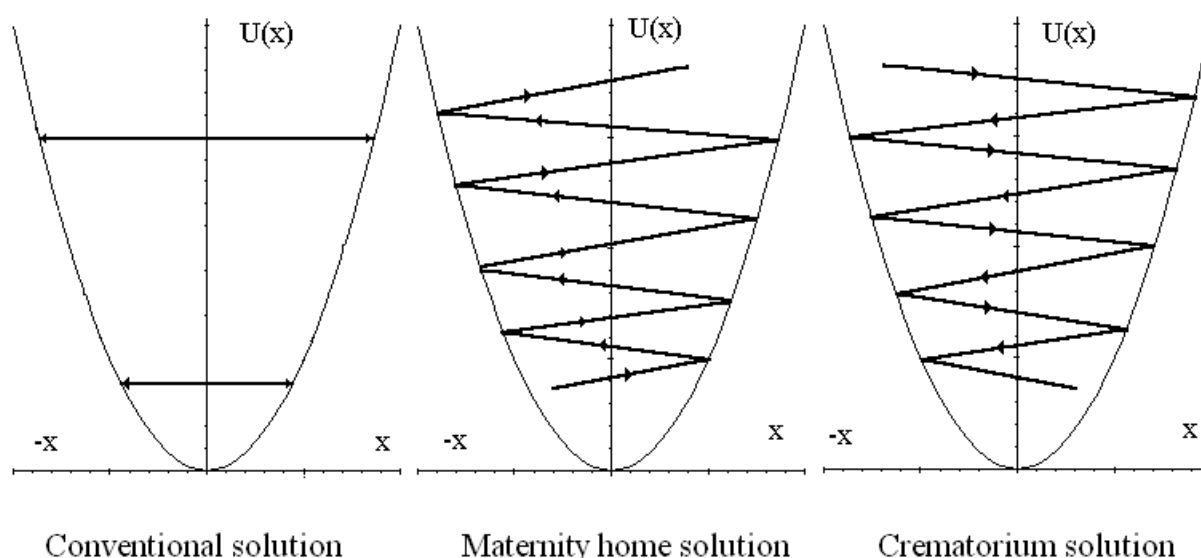


Figure:1

In UQT the problem of quantum harmonic oscillator has three solutions, one is stationary two others are called "Crematorium" and "Maternity home". According first solution particle is slowly sinking to pit bottom with energy lost, while in the second energy indefinitely increases. The main target for coming constructors of such systems in XXI century is to create such initial conditions for the great number of particles forming the object, that helps to realize solely solution "Maternity home" and suppresses as far as possible other solutions. The above-mentioned makes evident that at competent exploitation of the ideas of Unitary Quantum Theory there is no principle prohibition for "*perpetuum mobile*". All these problems were discussed in work [3].

UQT – trustworthy system because for the first time in science [6,7,3] it helped to calculate fine structure constant $\alpha = 1/137.96$ (or $\alpha = 1/137.03552$ taking into account vacuum polarization correction) as well as mass spectrums of numerous elementary particles. Nobody could do it before. It's interesting that non-linear integro-differential equation of UQT for mass spectrum were solved analytically. The same present Nature made people in calculation of Hydrogen spectrum, while other exact analytical solution of Schrodinger equation realized in practice does not exist.

It's a great mystery. Mass spectrum of elementary particles was calculated in 2007 [8,9] and Higgs boson was discovered later. There is one unpleasant for CERN fact in this history. They had not predicted its mass, one of their detectors determined the mass as 125 GeV, other – as 130 GeV, according to our theory it's 131.7 GeV, but CERN everywhere mention only 125 GeV!!! According to combined data (LHC + Tawatron USA) the value of Higgs boson mass with 99,99% probability lays in the range 125-140 GeV. In addition in 2007 we computed two pentaquarks, later they were discovered and perfectly coincided with computed values [9]. By quite understandable reasons we were not mentioned as predecessors.

One can see some interesting trends in general scientific policy of CERN. Its management watch over mainstream so not to lose sponsorship. Just remember the agiotage around faster-than-light neutrino ... so many talks ... modern science was going up in smoke ... And what was in result? Director of project Antonio Ereditato and his three assistants had to leave CERN, and amazing discovery was explained by badly connected cable ...

But in this case some suspicions appear. What a strange training unit where 150 students cannot connect a cable! Is it really CERN or a trade school? Meanwhile we have got known that not all of 150 participants in this experiment were agreed with this explanation. And what shall we do with supernova stars data: at stellar flare neutrino are detected first and light comes later in 3 hours [10]? Moreover there are a lot of experimental detections of supraluminal speeds [11]...

Later some more information came to light: electron-positron collider was constructed in CERN before LHC ... One of researches Arno Heister detected (with 3 sigma) mass of 30.4 ± 1.78 GeV. We have this value in our table, but Arno Heister wasn't given a chance to collect statistics up to 5 sigma because such decay contradicted the standard model... He was offended and published everything at arXiv.org. They publish without review.... One can find this story in the net.

This information has now few reliable confirmations. These are the works of A. Starikov (Institute of Chemical Kinetics and Catalysis RAS, Novosibirsk) [12] about Hydrogen Sulphur

catalyst decomposition into Sulphur and Hydrogen with energy release and Hydrogen Sulphur synthesis from Hydrogen and Sulphur over another catalyst again with energy release. According to our information for the long time these works couldn't been published as conflicting to the first principle of thermodynamics!!! By the way specialists in Oak Ridge with the help of catalyst (fullerene and copper) are able to transform sparkling water into ethanol!!! There are a lot of patents for catalytic decomposition of water into Oxygen and Hydrogen. Energy expenditure for this processes is nearly 20 times less than energy realized from Hydrogen combustion!!!

But from the point of chemical thermodynamics that is evident infringement of the Energy Conservation Law! According to modern conception no catalyst adds any energy to the catalyzed process. But practice shows that it does! The catalyst adds energy to the process. And the only rational explanation of this fact gives new solutions for quantum oscillator in UQT. This example is not singular in the chemistry of catalysis. Specialists of catalysis are used to deal with excess heat generation; nevertheless they are "normally" ignoring this fact to avoid reputation of "ignoramus" in simple thermodynamic calculations. The role of catalyst in modern chemistry of catalysis should be revised. And that was done in [3,13]. But official world science still does not believe...

Huge heat and carbon dioxide emission are strangling civilization... It's well understood by the Governments, that is why during more than 60 years they spend great sums for nuclear fusion projects... ITER an international nuclear fusion research and engineering megaproject based on well-known physics - fusion of deuterium and tritium - is being built since 2007 on the South of France. Investments in this 20 years-old project are nearly sky-high, it's the most expensive research and engineering project in the world. ITER (the initial project cost of which was about 5 billion EUROS) was planned to be build by 2016, though step-by-step capital investments grew up to 19 billion EURO and after the expected date of experiments start was postponed till 2025. According to plans self-maintaining nuclear fusion will be launched by 2036 (!) and in demo mode only when volume of realized energy will be equal to the consumed. The authors many times wrote that ITER - dead project... Popular truth says as follows: survivability of any idea is apprized by number of people it is feeding... Mass energy consumption in the long run will result in thermal energy dump. But future civilization may try to solve the problem of the planet overheating with the help of coolers on the basis of Crematorium solution where energy will disappear.

In contrast with Russia international scientific community is quite free and has more possible directions for energy problems solution... We are going to analyze two of them quite close to industrial realization. It's E-cat of Andrea Rossi represents a ceramic tube with nickel powder and hydrogen under pressure... Under current system is warming up and realizes heat in quantity 3-50 times more than consumes... According Mr. Rossi it's a result of nuclear reaction between Nickel nucleus and protons with appearance of Copper and heat release... It's a pity and we should upset Mr. Rossi but every element which atomic weight is equal or higher than 56 (like Fe) enters into nuclear reaction only with energy absorption... This fact is well known in nuclear physics, and of course nuclear reactions of protons and Nickel take places but they are not responsible for energy release ... Barely proton with correct phase gets into cavern in micro crystal of Nickel where proton oscillates with energy growth - but it is "Maternity home" solution - Fig. 1. The authors are not going to discuss it in details; it was already done in earlier article. [14].

Other promising line of future energy development – researches of Randell L.Mills in Brilliant Light Power, who has generated excess energy in a specially developed gas discharge in presence of Argentum ions. They have also performed another experiment confirmed by NASA with the generation of thermal energy in electrolytic cell with Nickel electrodes containing water with added Potassium carbonate. According to NASA specialists who tested this their result the generation of heat energy can 1,68 time surpass energy consumed. There is no nuclear process at all and couldn't be.

The main idea of Randell L.Mills includes the following: the ordinary state of Hydrogen with main quantum number $n=1$ and first Bohr orbit is, by his opinion, an excited state and Hydrogen can pass to the lowest one called «hydrino». Such transformation goes with energy generation. By Randell L.Mills theory «hydrino» itself is a dark matter. We as well as the author of serious critical analysis [15] do not agree. Such states are impossible either in solution of Schrodinger equation (it require fractional quantum numbers) or in UQT. We think that processes responsible for the energy generation in Nickel in electrolytic cell [14] are the same that take place in E-cat. By the way the theory of energy generation in gas discharge was described in our book [3]. It had a whole chapter dealt with this problem. Thermal energy generation is the responsibility of mass electronic oscillation relatively to the hard ions that was many times described by Tesla, Chernetsky, Reich, Correa and others. Our Universal mechanism on the basis of solution “Maternity home” works here too.

But the groups of scientific celebrities from Russian Academy of Science who make decisions on research issues in this field are lobbying their projects as solely admissible – absolute authority – and they follow the special way. In 1542 the Pope Paulus PP III by Bull “Licet ab initio” launched central tribunal of Inquisition with unlimited rights. In 1998 Russian Academy of Science founded Commission on Pseudoscience and Research Fraud with inquisition rights with respect to everything new. Any new hypothesis is rejected as it does not fit current theoretical paradigm. Today any deviation from the “approved” theory equals to “scientific absurd”. And this group has added to its “armory” quite lucrative method of knowledge. If the obtained result does not fit the Procrustean bed of existing theory it is not paid heed at all. In practice the Government does not approve any allocation for new energy sources investigations (like one we discussing here) without RAS approval, and the investigations themselves are called fraud. Any new concept dealing with low-energy nuclear reactions is announced pseudoscience. In the result of such activity RAS will appear in waste bin.

The Authors keep in mind some decisions approved by Russian Academy of Science in the past. They were among people who elected T.D. Lysenko as Academician, and it was he but not Central Committee of CPSU(b) who led a campaign against genetics. Being students the authors repeated at seminars that “genetics was a whore of imperialism”. Than it was considered that the main aim of the new science – cybernetics was “to draw proletariat from class-struggle”, and our academicians – chemists all together mocked at Linus Pauling for his theory of chemical bond and only after Nobel prize award in 1954 they diffidently fell silent. And nearly yesterday the Academicians from Academy of Science of USSR gibed at astable chemical reactions of B.P. Belousov, he was a military person and Academy of Science had a priory distinctly negative attitude towards any researcher beyond Academy control. His article was twice rejected for publishing in domestic magazines, and he could publish the results of his investigations of oscillating reaction only 8 years later in very condensed version and only in department collected papers where was an Editor. Late this article became of the most referenced in this

field. It is well known for any Institute professor, because publishing of any serious work was nearly impossible even for those persons. And not CC of CPSU was responsible for this.

The Academy of Science itself consists of few hundreds interchangeable and mutually appointed “scientific generals” forming Society of Members and Corresponding members of RAS. As soon a professor is elected as Academician he becomes “infallible like Pope”. But such group of Academy members constantly voting on each other we have the right to consider not as pure society of individuals with some merits and dignities but as some closed corporation, which members conform corporative rules and value system. The entire history of Academy of Science proves that this corporation is characterized by imprudent lobbying of own interests.

We are sure that no one country determining the scientific image of modern world has either body similar to “quazi-ministry of fundamental science” – RAS or caste of privileged “state” scientists – its members. And this is not an accident or heritage but the result of continuous attempts and faults in development of national science and technology politics. Modern science is so significant and valuable that society paying for it existence should guide its activity in the channel of national practical interests.

Many years ago west sociologists of science have noticed that any association of pure science personalities to his own is in principle impossible to persuade any systematic policy especially if it does not follow from the interests of the science self-development. But corporate interests of the scientists are not identical with the interests of society and state. Today it is an axiom that pushes governments to invite representatives from different social societies to participate in the processes of national scientific and technical priority systems forming. While the essence of the state scientific politics is to find and to apply the methods of national scientific communities’ motivation for searching for and solving of fundamental problems.

We can expect that the history of E-Cat will become scandalous and exactly this may help to reverse the situation... No one theory except UQT is able to explain it distinctly [3], but it is quite difficult to falsify the experiment with output power about Megawatt... It can appear that international ITER in South France (20 billion EURO) and Tokamaks in USA, South Korea, Japan, Russia and other countries were waste of money and time... Of course progress may become irregular because the presence of independent source of energy in every home will make people free from external control, progress can become slower but it cannot be stopped at all...

ACKNOWLEDGEMENTS

The authors thank Profs. A. S. Bogomolov, V. A. Boichenko, V.V.Graboshnikov, Peter Gluck, S.I.Konstantinov, B.S.Ksenofontov, V.G.Sapogin, Yu.P.Zarichnyak for useful discussion.

References

- R.P.Feynman,(1961) “The Theory of Fundamental Processes”, California Institute of Technology, NY
- Sapogin L.G., Dzhanibekov V.A., Ryabov Yu.A. (September, 2014) “Modern Trend in Quantum Picture of the World”, *SOP Transaction on Theoretical Physics*, vol.1,#4, p.57-91.
- Sapogin, L.G., Ryabov, Yu.A. and Boichenko, V.A. (2015) “The Unitary Quantum Theory and a New Sources of Energy”. Science Publishing Group, USA. <http://www.sciencepublishinggroup.com>
- L. G. Sapogin, V. A. Dzhanibekov, M. A. Mokulsky, Yu. A. Ryabov, Yu. P. Savin, V. I. Utchastkin.” The Conflict between the Unitary Quantum Theory and the Special and General Relativity Theories”. *International Journal of High Energy Physics. Special Issue: Symmetries in Relativity, Quantum Theory, and Unified Theories*. Vol. 2, No. 4-1, 2015, pp. 54-58. doi: 10.11648/j.ijhep.s.2015020401.14

- Jammer M. (1961). "Concepts of mass in classical and modern physics". Harvard University Press.
- Sapogin L.G. and Boichenko V.A.(1988),"On the Solution of One Non-linear Equation", Nuovo Cimento, vol.102B, No 4, p.43.
- Sapogin L.G. and Boichenko V.A.(1991),"On the Charge and Mass of Particles in Unitary Quantum Theory", Nuovo Cimento, vol.104A, No 10, p.1483.
- Sapogin L.G., Ryabov Yu. A. (2008) ,"On the mass spectrum of elementary particles in Unitary Quantum Theory", Journal "The old and new Concepts of Physics",Vol. V, No.3, www.uni.lodz.pl/concepts.
- Sapogin, L.G. and Ryabov, Yu.A. (2016) "The Mass Spectrum of Elementary Particles in Unitary Quantum Theory and Standard Model". Global Journal of Science Frontier Research A, 16, Version 1.0.
- Tsao Chang, (2013) "Neutrinos as Superluminal Particles" Journal of Modern Physics, 4, 6-11.
- Wang L.J. etc. (2000). "Gain-assisted superluminal light propagation", Nature, 406, p.277.
- Startsev A.N.,at all.(2013) "Low Temperature Catalytic Decomposition of Hydrogen Sulfide into Hydrogen and Diatomic Gaseous Sulfur". Topics in Catalysis, 56, 969-980. <http://dx.doi.org/10.1007/s11244-013-0061-y>
- Sapogin, L.G. and Ryabov, Yu.A. (2011)," Unitary Quantum Theory and Catalytic Process Theory". International Journal of Pure and Applied Sciences and Technology, 3, 93-120. www.ijopaasat.in
- Sapogin, L.G., Dzhaniybekov, V.A. and Ryabov, Y.A. (2016)," Enigmatic E-Cat of Andrea Rossi and the Unitary Quantum Theory". Open Access Library Journal, 3: e2833. <http://dx.doi.org/10.4236/oalib.1102833>
- A Rathke (2005) "A critical analysis of the hydrino model" New Journal of Physics, Volume 7. Published 19 May • IOP Publishing and Deutsche Physikalische Gesellschaft
- Leo G. Sapogin, Dzhaniybekov V. A, Yu. A. Ryabov (2016), "Role Creator in the Origin Universe and Unitary Quantum Theory", International journal of Multidisciplinary Research and Information, Available Online at <http://www.journalijmri.com>