The Unitary Quantum Theory and New Sources of Energy

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Preface to First American Edition in USA

Dear Reader:

The book you are holding is a thoroughly unconventional work wholly devoted to a new concept called 'Unitary Quantum Theory' (UQT).

According to this theory, all particles are not points. They are presented as wave packets or bunches of some united field moving in a nonlinear and dispersing "medium". All natural phenomena described in this work are reduced to interactions of such packets with each other and with external fields.

Following this approach, the motion equations for separate microparticles can be written in cases where the energies are small; there are no conservation laws for such a particle, and it should be possible to use this knowledge to develop a fundamentally new source of energy. This idea does not conflict with the conventional quantum theory, which also does not contain conservation laws and only predicts the probability of this or that event. Conservation laws appear within standard quantum theory only after averaging over an ensemble of particles. Contrary to the approach developed herein, the standard quantum theory is not able to suggest a way to create such a new energy source.

The following system of notation is used in this book: All equations and figures have triple numeration, divided by points. The first number indicates the chapter where the figure or equation appears for the first time. The second is the number of the section of that chapter, and the third is the number of the figure or equation within the section. For example, equation (2.1.16) means the sixteenth equation from the first section of Chapter 2.

Unitary Quantum Theory was written due to a combination of great dissatisfaction with certain aspects of quantum theory in its present form and nearly

forty years of thought. Over so long a time, of course, we discussed thoughts and ideas with a great many people, both professional researchers and research managers who supported the investigations, and several citations and epigraphs from their work have been quoted in back translation. Some of them have left this world already, but nevertheless we would like to express our profound gratitude to them.

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- *in Austria:* Prof. Stefan Marinoff, Dr. Igor Kulikov, and Markus Radl (Vienna);
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- *in Germany:* Prof. Werner Heisenberg and Prof. Josef Gruber.

I would like to express my special gratitude to cosmonaut USSR and R. F. Air Force General Vladimir A. Dzhanibekov. Without his support and insistence, this book might have still been unwritten. Dzhanibekov is best known as a space explorer. He has participated five missions to two Soviet space stations between 1978 and 1985. Few may realize that he started his career as a physicist, but changed profession when he realized that physics alone would not open the door into space. Over the years, after all of our discussions about new quantum physics problems, Gen. Dzhanibekov not only insisted on the necessity of writing a book about the UQT but, in the long run, he also created conditions favourable for its existence.

I would like also to express sincere gratitude to Franz Mair, a wonderful man from Innsbruck, Austria, for our long talks about life, philosophy and physics in the Tyrolean Alp during the summer or 1992. Our conversations changed much in my perceptions of the world.

The authors also thank the creators of the perfect programs for mathematical symbol calculations, Maple and Mathematica. We foresee a great future for them.

We are Russian professors of physics and mathematics; this book is meant for physicists, mathematicians, and restless engineers, who often shock "official" science with their experiments and devices. Experience has shown that my excellent co-authors make fewer mistakes than I do, so any errors in this book are mine.

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Sept. 2000 – Dec. 2004

Editors' Foreword to the Russian Translation of the First American Edition

The book we would like to offer to our readers – "The Unitary quantum theory and the new energy sources" presents absolutely new physical theory created by professor Leo G. Sapogin. To give our readers the possibility to appreciate the significance of this theory we think we should retrospect moments of physics' history most important for today.

The bases of the current physics we call classical are Newton's mechanics laws, his definition of mass, force, his law of gravitation, as well as a line of other discoveries of XVII and XVIII centuries. The researches of mechanical processes in liquids and gases, nature of light, thermal, optical, magnetic and other phenomena, atom-molecular structure of substances were so successful that by the end of XIX physics looked like practically completed. A harmonious nearly completed picture of the world had been created, a picture where any substance (solid, liquid or gaseous) consisted of minute particles, atoms and molecules, and the space among them were filled by transparent elastic medium - ester, and it is ester who helps atoms and molecular interact with each other.

It seemed that each and any physical phenomenon could be explained by mechanical of atoms, molecular and ester. Any terrestrial phenomenon being explained by Classical physics looked quite understandable. Literature of physics history describes one story. In 1874 Max Plank (further famous physics and one of creators of the modern quantum theory) planning to devote his life to physics asked for advice the dean of physical department of the Munich University. And he was replied nearly like: "In physics nearly everything is already known. All important discoveries have been already done. I doubt there is a sense for you to enter Physical department".

But in short time the inquisitive scientists, theorists and experimentalists had

arrived at discoveries that should be called more than important. These discoveries had resulted in revision of many ideas of classical physics and in appearance of principally new fundamental schools in Physics.

X-rays were discovered in 1895, radioactivity - in 1896, electron — a part of atom that was considered as a minute elementary particle before was opened in 1897 and so on. And all these phenomena were out of the classical physics framework. In 1904 in St. Louise (USA) at the International Congress of Art and Science Henri Poincare, noted physicist and mathematician made a report "The present and the future of mathematical physics". In this report A. Poincare made a fundamental analysis of the mail problems of classical physics and presented his own view of possible directions of its further development. He called critical the situation existed at the moment in Classical physics. His report became a signal to creation of new theory of physics; it was quantum theory (as usual it is called quantum mechanics).

The quantum mechanics was developed in general by 1926 thanks to the works of Erwin Schrodinger, Werner Heisenberg, Max Planck, Louie de Broglie, Wolfgang Pauli, Niels Bohr, Max Born and others. Nowadays it is considered the most detailed and comprehensive of physical science. It had been appeared that the laws of Classical physics and Classical mechanics were just particular cases of Quantum mechanics obtained in a result of data averaging of all particles participated in this or that process. The Quantum mechanics became very successful in XX century. For example, It could totally explain the structure of atoms being a complete system of protons, neutrons, electrons and other elementary particles, it could explain the blackbody thermal radiation spectrum, nuclear process of alpha disintegration and other phenomena of nuclear physics. It became the main operating tool for theorists and experimentalists in nuclear physics.

The key for Quantum mechanics is Schrodinger equation in wave function that displays the state of the micro-object under study. This function makes statistical

sense, namely, the square of its module equals the density of the probability of the object occurrence in some state or area. The wave functions give the complete statistic characteristic of the object state and evolution. And if know it, we can calculate the probability of different physical characteristics of the particle or system of the particles in the process of their displacement in space and time and so on.

The Quantum Mechanics has been considered by the world scientific community as unshakeable cornerstone of physics that requires probably some additions and accurate definitions but not turnarounds.

But even the creators of Quantum Mechanics themselves (or at least half of them) felt some dissatisfaction with the statistical nature of their theory first of all, occasional formal usage of mathematical apparatus and some internal contradictions. Below we would like to use the words of Erwin Schrodinger: "The existing quantum picture of material reality is today feebler and more doubtful than it has ever been… The popular opinion among the scientists proceeds from the fact that the objective picture of reality is impossible in the primary sense (i.e. in terms of images and movements)… Only very big optimists, among whom I count myself, take it is as philosophic exaltation, as a desperate step in the face of a large crisis. A solution of this crisis will ultimately lead to something better than the existing disorderly set of formulas forming the subject of quantum physics… If we are going to keep the damned quantum jumps I regret that I have dealt with quantum theory at all…"

Professor Leo G. Sapogin is one of the scientists who is not satisfied with some ideas of Quantum mechanics, he has been developing his own theory within more than 40 years. In 1983 he printed in the magazine "Technology of youth" an article where he has shown that theoretical possibility of physical phenomenon later called "cold nuclear synthesis" followed from the new equations describing the micro-particles interactions and their proper computations. It was quite unexpected result, because in theory from the point of Quantum Mechanics view this phenomenon was absolutely impossible.

But in 1989 the prophetic words of famous American science fiction writer Sir Arthur Charles Clarke were confirmed: "Anything that is theoretically possible will be achieved in practice, no matter what the technical difficulties are, if it is desired greatly enough" ("Profiles of the Future", 1963).

On March 23, 1989 at the press-conference in the State Utah University 46 years old professor of chemistry Stanley Pons and his 62 years old British colleague Martin Fleischmann professor of electrochemistry announced about their experiments on electrolysis of heavy water at room temperature. They have detected the anomalous energy release, and at that the heat excess could not be explained from the point of chemistry. Thus all evidences of fusion reaction taking place at room temperature were on hand. It was a cold nuclear fusion (and these experiments were not accidental, the scientists were prepared it during 5 years and spent USD 100000.00 of own assets). According to quantum mechanics such reactions are possible only at extreme temperatures, about billion Kelvin degrees and enormous density of substance. These reactions, called thermonuclear or hot nuclear fusion, take place at H-bomb explosion and in hot nuclear plasma that can be created by "Tokamak" system, for example.

One can easily imagine the distrust and lack of understanding that met this announcement by scientists - adherents of quantum mechanics. The scientific community was stupefied and even outraged. The well-established and undisputed theory was given a dare.

But the main complexity of the situation was in fact that the results of Fleischmann and Pons experiments affected not only scientific problems but denoted new possibilities to produce thermal energy without normal energy sources, without huge fusion reactors, without atomic stations, and that affected USA officials.

For the better understanding of the situation that happened in USA we would like to cite abstracts from Memorandum submitted by American scientist Dr. Eugene

Mallove the strongest proponent of new physical theory and new energy to the President of USA. He considered that era of new energy had started exactly from the discovery of the cold nuclear fusion. His Memorandum is an outstanding document.

Staring from 1995 Eugene Mallove was a chief editor and publisher of Infinity Energy magazine published in USA twice a month. He authored a line of books for public at large, including very interesting fundamental book on cold fusion "Fire from Ice. Truth search" (1991) [89].

Abstracts from Eugene Mallove Memorandum (Cold Fusion Memo to the White House): "… After over a decade of work, hundreds of peer-reviewed scientific papers from laboratories around the world confirm the Pons-Fleischmann discovery. It was just the tip of an iceberg of a whole class of nuclear reactions… These are often called Low - Energy Nuclear Reactions…

When as an MIT (Massachusetts Institute of Technology) undergraduate I read George Gamow's book, Thirty Years that Shook Physics: The Story of Quantum Theory (1966) (George Gamow - American physics, cosmologist, developer of Big Bang theory - Russian expatriate - authors remarks) it was impossible to imagine that in less than 25 years another revolution, such as has been brought about by cold fusion, would shake physics in ways every bit as dramatic as what happened from 1900 to 1930… Gamow also wrote that next major physics revolution would be in understanding the very existence of elementary particles and it will involve concepts that will be as different from those of today as today's concepts are different from those of classical physics…"

Than Eugene Mallove wrote: "… Confirmation of the remarkable cold fusion claims of 1989 was not to come easily… When the exact radiation signatures and end-products of hot fusion reactions in a vacuum were not found in the Fleischmann-Pons results or in quickly-done tests at other laboratories, scientists at the MIT Plasma Fusion Center yelled "possible fraud", "scam", and "scientific

schlock". On May 1, 1989, the story planted in the Boston Herald by the then MIT hot fusion director unleashed a torrent of anti-scientific bigotry. It did not occur to most scientists that a new class of nuclear reactions might have been discovered…

Most important to an understanding of the heated debate of the past decade: The Fleischmann-Pons announcement threatened an entrenched Federal research program. Over $15 billion had been invested by the U.S. government in its decades- long hot fusion program… Hot fusion had promised a distant era of safe, clean, infinite energy - variously estimated by funding seekers to begin by 2050 to 2100. These programs may have resulted in useful plasma physics research, but no net energy release in fusion energy beyond the magnitude of the electric power put in-ever. The magnetic hot fusion energy program should be terminated quickly to prevent any more waste of research funding.

The furor over cold fusion in the spring of 1989 prompted President of USA… to convene a group of cold fusion experts… Three major laboratories submitted negative reports. These were MIT, Caltech, and Harwell. The experts report was negative, and quickly so. A preliminary - came in July 1989 and the final - on November 1, 1989 with the following consequences:

U.S. government prohibited special funding by the for further research;

Flat denial by the U.S. Patent Office of any application mentioning cold fusion directly;

Suppression of research on the phenomenon in government laboratories;

Drs. Fleischmann and Pons would leave the United States to work on cold fusion in France for a subsidiary of the Toyota Corporation (IMRA Europe). Stanley Pons became a citizen of France, in legitimate disgust with his treatment in the United States… The reports of MIT, Caltech, and Harwell have each been analyzed by competent scientists… Each of the widely cited "null" experiments has been found

to be deeply flawed… In the case of the MIT data, there is evidence of deliberate alteration of laboratory measurements by a lower-echelon worker to erase an indication of excess heat… A great irony: Each of these negative results were themselves the product of the kind of low quality work of which Fleischmann and Pons were accused. The difference was that the reports said what the hot fusion community wanted to hear… Fleischmann and Pons have been vindicated - if not by the media and by the establishment, certainly by mountains of high quality published results… others confirmed low-energy neutron radiation, as well as the production of tritium…The latter astonishing evidence has been irrefutably proved by the work of Dr. Thomas Clay tor at Los Alamos National Laboratory №1…

It's a contradictory situation. The creators of Quantum mechanics have sold these contradictions as follows: they have postulated that quantum mechanics does not consider and does not study individual processes (!?) and can only predict the probability of this or that result. Today it is asserted that quantum mechanics does not describe single processes, thus inside quantum mechanics, inside science, the problem has been solved. But it still exists in nature. The natural phenomena around us do not always or totally confirm the science laws created by people. At the end of XX century engineers were really attacking the great law of conservation of constructions… devices, equipment able to generate energy in excess of necessity for proper functioning, i.e. with coefficient of efficiency more than 1. Information about some facilities is given in the chapter 3 of this book.

The essential fact is that some of these facilities are successfully operated and bring profit. And at the same time no one author of such plant can give adequate theoretical explanation of the principles of operations, i.e. theoretical justification of these plants lack.

The result of abovementioned is evident: new theory of physics is required to explain the cold nuclear synthesis, nuclear transmutations and operation of amassing facilities. It is well-known from historical view that successful

development of any industry is possible only if it is substantiated by strong scientific theoretical base. For example the achievements in aircraft construction, rocket engineering, and success in space development were achieved thanks to researches in corresponding areas in mathematics, mechanics, space dynamics and so on.

Meanwhile the problem of new alternative sources of energy transforms now from pure scientific (discussed in scientific lobby only) to great social problem of all humanity. The traditional sources of energy (oil, gas, coal, wood) at the Earth are limited. Easy computation show that at the current level of energy consumption and its further growth these resources will be exhausted in 50-70 (?!) years.

The hopes to replace traditional energy by nuclear are delusive in spite of assurance of its advocates. The exploitation of nuclear power plants remains unsafe for ecology and quite expensive taking into account all necessary costs including the cost of nuclear waste treatment. At the same time the problem of nuclear wastes treatment is not solved totally. The projects of nuclear production units using hot nuclear synthesis remain simply projects and require huge financial and human investments. So the problem of creation of the new energy sources and corresponding theoretical basis is now very urgent and we can only welcome the edition of this book translation.

Cosmonaut USSR, Academician RF V.A.Dzhanibekov

Academician RF N.S.Lidorenko

Professor Yu.I.Sazonov

Preface to Second American Edition

The first edition of our book was published about 10 years ago, and since then it became a bibliographical rarity. It's a quite long period and since then a lot of new results have been obtained. In particular, the mass spectrum of practically every elementary particle with the accuracy less than 1 % has been found. It appeared that the list of estimated masses contained even Higgs boson that was discovered 2-3 years after the publication of our article. By our calculations the Higgs boson mass equals 131.7 GeV while according to the consolidated data of the Large Hardron Collider and Tevatron with accuracy of 99% it lies in the rage of 125 – 140 GeV. Of course we have included these results in our book. The chapters 2.5, 2.6, 2.7, 2.8, 2.10, 2.11, 3.1, 3.3, 3.4 have been upgraded even the general design and style of the book remain unchanged. We have corrected the detected mistakes, but that does not mean that there are no mistakes ever more. A serious progress in energy took shape in recent three years. Thus Andrea Rossi managed to create new revolution sources of heat energy of Megawatt range that is impossible to falsify. However independent experts are inclined to believe that nature of such big volume of generated heat is absolutely unclear because neither enough products of nuclear reactions nor radiation have been detected. The Unitary Quantum Theory gives exhaustive explanation of these phenomena.

As the Unitary Quantum Theory describes considerably changed quantum picture of the world and it probably can be difficult for perception we have included into Conclusion nearly full text of the article "Modern Trend in Quantum Picture of the World" of Sapogin L. G., Dzhanibekov V. A., Ryabov Yu. A. published in magazine "SOP Transaction Theoretical Physics" vol., #3, September 2014, where practically the whole Unitary Quantum Theory is given in assessable and popular way. The authors are grateful to Cosmonaut of USSR General Air Force RF V. A. Dzhanibekov who enlivened the quantum pictures of the world by his image artistic thinking.

The readers can find every article of the authors dedicated to Unitary Quantum Theory (UQT) in the internet.

Introduction

The progress of Science goes on during every historical age, not only when men meditate on the whole, but when they concentrate their thoughts on such parts of the vast field of Science wherein developments are needed at the given time.

James Clerk Maxwell (1831-1879)

UQT is divided into four major chapters, and following is a brief review of the book by chapter.

Chapter 1

The first chapter describes the general theoretical basis of the Unitary Quantum Theory (UQT). In the standard quantum theory, a microparticle is described with the help of a wave function with a probabilistic interpretation. This does not follow from the strict mathematical formalism of the nonrelativistic quantum theory, but is simply postulated. A particle is represented as a point that is the source of a field, but cannot be reduced to the field itself and nothing can be said about its "structure" except with these vague words.

There is a school in physics, going back to William Clifford, A. Einstein, and Louis de Broglie, where a particle is represented as a cluster or packet of waves in a certain unified field. According to L. H. Germer's classification, this is a "unitary approach".

The essence of this paradigm can be most clearly expressed in Albert Einstein's own words:

"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."

The trouble with the many previous field unification attempts (L. de Broglie, Erwin Schrödinger, et al.) was in trying to construct a particle model from classical de Broglie waves, whose dispersion is such that the wave packet becomes blurred and spreads out over the whole of space. Moreover, the introduction of nonlinearity greatly complicates the task, and does not lead to a proper solution of the problem.

The UQT represents a particle as a bunched field (cluster) or a packet of partial waves with linear dispersion. Dispersion can be chosen in such a way that the wave packet would be periodically disappears and appears in movement, and the envelope of the process would coincide with the wave function. Based on this idea, a relativistic-invariant model of such a unitary quantum field theory was built.

In UQT, a particle is described with the help of a 32-component wave packet. The equation contains a 32x32 matrix dependent on 4-velocity. Limit transition of this equation leads strictly (!) to the relativistic Hamilton-Jacobi equation of classic mechanics, and in cases of especially low velocity (when all 4-velocity components are approaching zero), the UQT equation results in eight identical Dirac's equations.

Further, the mass of the particle is naturally replaced in the equations by the integral of the bilinear field combination over its whole volume, producing a system of 32 nonlinear integral-differential equations, which in the scalar case allowed the authors to calculate to within 0.3% accuracy the non-dimensional electric charge and the fine structure constant. Quantification of the electric charge emerges as a balance between dispersion and nonlinearity, as became clear from the physics point of view. Usually dispersion and nonlinearity bring about destruction of the wave packet but, for certain types of wave packet forms and amplitudes, mutual compensation of these processes is possible and the packet periodically appears and

disappears in movement at the de Broglie wavelength - yet its form is preserved.

A basic theory of microparticle-to-'macrodevice' interaction has been laid. The probability interpretation of the wave function is now not postulated, like it was earlier, but follows strictly from the mathematical formalism of the theory.

This approach makes the unitary quantum theory absolutely illuminating. For example, the tunnel effect completely loses its mysteriousness in the following way: when a particle approaches a potential barrier in such a phase that the amplitude of the wave packet is small, all the equations become linear, and the particle does not even "notice" the barrier. During another phase, when the packet amplitude is large, nonlinear interaction begins, and it can be reflected. The particle birth and disintegration mechanisms become entirely understandable as the splitting-up of the wave packets. This UQT approach regards all interactions and processes only as a result of mutual diffraction and interference of such wave packets between one another, due to nonlinearity.

Chapter 2

The second chapter concerns the approximate equation of an isolated particle with an oscillating charge. Initially, this equation was developed on the basis of UQT heuristic considerations, but later it was derived directly from the Schrödinger equation for very low energies.

The equation describes the behaviour of micro-particles in certain problems as classical particles whose charge oscillates and is dependent in a complicated way on time, speed, and coordinates. In such a paradigm, the tunnel effect also depends on the wave function phase, which was earlier a superfluous parameter in the standard quantum theory, since only the square of the wave function modulus had a physical sense and the phase did not affect it.

With the new paradigm, the situation is different. If a particle approaches a high

potential barrier in a phase when its charge is very small, the repellent force is also small. It can overcome the barrier by climbing it, while in another phase it will rebound. Such an equation was applied to standard quantum-mechanical problems such as particle scattering, the tunnel effect, harmonious oscillators, and the J. Kepler problem for individual particles. Some analytical solution and modelling methods were also studied, since the equation with the oscillating charge had introduced a number of problems into the method of mathematical computation.

What was found most unexpected and intriguing is the absence of energy and impulse conservation laws for an isolated particle when its behaviour is described with the help of the oscillating charge equation, since it has no translation invariance. To be more precise, such invariance exists only when so called initial phase – a new controllable parameter introduced in UQT- takes the values divisible by π. This means that in some cases he conservation laws are valid but in general does not.

A look at the origin of fundamental conservation laws for self-contained mechanical systems shows that they follow from the Newtonian equations [references to thermodynamics have no relevance whatever, because they are postulated therefrom], but the latter themselves follow from quantum-mechanical equations, which are of an even more fundamental character.

The standard quantum theory for isolated processes can predict only the probability of this or that event, and so there are no conservation laws for isolated events. They appear only in cases of transition to classical mechanics, when very large numbers of particles are summed over. The conservation laws appear in the macrocosm in a similar way to that in UQT. But now the existence of controllable initial phase opens up a number of wonderful vistas in science and technology - especially in energy.

Chapter 3

Next, we will examine the application of the oscillating charge equation for interpreting rich experimental material, which doesn't fit into the framework of standard quantum-mechanical science. For instance, Unitary Quantum Theory made it possible to predict [9] in 1983 the phenomenon of cold nuclear fusion, discovered only later in 1989.

This is a totally unexpected opportunity for creating nuclear reactions requiring very small energy values. One obstacle to the most probable d-d reaction under the normal very low energy conditions is presented by a very high Coulomb barrier. In UQT, the deuteron (as calculations show) can overcome that barrier with a certain value of the initial phase.

Several phenomena, essentially implausible by current science, will be analyzed on the basis of solving the harmonic oscillator problem (as well as certain others):

- Anomalous heat production in cold nuclear fusion reactions (when nuclear reaction products are millions of times less numerous than is required to explain the thermal effects);
- cold nuclear transmutation;
- production of superfluous thermal energy in numerous cavity installations;
- sources of excess energy based on anomalous gas discharge;
- mysterious processes of electric current passage through quantum wires, and the possibility of creating new electronic devices utilizing a completely new electronic flow control principle based on the dependence of the tunnel effect upon the initial phase;
- a number of exotic energy sources, as well as experimental phenomena

absolutely unexplainable by current scientific methods.

Chapter 4

Chapter 4 is a brief review of a theory and general approach addressing the 'problem' of chemical catalysis. By and large, how to resolve somewhat difficult issues that exist in this field today remains absolutely unclear, as it is not understood at all where the additional energy for certain chemical reactions comes from.

Chemical reactions of polysaccharide decomposition (lysozyme) are known which disrupt connection with energies of up to 3 eV. For water decomposition, a three-times-weaker connection has to be broken. If such a water-decomposing catalyst is found (and the UQT can offer steps in the right direction), it could bring about a revolutionary change in energy for motor transportation. There are reports that such catalysts have already been found: an automobile operating on simple water without requiring any additional energy is being tested in Japan.

Many catalysis theories conceal energy shortage, and are unable to "make both ends meet", since practically all existing science is built on conservation laws which have heretofore been regarded as unshakeable. The constant progress of scientific knowledge leads, however, to limited applicability of these fundamental laws.

Nature already plays tricks with humanity's best physical laws: consider for now just the weak interactions 'issue', and the chaos it caused in physics. The existing Newtonian conservation laws are a few of the things that survived that chaos, and it is only natural that they resist the influence of subsequent scientific developments.

We would like to remind the reader that the standard quantum theory predicts only a probability for isolated events and that there are no conservation laws that apply to them. That is why to create an inexhaustible source of energy we merely have to collect events with the required result, such as for power generation, and then all the energy requirements of humanity could be solved by a method

completely friendly to the environment. The broad-scale usage of such technologies in the future would eliminate the problem of environmental heat pollution. The UQT, unlike standard quantum theory, offers a way to accomplish the goal of clean, efficient, and virtually limitless energy for our future.

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