The more fundamental is the statement,
the easier it can be formulated.
P.L. Kapitsa

# Calendar variations in the phenomena of Nature and the apparition of two Higgs bosons

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## Abstract

Natural events have their ultimate foundation in quantum mechanics. We have developed a rational interpretation of strange quantum mechanics in terms of interactive holography. Thus, physical and biological phenomena should be dependent on their placement with respect to the holographic machinery of the Universe. In particular, these phenomena should be affected by the periodic changes of the position of the Earth at the solar orbit, i.e. by the calendar time. Currently, most vivid examples of this calendar effect have been determined for two phenomena: annual variability of rates of radioactive decay in physics and "seasonal" variations in cardiac death rates in biology. Further, in this aspect we consider the most celebrated scientific achievement of our time – the discovery of Higgs boson, which is deemed as a cornerstone of the material world. Embarrassingly, there have been discovered "two Higgs bosons" that have rather close parameters contrarily to theoretical expectations. This disconcerting situation can be simply clarified treating the "two Higgs bosons" as one particle that yields bimodal distribution of outcomes due to the calendar effect. This hypothesis can be easily verified by regular statistical procedures. The consequences of the surmised circumstance would be all-embracing.

**Keywords: Scientific Method, Irreproducibility, Protein formations, "Cold Fusion", Quantum Mechanics, Holographic Universe, Two Higgs bosons**

# 1. Introduction. Live with uncertainties

The definiteness of experimental outcomes constitutes the essence of what is called scientific method, which "is arguably one of the key pillars of Western Civilization" [1]. Scientific method implies proposing hypotheses in the form of testable explanations with the goal to obtain knowledge as a tool that can predict the outcomes of future experiments [2]. If the ultimate product of research does not comply with the requirements for the robust resumption of the obtained results, what could one say about this knowledge other than it does not make any sense.

The reliability of the results became a very serious problem in biomedical research [1]. Thus, a recent study showed that 47 out of 53 medical research papers on the subject of cancer were irreproducible [1, 3]. Another example - the pharmaceutical company Bayer revealed that "it fails to replicate about two thirds of published studies identifying possible drug targets" [3]. More stranger things happen [4]: the worth of some medicaments declines over time as if it wears out and fades away. The inability to reproduce experimental results is treated as an anomaly, often with personality attacks. The property of irreproducibility is typical for such an environment as Cloud Computing, and this kind of approach has been used to introduce a new paradigm for the physical world as an Internet of Things [5]. The developed machinery of the Holographic Universe determines a specific interpretation of quantum mechanics. Empirical verification of this construction as long as it leads to the possibility of irreproducibility in biological and physical phenomena is the main objective of the presented paper.

There is an absolutely firm belief that an outcome of an experimental setup obtained at a given instant in time and a in given point in space will be *caeteris paribus* the same for all other places and moments, at least in the Earth scale. Challenging such a self-evident belief is repugnant to the mind. Therefore, our extraordinary claim for the elucidation of the intrinsic irreproducibility of natural phenomena requires an extraordinary proof. The unexpectedly appeared problem of the "two Higgs bosons" [6,7], a nonstandard resolution of which we are going to propose, perfectly serves this purpose.

Basically, the behavior of all material objects is connected with quantum mechanics. The idea that an experimental observation could not be reproduced in another time and space positions is effectively established by means of our interpretation of quantum mechanics as interactive holography [8,9]. This gives a realistic presentation of quantum processes, especially, for the otherwise inconceivable nonlocality. Interrelations of original objects and their conjugate holographic counterparts materialize the principle of uncertainty.

In the framework of the Holographic Universe, the irreproducibility arises because of the holographic fixation of the events and the sensitivity of the operations to the objects locale. Particularly, this transpires in calendar dependences for all kinds of effects due to periodic changes of the position of the Earth at the solar orbit. The subsequent sections, 2 and 3, consider the surmised calendar effects for certain biological and physical phenomena. Of those, the hypothesized role of the calendar effect for the appearance of the two Higgs bosons is of monumental significance with sweeping consequences.

## 2. Calendar variations in biological phenomena

### Self-replication of macromolecules

The interactive holography shows the behavior of macromolecules substantially different from that portrayed by Schrödinger's equation. The primary quality of macromolecules that makes them the underpinning of Life is the ability to reproduce themselves. In this respect, according to the foretelling of P.L. Kapitsa [10], the situation is such that large molecules enjoy properties, which small molecules do not possess; yet no hint had been seen how to approach this problem, and its resolution was referred to posterity.

First, large macromolecule structures acquire a new capability for information exchanges with holographic memory and thus become involved in biological control; these activities are realized with DNA [11]. The DNA molecules reproduce themselves in semi-conservative way by appending complimentary strands using the base-pairing rule. This reproduction of DNA gives basically the same genetic code to new cells, but with certain telomeres labeling that determines cell differentiation (see [12]). Newly, in addition to conventional double helix there have been discovered the quadruple helix [13]. Yet, to a certain extent, it might be that the quadruple DNA structures present only a side-effect of the hypothesized self-replication ability of macromolecules, which firmly realizes as soon as the building blocks for the indicated algorithm become available.

On the other hand, the surmised self-replication algorithmic procedure is indispensable for proteins functionality. Immune and metabolic systems cannot effectively operate without efficient production of proteins, as they usually need sufficient amounts of proteins preserving specific folding. Contrarily to cell differentiation, the exact reproduction for proteins is necessary for organism development in morphogenesis.

The self-replication algorithm of macromolecules employs mesoscopic displacements of holography feedbacks and develops from swapping particles with their holographic placeholders as illustrated in Fig. 1. This property of self-replication of macromolecules is provided by the operational mechanism of interactive holography, which at the level of the elementary particles displays the sophistication of quantum mechanics.

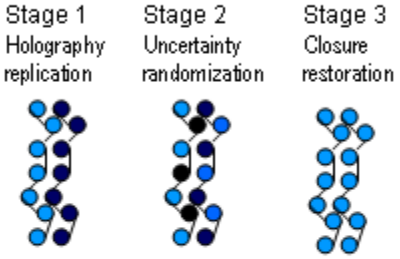


Fig. 1
The algorithm for self-replication of macromolecules
Macromolecules of any size are reproduced as a whole

The well recognized central dogma in molecular biology presents protein synthesis as a sequential process. Algorithmically speaking, such a process has time complexity O(N). The suggested novel mechanism is not for protein synthesis, but for self–replication; it produces proteins faster as bulk structures in O(1) time. Construction of biological organisms without a fast self-replication algorithm for protein macromolecules would be impossible. For example, spreading of the prions pathogenicity in "Mad Cow" disease is an apparent process that could not be done in sequential steps. The parallel working of the suggested self-replication algorithm can be imagined as "Xerox" copying. The proliferation of proteins by means of application of this algorithm is analogous to the creation of Gutenberg's Galaxy of books thanks to a breakthrough invention of the printing press.

A substantial part of serious medical problems is associated with the proliferation of misfolded proteins. Besides the above mentioned apparent case of the "Mad Cow" disease, other examples of the protein-misfolding disorders include such unfortunate common diseases as: Alzheimer's, Diabetes type 2, Parkinson's, Huntington's, Atherosclerosis, Rhematoid arthritis, Cardiac arrhythmia, Cataracts, Cystic Fibrosis, Emphysema, etc. Most of these diseases are of chronic nature, in which circumstances manifestations of the calendar effect may not be immediately detected.

The surmised holographic mechanism plays a decisive role for the protein formation, and hence, for the related problems in pathology and morphogenesis. The course of reproduction of proteins is affected by the displacement between particles and their holographic feedback images. This displacement, D, is determined by the velocity of the objects with respect to the holography control mechanism. It can be estimated taking the repetition rate of the holographic reference beam, $\sim 10^{11}$ Hz and the absolute velocity of the Solar system, ~ 300,000 km/sec: $D \approx 300 \text{ km/sec} \cdot 10^{-11} \text{ sec} = 3 \cdot 10^{-6} \text{ m} = 3/1000$ mm. The value of D fluctuates as the Earth changes its positions moving at the solar orbit with the speed about 30 km/sec. The numerical values used in these calculations are from our model analysis given in [9]. Thus, we could expect that some biological effects would undergo annual variations within the range of about ±10% (see Fig. 2; taken from [14]).

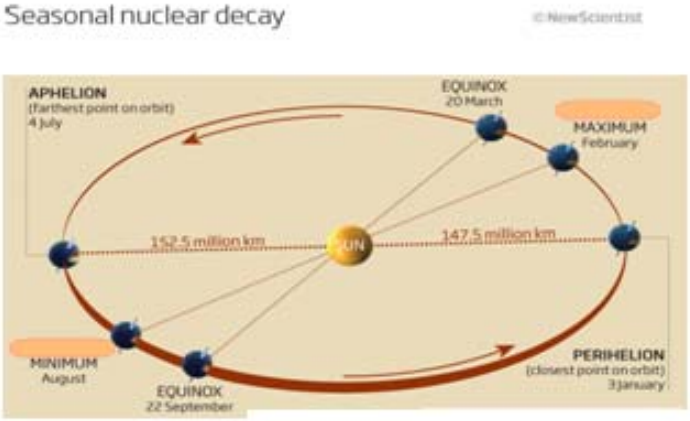


Fig. 2
Calendar effect
**All natural phenomena are influenced by positioning of the Earth at the solar orbit**
Quantum Mechanics --- Holographic Universe

## Annual periodicity of the cardiac deaths rates

A dramatic demonstration of the upshots of pathological accumulations of proteins presents heart attacks [15] (Fig.3). Actually, proteins in chronic diseases should be also sensitive to calendar changes, but these changes are much less pronounced than acute infarctions where ailing hearts serve as immediate physical detectors. Remarkably, it has been determined that cholesterol levels vary with seasons reaching their highest levels in the winter months (http://www.sciencedaily.com/releases/2004/04/040427054002.htm). As seen in Fig. 3, the deaths of heart attacks increase in the winter and decrease in the summer supposedly implicating temperature as a determinant. Yet in fact, the graph presents the dependence on the calendar time rather than on season's temperatures. The diagram combines data from different continental US cities; similar dependences appear for subtropical places, like Hawaii and Cuba. Going south, the curve somehow shifts for the observations near the equator, and in the southern hemisphere (New Zealand, Australia, Brasilia) it repositions by a half-period in correspondence to the local seasons. Presumably, the surmised process of protein replications is also essentially affected by the season-determined orientation of the Earth rotation axis.

The considered calendar variations of heart attacks can be regarded as a generalization of the Michelson experiment, at this time with a positive outcome, where holography plays the role of interferometry and ailing hearts serve as detectors for the induced processes.

Cosmic velocities involved in the calendar effect are too high to directly employ this effect for therapeutic applications. Theoretically, an attempt could be made to funnel the buildup of plaque rather than to restrain it by maintaining a particular orientation using a special inertial navigation system. Another therapeutic attempt could be associated with the irradiation by super-high frequency at $10^{11}$ Hz, which is the repetition rate of the holographic reference wave trains. It is already known that this frequency exercises certain delicate biological influences [16]. Apparently, the $10^{11}$ Hz frequency should play an operationally important role in the suggested algorithm for protein self-replications. Thus, possible therapeutic attempts to fight against the devastating protein-misfolding diseases by maintaining specific alignments of unhealthy organs could be supplemented by their irradiation with the given super-high frequency.

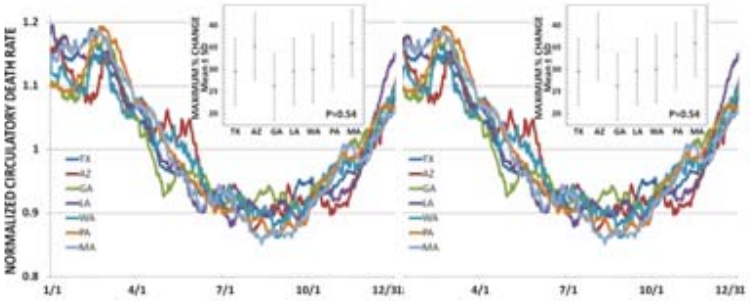


Fig. 3

Annual Periodicity of Cardiac Death Rates
(Schwartz and Kloner, 2012)

## Morphogenesis and initial impact on organisms development

The suggested algorithmic procedure for self-replication of large molecules should unveil itself in biological conditions of normally growing protein systems. Fig. 4 illustrates how this procedure can be incorporated in the most mysterious biological process of morphogenesis. This process does not find a procedural realization with the ordinary scientific concepts. In a sense, the presented course of actions can substantiate the supposition for morphic resonance by R. Sheldrake (see the latest book [17]).

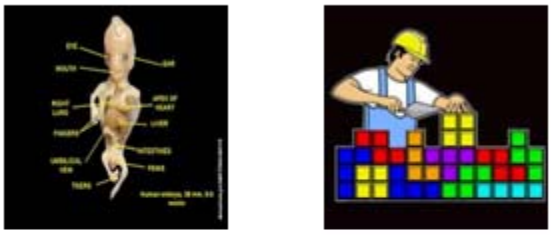

Fig. 4
Morphogenesis – the main puzzle of biology
**Holographic reflection replicas supply to each point control information and actuation energy**
Bricklayer allegory --- digital 3D printing

It is instructive to explore a possible connection between the two basic things in biological systems development: initialization of the protein production and organisms' longevity. An interesting fact has been observed that centenarians are born predominantly in the autumn [18]. The biologically significant circumstance for embrio-forming is just not the time of birth, but the time of conception, which in this case is winter. So, it comes out that the initiation in around the wintertime gives biological organisms more chances for a longer life span. This conjecture can be verified considering different animals, other than humans, as they have various durations of pregnancy. Our individual attempts to identify centenarians in Southern hemisphere were meager and inconclusive, but definitely showed lack of calendar uniformity.

The dependencies of various biological phenomena on calendar time are copious. A sound example presents the work related to seasonal variations of rheumatic diseases [19]: the overwhelming amount of the presented instances is staggering. Very many correlations have been discovered concerning the role of season of birth in life developments (see e.g. [20]). The numerous biological evidences of calendar effect apparently suggest some profound physical groundwork.

# 3. Calendar variations in physical phenomena

## Radioactive decays

Quantum phenomena are so strange that it is difficult to find an experiment capable to resolutely discriminate among different extensive theoretical concepts. To prevail over the variety of the existing explanations the interactive holography should not be merely exposed just through its construed quantum effectiveness. To ascertain the validity of the interactive holography it would be most advantageous to reveal its setup as an absolute frame of reference.

Nothing is supposed to speed up or to slow down radioactive decay, which follows its own rules in isolation from the environment. The article [14] casts doubt on this seemingly unshakable statement. This article reports the results of recent experiments by Jenkins and Fischbach on manganese-54, referring to earlier experiments of Alburger on silicon-32, that have shown radioactive decay rate variations. The decays were at their fastest in February and slowest in August (Fig. 2). Some people angrily oppose these pure experimental results, although they even cannot tell why.

Provided that the experiments are done correctly the observed fact needs an explanation. A straightforward explanation given in [14] evidently preserves the existing worldview paradigm. To that end, the variations of the rates of radioactive decays are assumed to come from some new hypothetical particles emitted by the Sun. Thus, when the Earth is at the perihelion point (closer to the Sun - January) their assumed emission is more intense, and when the Earth is at the aphelion point (farther from the Sun - July) their assumed emission is less intense. Slight shift from January – July to February – August can be fixed assuming adjustment to the positioning of the hypothetical solar activities.

In our concept, the observed variations in the rates of radioactive decays can be naturally explicated with the interactive holography interpretation of quantum mechanics. In this interpretation, D - the distance between a particle and its holographic feedback image affects radioactive decay as a quantum process. This distance D is determined by the absolute velocity of the system with respect to the holographic mechanism, which depends on the position of the Earth at its orbit around the Sun. The value of this velocity is higher at perihelion – January and slower at aphelion – July. The small shift from the January – July contraposition to that of February – August comes out of a slight displacement of the perihelion – aphelion axis from its orthogonality to the velocity of the global motion of the solar systems in the direction of the Virgo Cluster. According to our analysis [9], this particular direction defies the peculiar motion of the solar system as some extra distortions of the Cosmic Microwave Background besides the Doppler dipole were supposed to come from the eccentric observation in the Holographic Universe.

Besides the already observed variations in radioactive decay rates, similar calendar changes should be expected for many fine quantum experiences, like, e.g., Lamb's shift, Josephson tunneling, and so on. Figuratively speaking, Quantum Mechanics (February) ≠ Quantum Mechanics (August).

## Erratic behavior of the "Cold Fusion" experiments

The "excess heat" effect observed in a number of Metal-Hydrogen systems presents a great mystery in science. First of all, assumed as a nuclear process attributed initially to "Cold Fusion" and then to "Low Energy Nuclear Reactions (LENR)", this effect contradicts the existing body of knowledge in the atomic physics (see [21]). Yet what constitutes the mystery is another thing: how could it happen that in our advanced age when we were able to construct such a complex machine as Large Hadron Collider was it not possible for about two decades to reliably establish whether an effect requiring an experimental equipment at the level of undergraduate physics actually exist?

Markedly, this effect "has been rejected by the mainstream scientific community because the original experimental results could not be replicated consistently and reliably" [21]. Thus, one of the most respected members of the cold fusion community - McKubre, admitted that out of 50,000 hours of experiments, only 50 recorded instances have occurred that "unmistakably" produced excess heat (see: Oct. 29, 2012, http://world.std.com/~mica/cft.html). So, the "excess heat" effect is irreproducible and challenges the scientific method in the same way as many biomedical experiments. A very recent patent was issued for an energy generation apparatus employing the "excess heat" effect, although its interpretation in terms of nuclear physics is not acceptable [22].

Our explanation for the "excess heat" effect is based on the idea of the possibility to extract energy by mesoscopic systems from the holographic mechanism using what is called "hot-clocking" [23, 24]. Between the micro and macro levels, at the intermediate mesoscopic level the operational facilities of the suggested interactive holography mechanism transpire in a someway-erratic behavior of nanoscale phenomena.

In current research [25], it has been discovered that certain nanoscale phenomena, like blinking light emitters, have power-law distribution without a definite average value. Here is an excerpt from this paper: "Imagine driving your car at night while its headlights display an annoying blinking behavior, switching on and off randomly. To add to the nuisance, the blinking has no definite time scale. In fact, although in most of your nightly journeys your headlights display quite rapid blinking, rendering at least some visibility, occasionally they remain off for almost the entire journey. Ridiculous and impractical as that behavior may seem, such is the situation commonly encountered by nanoscientists."

Apparently, the "excess heat" belongs to the same type of erratic nanoscale phenomena. Furthermore, its intrinsic uncertainties could be exacerbated with the calendar effect, i.e. besides basic statistical deviations, dissimilar results might occur in different moments of calendar time. Unaware of such potentialities, people could become confused and misled.

Thus, in practical aspect, "cold fusion" would present although a very powerful, but intermittent source of energy, like winds or solar radiation. In general, output of such a system might be very intense, but volatile, dependent, in particular, on calendar time. Under these circumstances, it would be sensible to employ a convenient energy storage that does not have to be necessarily efficient, specifically, using liquid nitrogen.

## The "two Higgs bosons" particle

The latest discovery of two Higgs boson candidates at Large Hadron Collider [6, 7] might present, in fact, an intriguing exposition of the calendar effect. Certain extensions of the Standard Model of particle physics consider the possibility of multiple Higgs bosons, but they do not predict that two Higgs bosons could have very close masses with such a small but discernible difference of about 2.5%: 123.5 GeV and 126.6 GeV. The observed two different decay paths point at these two source particles.

This finding seems so bizarre that physicists assume something must be wrong with it. Some physicists believe that these results just show a statistical fluke that will, hopefully, go away with more data, as happened to the unwelcome superluminal neutrino. The researchers tried to shake the data out to see if they can fix the anomaly, but it still remains. The next big data release from Large Hadron Collider is currently scheduled for the coming March.

In our view, what is considered as two Higgs bosons is merely one particle caught at different moments of times. As long as annual variations of the absolute velocity of the Earth are about ±10% certain kind of parameters variations of 2.5% might occur in about 1-2 months. The obtained data on Higgs boson present a bimodal distribution, which arises from a mixture of two unimodal distributions. Once the surmised type of bimodality due to overlapping of observation times is suspected, it can be formulated as a null-hypothesis and tested by conventional statistical procedures.

Hence, as a matter of fact, it looks like the Large Hadron Collider has been exposed as an apparatus capable to detect the absolute motion of the Earth. The first question that comes up is why other particle accelerators did not exhibit this capacity. The answer is that they could do it, but in a less distinct way because they operate on particles with smaller velocities. As a result, little quantitative differences in different moments of time could pass unnoticed; but, more significant, lesser energy of collisions might not lead to a new distinctive quality – creation of two kinds of particles. Nonetheless, a more careful review of data at other accelerators might reveal certain signs of the calendar effect.

The daily rotation of the Earth may present a concomitant confounding circumstance resulting in additional lesser, but quite likely perceptible, periodic variations. The contribution from the Earth rotation is determined by the direction of the tangential velocity. In this respect, it would be also interesting to compare the results of Atlas and CMS detectors as long as they deal with the oppositely moving particles; so, at the same moments of time their outputs might be slightly different.

As been noted above, our scheme of the absolute motion of the solar system [9] is different from that of standard cosmology. Namely, assuming the holographic construction of the Universe, the Doppler anisotropy of the Cosmic Microwave Background is distorted by the eccentric position of observation. So, in our concept there is no peculiar motion of the solar system. This circumstance should be of use for the analysis of fine details of the surmised calendar effect.

## 4. Conclusion. "Everything that is simple … is true"

On July 1522, "Victoria", the last worn out ship of Magellan's expedition, anchored in the Cape Verde Islands to get some provisions for the last leg of their voyage around the world. Among the many problems, they were able to notice, for the first time, a phenomenon whose novelty and importance were to intrigue contemporaries, including the Emperor and the Pope. The man who went ashore for supplies returned to bring the astounding news that it was Thursday on shore, although on board ship it was unquestionably Wednesday. A secret had been disclosed which none of the sage of Greece, neither Ptolemy nor Aristotle, had suspected. This discovery that one who counters the earth on its rolling course will have gained a day when the full circle has been traversed, was so exciting to the humanists of the sixteen century as has been the theory of relativity to those of later generation. Thus, among other fruits, Magellan's enterprise "brought the most precious thing on earth, a piece of new knowledge" [26].

The Large Hadron Collider, the greatest scientific enterprise in human history, comes into view as a journey to circumvent the Sun. The major goal of this undertaking is to reveal the existence of a Higgs boson as the underpinning of the material world. Unexpectedly, there appeared two Higgs bosons with perplexingly close characteristics. Hypothetically, we suggest that these characteristics could belong to one particle measured at different calendar moments of time. This surmised calendar effect, in one way or another, should influence all the phenomena of the material world - physical, chemical, and biological - as long as they have their foundation in quantum mechanics. The behavior of quantum objects deemed as a result interactive holography could depend on their absolute positioning with respect to the machinery of the Holographic Universe. The Large Hadron Collider producing particles with very high energy is, presumably, the first exemplar of an experimental unit where this surmised calendar effect might became noticeable. Once the given "new piece of knowledge" is recognized it could be also detected and explored in a variety of other experiences.

For example, the remarkable fact discovered by John Webb et al. of angular variations of the fine structure constant $\alpha = e^2/hc$ [27] may actually indicate the suspected spatial differences in the organization of quantum mechanics in the cosmological scale [28].

The new worldview paradigm has revealed the Holographic Mechanism of the Universe through calendar variations in physical and biological phenomena. This calendar effect is supposed to occur due to changes in the absolute positioning of the Earth with respect to the holographic framework of the Universe.

The paramount practical significance of the suggested paradigm arises from the fact that this paradigm vindicates the emergence of irreproducibility in a number of critical research directions. Otherwise, the irreproducibility of the experimental results, seen from a counterproductive stand, turns out as a fatal compromise for the most vital present-day projects in biomedicine and energy explorations.

## 5. References


[1] Bill Frezza, "What's Fueling Our Growing Loss of Faith in Big Science?" http://www.bio-itworld.com/2013/1/11/whats-fueling-our-growing-loss-faith-big-science.html

[2] Scientific Method, Wikipedia, http://en.wikipedia.org/wiki/Scientific_method

[3] Elizabeth Iorns, "Is medical science built on shaky foundations?" **New Scientist**, 17 September 2012, issue 2882, pp.24-25

[4] Jonah Lehrer, "The Truth Wears Off. Is there something wrong with the scientific method?", The New Yorker, Reporting & Essays - Annals of Science, Dec.13, 2010, http://www.newyorker.com/reporting/2010/12/13/101213fa_fact_lehrer?currentPage=1

[5] S. Berkovich, "Physical world as an Internet of Things", COM.Geo '11 Proceedings of the 2nd International Conference on Computing for Geospatial Research & Applications, Article No. 66, **ACM**, New York, NY, 2011 www.ogcnetwork.net/system/files/Berkovich_220-397-1-RV.pdf

[6] Michael Moyer, "Have Scientists Found 2 Different Higgs Bosons?" http://blogs.scientificamerican.com/observations/2012/12/14/have-scientists-found-two-different-higgs-bosons/

[7] Lucian Parfeni, "LHC's Atlas Hints at Two Higgs Bosons, a Bizare Situation" http://news.softpedia.com/news/LHC-s-Atlas-Hints-at-Two-Higgs-Bosons-a-Bizarre-Situation-315374.shtml

[8] S. Berkovich, "A comprehensive explanation of quantum mechanics," www.cs.gwu.edu/research/technical-report/170 http://www.bestthinking.com/articles/science/physics/quantum_physics/a-comprehensive-explanation-of-quantum-mechanics

[9] Simon Berkovich and Hanan Al Shargi, "Constructive Approach to Fundamental Science", **University Publishers,** San Diego, CA, 2010

[10] P. L. Kapitsa, "The Future of Science", In: "Experiment, Theory, Practice", **Publishing House "Science",** Moscow , 1987, pp. 395-418 (in Russian)

[11] S.Y. Berkovich, "On the "barcode" functionality of the DNA, or The phenomenon of Life in the physical Universe", **Dorrance Publishing Co**, Pittsburgh, PA, 2003 (almost a full version of this book is at http://arxiv.org/abs/physics/0111093

[12] S. Berkovich and S. Bloom, "Probability of Monozygotic Twinning as a Reflection of the Genetic Control of Cell Development", ***Mechanisms of Ageing and Development***, 31(1985), pp. 147-154

[13] Andy Goghlan, "Quadruple DNA helix discovered in human cells", **New Scientist**, 20 January 2013 http://www.newscientist.com/article/dn23093-quadruple-dna-helix-discovered-in-human-cells.html

[14] Stuart Clark, "Half-life heresy: Seasons change in the atom's heart" **New Scientist**, 14 November 2012, issue 2891, pp. 42-45

[15] Bryan G Schwartz; Robert A Kloner, Abstract 11723: "Seasonal Variation in Cardiac Death Rates is Uniform across Different Climates," http://circ.ahajournals.org/cgi/content/meeting_abstract/126/21_MeetingAbstracts/A1172

[16] H. Fröhlich, "The Biological Effects of Microwaves and Related Questions", Advances in Electronics and Electron Physics, v. 53, pp. 85-152, **Acad. Press**, 1980

[17] R. Sheldrake, "Science Set Free. 10 Paths to New Discovery", **Deepak Chopra Books**, New York, 2012

[18] Leonid Gavrilov and Natalia Gavrilova, "Long-life babies born in autumn", **New Scientist**, 21 July 2012

[19] N. Schlesinger and M. Schlesinger, "Seasonal Variation of Rheumatic Diseases" http://www.discoverymedicine.com/Naomi-Schlesinger/2009/07/16/seasonal-variation-of-rheumatic-diseases/

[20] Jenifer Welsh, "Season of Birth May Affect the rest of Your Life", http://www.livescience.com/13958-birth-month-health-effects.html

[21] Cold Fusion, Wikipedia, http://en.wikipedia.org/wiki/Cold_fusion

[22] F. Piantelli, "Method for producing energy and apparatus therefor", European Patent, issued Jan. 16, 2013, http://www.22passi.it/downloads/EP2368252B1[1].pdf

[23] S. Berkovich, "Generation of clean energy by applying parametric resonance to quantum nonlocality clocking", **Nanotech 2011**, Vol. 1, pp. 771-774 http://www.nsti.org/procs/Nanotech2011v1/8/W8.81

[24] Simon Berkovich, New Physics of "Hot-Clocking Energy" for the "Excess Heat" Attributed to "Cold Fusion", http://www.bestthinking.com/articles/energy/new-physics-of-hot-clocking-energy- for-the-excess-heat-attributed-to-cold-fusion-

[25] Fernando D. Stefani, Jacob P. Hoogenboom, and Eli Barkai, "Beyond quantum jumps: Blinking nanoscale light emitters", ***Physics Today***, Feb. 2009, pp.34-39

[26] Stefan Zweig, "Magellan", Pushkin Press, London, 2011, p. 283

[27] Kate Melville, "Fine structure constant may vary across universe", http://www.scienceagogo.com/news/20111005023759data_trunc_sys.shtml

[28] Simon Berkovich, "On dipole anisotropy in spatial distribution of Plank's constant values", American Physical Society, APS March Meeting, March 21-25, 2011, abstract #Q29.01 http://adsabs.harvard.edu/abs/2011APS..MARQ29013B