Physics That May Be Realistic

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Abstract:
The deadlock in physics is explained due to moral-epistemological aspects of basic principles and adopted methodology. A way out of crisis is suggested. It has shown that the long-term infertility of physical science is not due to technical difficulties (limited opportunities of mathematics, insufficient experimental means, etc.) as it is usually represented. However, the crisis in physics has arisen due to arbitrary, non-critical interpretation of key facts and with imposed speculative-artificial instructions. Building a harmonious and self-consistent physics becomes an implementable task with returning to cause-effect, conceptual representation of phenomena and to naturally analytical methodology

Key words:
Physics' problems, Einstein, Schrodinger, de Broglie, elementary particle, nuclear structure

1. Critical review of the current state

The crisis of basic science can be considered as an accomplished fact, despite the recent experimental results with LHC, the new impressive theories, high awards and media-company inspiring opposite. Nevertheless, the oppressed new questions permanently become more than the received answers, if we look at the reality deeply-pragmatically, without quick impressions and explainable euphoria. The created situation induces serious suspicions of realistic thinkers in possible mistakes on basic significance that points to a necessity of scrupulous reexamination of the present beliefs and actions.

The examination and revision of adopted key principles in disputable sections of physics seem inevitable to us, otherwise we would have to stop at some uncertain level of knowledge that will be against scientific spirit. Meanwhile, physics has been involved into dead end much earlier, which definitely reduces real chances to diagnose the problem - as an inveterate disease. We can comprehend stiff resistance to significant changes in the academic environment and the "sanctity" of accepted approaches if we log

in opponents' situation and look at things by their eyes. Then we must consider that most "official physicists" are actually, unsatisfied by their job, frustrated people, brought up on false principles, accustomed to abstract-unnatural representation of reality. I am judging this as an engineer first, before being a physicist. I believe that I was lucky by the same, with the possibility to compare two extremely different professional viewpoints that should be compatible somehow, in simplest logic.

The significant change in the basic principles and adopted methodology means first the repentance and re-education of the army of leading scientists, ideologues and direct administrators in this field same time, which is hard even to imagine from purely human point of view. Considering that this demands some changes in their social and material status too, not to better, you can imagine the state of managers-professors to whom you suggest, with such effrontery, to give up much of what they have been taught in youth, offering them a new "dance"! Then you do not have to be surprised on resolute rebuff and suppression of any encroachments to the "sacred temple", let it be based on a shaky ground and far yet uncompleted even! I mean, we cannot ignore the huge significance of human factors; the first purpose of the long-term unsuccessful persons intuitively becomes saving own face and ambitions than welcoming any new approach that may clarify previous heavy mistakes and change their favorable states.

Moreover, there is another serious circumstance to keep the dealt "in dark" than "empty" ambitions only. It is not difficult to realize what will happen after successful completion of physics in conceptual plan - if that will be allowed to happen! Yes! There will be a small humanitarian collapse, with full shifting of physics into engineering-applied stage. It is easy to imagine what quantity of famous and little famous theoretical/research institutions will be closed, and how many highly qualified people will become unnecessary with the same. The whole significance of mentioned LHC will shift into same category that the Egyptian pyramids has now or other similar historical curiosities, as an example. Then it is possible to understand - why the "sacred temples" need to be protected! We come to below conclusion issuing from above judgments of the problem:

The leading science easily may be transformed into conservative-harmful institution with trivial circumstances that may resolutely prevent its possible exit from deadlocks if it becomes free from objective, transparent and viable criticism.

It is possible to find many historic confirmations to above conclusion starting from ancient priests until the present business, politics etc. Of course, we may be more intelligent, honest and better than our ancestors were! The current state of physical science, with established hard censorship and different autocratic restrictions at all possible levels however, simply points on actual correspondence of it to above-depicted situation. That indirectly shows full resoluteness of the flag bearers of "correct science" to prevent the open discussion of its most important key problems. It is manifested in

forms of anonymous reviews, service of “voluntary moderators” and evaluation of works on “authority opinions”, by citations and awards, publisher's brand, etc. and not directly by the *actual content* that will be more reasonable for scientific works. Some elementary questions rise then: what is actually protected from what with accepted policy? Can it be again the “truth” from “heresy" that is a past bitter lesson? Where is then the same indisputable truth that needs to be guarded, to achieve which all efforts are actually directed to?

On the other hand, we can just state that *a new hypotheses and introduction of experimentally unconfirmed mysterious realities is welcomed-encouraged in modern physics with amazing courtesy within present practice*! The list of mysterious-unimaginable concepts and realities, by which physicists are trying to explain phenomena in the world, continues to grow unlimitedly, being quite extensive. Mentioned fact looks very strange and fully unexplainable to us if we do not want to see here a purposeful strategy directed to avoid any unforeseen serious shifts. I am just asking not to accuse me in “conspirology theory” because *the freedom to introduce uncritical hypothetic realities obviously removes any borders between science and art fiction.*

Nevertheless, nobody can deny, it largely takes place in disputable sections of physics, and it is not shocking anybody (because we already got accustomed to it long time!) I mean physicists only, since most of the people cannot think so, as they are ordinary persons only, and not specially trained theorists (my apologies to all physicists!) In author's view, described reality can be seen as the progress and manifestation of universal moral degradation even in the area designed to study the nature! These judgments indicate that actually not the natural science is rigidly guarded, which hardly needs that, but some corporative-reactionary institutions next to it. The eminent physicists *Planck, Schrödinger, Einstein, de Broglie* and other luminaries have warned initially that *physics transforms into a kind of doctrine, which is beyond objective criticism by definition* (see: *Disputes on Copenhagen interpretation*.) However, their protests and appeals to reason remained vain to the majority of colleagues, for the new generation of pragmatic scientists who strived to show themselves quickly. Rethinking these century old dramatic events on the background of current crisis, we come to below conclusion:

The long-term infertility of physical science is not due to technical difficulties (limited opportunities of mathematics, insufficient experimental means, etc.) as it is usually represented. However, *the deadlock in physics is conditioned by moral and epistemological aspects of the accepted basic principles and applied methodology.*

It simply means that physicists-researchers are guided by arbitrary approaches rather than by objective scientific ones, which imply by default. We can represent such huge problem in the limited article very superficially, that I venture to do with apologies to experts.

- As it is known, the phenomena are described on a cause-conceptual basis in the good-classical physics. *The quantitative relationships, peculiar to phenomena, are established by natural way issuing from their physical essence, using mathematics as the analytical tool and convenient language.*

At the beginning of past century, faced with new kind of phenomena related to behavior of the primary particles of matter, physicists could not clarify cause-effect explanations of established facts. Meantime, they have managed to find mathematical relationships, which were consistent with the unexplainable phenomena in certain cases (*Schrodinger equation, Heisenberg's matrix mechanics.*) We can imagine the state of physicists if we remember school problems experienced by everybody in dealing with complex exercises. We tried getting the right answer probing different operations with initial numbers, without delving into the essence of the question and having difficulty of forming the correct equations. After when we had succeeded sometimes to do it, the subsequent task for us became the justification of our actions in some way, to satisfy the teacher. Somewhat similar situation was created in physics. The majority of theorists just decided (!) in this case to consider the established equations as a manifestation of new type of natural laws *("quantum"* or, *"probable-statistical" laws)* that governed the behavior of primary particles in microcosm. The notable-curiosity here is; *physicists have declared the existence of different principles of nature that are manifested in various cases* (?)

Thus, theorists have introduced an arbitrary interpretation to mentioned group of phenomena that quickly goes in contradiction to any logical construction. Such unprecedented approach has forced them to abandon the conceptual representation of phenomena at all and to reject the ordinary logical thinking as well. Leading theorists actually have silently decided that the logic and natural judgments ability, given by God, may become "unnecessary-harmful" things, which would be right to prohibit in some cases (to be free from arising problems!)

Mathematics, which was our useful "work-tool" by initial definition, silently acquired now somewhat mystical guiding significance by the same.

Physical science in the problematic sections degenerated to a specific elitist genre of creation, more corresponding to "High Academy" of talented satirist Jonathan Swift ("*Gulliver's Travels*") than to a natural science, and most of leading theorists have found themselves in the role of "scam-tailors" of incomparable Andersen ("*The Emperor's New Clothes*") by described circumstances. The new generations of physicists has grown in such spirit. They are trained not to consider the logic in the science, and most of them are inclined to pathological hatred to natural thinking at all. It is the main trouble of physical science, in author's view. How much described approach and ideology are subjective and problematic, and why it was not acceptable to deeply thinking scientists - are presented in literature. We note only that as aftermath *the researchers have begun to*

operate with experimental results and abstract formulas only, without discussion on the physical nature of studied phenomena, in contrast to classical physics.

Simply said, the physicists stopped thinking; why and how the facts actually exist, and as the purpose of study they saw *"mathematical modeling of reality"* **[1, 2]**. Schrödinger bitterly objected to arbitrary interpretation of his equation pointing on the *cause-logical principle of its deduction.* However, he was accused ... with "naive-realistic ideas" - i.e. in wrong comprehension of what was done by him! **[3]**. The omniscient philosophers have warned physicists: "Guys! You have put the cart ahead of horse, you can't go far!" Then the good sages got resolute advice … to keep away from physics at all! The undeniable authority of physics - Einstein expressed more clearly, a little bit unscientific. He just pointed on impossibility to build science with "amputated brains" and demanded - *not to input in physics imaginary things that are not connected to reality* - speaking scientifically. The obvious useful advice, however, was perceived by majority as a crime against science and leading ideologists quickly found a "good-corresponding" label to him too (see: "*Einstein's operationalism*".)

Here we need to emphasize however that opponents objected to famous scientist not by the essence but purely politically, approximately so - "Dear Magister! You have used the same and have deserved a "Nobel", so let us get some success too on the same rights!" Disappointed Einstein left "distorted science", in the end of his days (about 30 years!), trying alone to build a "fair" physics **[4]**. The courageous reformers have achieved then to what they have strived: plenty of noise, coveted awards, and … to a current stalemate that Harvard professor Lee Smolin honestly stated; "We have a failure!" **[5]**.

Depicted reality and unexpected evaluations look extremely incredible to be perceived easily, without hard indignation. Nevertheless, these derives from large group of facts and circumstances similar to above examined, by simplest logic - if we agree to consider logic in contemporary physics at all!

2. Possibility to break the stalemate

We briefly have presented above what has happened in physics about a century ago and what goes on now from methodological viewpoint. In simple analogy, the theorists have found it right to present a "cucumber" as an "apple" then they have been looking for kinds of "trees" for long time that never exist - if the parody is excusable here! It means - *Schrödinger's equation is the causal relationship by its essence,* which should be clear if we only consider the fact that is the differential relationship (based on the Laplace/Hamilton operators). We have right to conclude on the above said only:

The quantum phenomena must have a cause-effect explanation, which means physics may be based on single-universal type of natural laws and not on different kinds - in separate cases.

As a realist-engineer (who cannot be other by definition), I look at the present physics in disputable subjects so defective-absurd by many aspects that does not allow even the serious analysis, reasonable critics or local corrections. The problem is much deeper to be solved in this way. I can say in created reality to them who will be able to listen:

- We have been deeply involved into some obscure and little useful occupation for a long time that is now called "the basic science." Our teachers could not solve the most important problems at their time; meantime, they have forced upon us their own visions and hard instructions - what is permissible for us to do further, and what is not! (How and what for, actually are not clear for us and are not our questions for now!) Their "indisputable" dogmatic rules have brought us to a wall, and we have collided with it long unsuccessfully - as a fly to a glass! Then, what concrete-purposeful remains for us to do in such situation if not putting under doubt the rightness of initial instructions - introduced arbitrary-uncritically?

Author calls to look back at the earlier made obvious epistemological mistakes and correct them.

It means first the interpretation of "quantum" or "probable-statistical" events as cause-effect phenomena, as these are actually. He has tried doing it and he came to desired clarifications. The mentioned change of interpretations becomes an implementable task in all main cases of subject area, which can be judged on *de Broglie-Bohm theory,* as well as from **[6, 7, 8, 9]** if spending the necessary time. Such representation deeply changes established views on the key issues and adopted methodology. It may be interpreted even as the introduction of a "new science". Meanwhile, it means only a return to well tested, normal-natural way of studying the material world that bases on the universal cause-effect laws of nature. The suggested revision opens a way-out from created deadlock, and I cannot think that someone may see here any conspiracy or crime apart the rejection of unexplainable-meaningless taboo. We have formulated the approach as below:

The crisis in physics has arisen due to arbitrary, non-critical interpretation of key facts and with imposed speculative-artificial instructions. Building a harmonious and self-consistent physics becomes an implementable task with returning to cause-effect, conceptual representation of phenomena and to naturally analytical methodology.

I can imagine all the pessimism and sincere indignation of undeniable legislator-patriarchs of fundamental science by reading the above lines. However, these words are not empty announcements only, or just intuitive suppositions of an arrogant author. The presented approach really works! It gives many solutions of basic problems and concrete fundamental results by unexpected ways. Let me say, the adherents of *Standard Model* or *Superstring Theory* could not see such solutions in a good dream because similar questions and tasks simply are impossible to put within adopted ideology. I just ask the opponents to show some patience and not to announce the suggested approach as the next "Fringe theory" or something similar in rush; using their well-developed "labeling

system" of others' work, without proper studies of these. I would emphasize on this matter once more:

The suggested approach does not annihilate the quantum representations, established facts or any of achieved valuable results on their base.

However, presented clarifications allow us to delve into the physical nature of established quantitative relationship, concerning the "quantum facts" and phenomena. We become free from mysterious-unexplained recipe-instructions of accepted representations with the same. Thus, *author offers the causal explanations of facts and phenomena associated with the primary objects in microcosm, which are absent (prohibited) in fact for today*.

I bring below some preliminary remarks on the key issues of approach to help reader, having standard education, perceive the main concept of it. As we have noted above, the cause-effect principle and the epistemological important component of analyze is absent/ignored in modern methodology. We have been guided by the following principles issuing from mentioned point:

- Our methodology is based on three points that are *facts*, *cause-effect logics*, and *mathematics*, reflecting the quantity preservation's general principle (quantitative logics)
- We attempt first to define which of used concepts and categories are not connected to reality, and are introduced arbitrary. I.e. we are following the principle: do not input the new hypothetical things in probation, and clean the study subject from what is possible to remove - vs. present approach.
- We come to minimal concepts and principles to what are possible to reduce all known facts and phenomena concerning to microcosm guided by mentioned principles. *The quant of electromagnetic field* (we attributed to it some larger meaning than now it has) remains as the unique kind of reality that becomes enough to build known types of particles and to interpret their established kinds of interactions.
- *The wave equations become the basic relationship of nature, from which others may be derived principally.* These are particular solutions of Maxwell's equations for the circularly polarized wave, in which Planck's constant is considered. We call them *Maxwell's quantized equations*.
- The character of research questions also is changed significantly due to taken approach. For example, the existence of the electron is adopted as an initial fact, which just needs to be considered further, by the modern ideology. Modern theories do not put such questions as, for example, "why the electron has exactly such a mass or such electric and magnetic static fields etc. and no others?", but accept these as initial facts! Now we have realized that *such questions have epistemological character, which are impossible to solve only in the framework of mathematics*. Their solution demands

another kind of research also that is the ordinary logical analyze of question first, before quantitative studies. It looks as obscene-trivial and unacceptable in the basic science within adopted ideology. We agreed not to be ashamed of logical issues and habitual thinking, with the consistent application of which we become able to solve exciting us problems similar to mentioned example.

- The following important cognitive questions with key significances are solved: 1) *causal interpretation of the duality dilemma*, 2) *the causal and cognitive comprehension of the fact of existence of Plank's constant*, 3) *the interpretation of origin of the fine structure constant and deduction of its value on conceptual basis.* These open a way to realize basic principles of microcosm. Mentioned huge important facts remain unexplored-unclear from cognitive viewpoint (because the cognitive side of phenomena is not examined generally, within accepted ideology.) The microcosmic phenomena become explainable within cause-conceptual principle thanks to described revision of ideology/methodology and above-mentioned solutions.

We need to add also some observations that may help the reader to comprehend the proposed approach, in author's view. Most researchers psychologically are inclined to see a huge complexity in comprehension of the behavior of the base of substance, and they silently are offended of God - for the heavy secrets of creation! Such impression far does not correspond to reality in author's deep confidence. Everything actually was made on simple basic principles that, however, are somewhat not usual to us because we are not able to perceive these directly in our habitual life. Meantime, the reality is possible to guess, mentally imagine and quantitatively describe (that we tried to do actually!) The solution firstly demands a deep change in adopted beliefs and in our worldview, to realize - what actually takes place in the root. The described situation happened many times in scientific history; we just need to recognize another serious deviation from the right way and return to that. I mean *necessity to return to natural way of thinking* as a first step. Thus, we can say that the problem more concerns to us than to the Creator or to nature.

I find it useful to bring a simple analogy to comprehension of the present situation of physicists: we can master the syntax, morphology and all grammatical rules of English; we cannot however talk normally because we study the rules only, and not the language! Meantime, majority of people learn talking having no idea about any rules, and it is the natural way to study a language! It means *physicists must start from analyzing the physical essence of phenomenon before application of mathematics*. I.e. we must comprehend beforehand what we are calculating and for what. If we understand well the meaning of our actions and what we are doing, then we can choose the kind of mathematics also that seems more corresponding to our case. Then we can use the operators, the PC, or calculate on the fingers etc. that simply becomes technical question

only without any mystics. The described approach corresponds to analytical principles of Galileo, Faraday, Tesla, Maxwell etc. the effectiveness of which we can judge.

Schrödinger and de Broglie have pointed on the necessity to return to the mentioned concept and usual-logical methodology. Einstein and other luminaries have deeply realized a deviation from right way and they have put huge efforts to return physics to realistic principles. However, what we have tried to present in above lines has happened!

I want to finish by giving once more honor to indisputable founders of physical science, marking their phenomenal intuition and fair convictions. The presented concept of a single kind of basic reality, having wave-field nature, as well as author's methodological approach correspond to their conclusions by many criteria that were not accepted by majority at that time. The talented-deserved scientists have been subjected to a deep unfair ostracism by many of colleagues; they had to leave "official science" and, actually, work in isolation. I hope, enough arguments confirming their rightness are now found, which are presented to reader's judgment [see: *references*]

Predictable difficulties to examine the offered approach and their probable motivations may have only psychological and political character in author's view, since any attempts to find possible solutions to unresolved problem cannot anyhow harm to our basic knowledge (if that has the enough significance and are outside of suspicions!)

I think one who wish to be a scientist must pass the science with own criticism, sacrificing necessary time and efforts to trust own conclusions first. Otherwise, we may look for answers of exciting us questions enough long, often on the wrong directions!

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