

The Classical and Sub-Atomic Physics are the Same Physics

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Abstract:

Among inaccurate or simply wrong statements of the beginning of XX century that the sub-atomic physics demands the special "quantum" approach and methods because the classical methods and classical physics are not able to deliver the methods and to solve the problems of the sub-atomic physics we have been delivering along with Ph.M. Kanarev the sufficient amount of arguments, methods and solutions to overturn this false point of view. We debunked the all "postulates" that used in XX to justify the "quantum" physics as it is now known just using the well-known developments in physics and mathematics that advanced in the last ~46 years. We demonstrated that there is no need to blame the physics in general to shift for explanation to only QM and point-mass structure-less particle physics, because that COH (Conventional Orthodox Homogeneous) physics of the beginning of XX has been advanced definitely and in many directions since then - <http://travkin-hspt.com/parphys/index.htm>; <http://travkin-hspt.com/parphys2/index.htm>. The polyscale polyphase physics HSP-VAT (Hierarchical Scaled Physics-Volume Averaging Theory) that is the covering for COHP and is restoring value of an aether (along with other great scientific advancements by non-orthodox physicists) as a component of interaction (no action-at-a-distance, but polyphase interaction as in nature is indeed taking place) explains with its methods and results the all like "roadblocks" toward the sub-atomic physics theories.

Keywords: : sub-atomic particles, heterogeneous media, polyscale physics, quantum mechanics, electrodynamics, heterogeneous mathematics

1. THREE IMPORTANT ASSUMPTIONS THAT HAVE DESTROYED CONVENTIONAL ORTHODOX HOMOGENEOUS PHYSICS

Going back into history of physics and considering the great innovations in it at the beginning of XX century we should accept (each of these statements has been thoroughly studied in the past ~30 years) that the three main concepts that appeared to be the postulates, for Conventional Orthodox physics and particle physics (PP) indeed had been ruling in physics.

1) One is that the sub-atomic ("elementary") particles are the mythical just mathematical points with mass and charge, but not the real Physical objects of volumetric character.

Because the point in mathematics has No Volume, No Surface, nothing - just the location coordinates. Physicists probably did not realize this at that time?

Meanwhile, the subatomic particles have volumes, surfaces, structures, and other properties.

2) Number two wrong issue that is habitual in particle physics is the inadequate description of Electromagnetic phenomena related to sub-atomic particles when the Maxwell-Heaviside-Lorentz (MHL) electrodynamics theory applied with the system of equations that used for explanations for

more than a hundred years in Continuum Mechanics. In spite that even in the XIX century there were noticed imbalances in initial set up and conceptual approach to the MHL system of equations with the lack of experimental verification. During the XX century and the beginning of this XXI many scrupulous scientists found imbalances, and inadequacies in applications of MHL electrodynamics to technical, practical problems. And started questioning and advancements. More of that, the substantial and well-founded GEK (Galilean Electrodynamics by Klyushin) theory (we are talking on the really well-founded one) had been advanced. Not only the one new theory is known now, but the best right now (we have been analysing other theories as well and critique has been laid out and known elsewhere) and we put forward many arguments supporting new Galilean Electrodynamics now.

3) The third area of inadequate reasoning in particle physics is the wrong mathematics they (orthodox professionals) used for centuries, but for and with another goal. We are talking about the wrong Homogeneous mathematics used in particle physics as well as in all physics for everything on this planet and for astrophysics as if media are Homogeneous. At the beginning of XX, and in the earlier times in XIX, in the midst of XX there were no correct tools to use for Heterogeneous problems so, mathematicians and physicists used and continue to use in their research what they knew - the Homogeneous Calculus and related disciplines for that.

These three areas, among others, when they are wrong they had brought in many inadequacies and problems in descriptions for particle physics phenomena that continued in general physics.

We address shortly some of them below. Again - this is written for people without of an "inhibition of apprehension", when in their studies the honest non-political observation of physical facts is desired and welcome. The term "inhibition of apprehension" appeared in work of Edward Lewis in his "The Periodic Production of Rationalized Phenomena and the Past Periodic Depressions" <http://www.padrak.com/ine/ELEWIS6.html> [1].

2. POSTULATES INTRODUCED IN PHYSICS DURING BEGINNING OF QUANTUM MECHANICS AND PARTICLE PHYSICS TIMES

1) All particles are accepted and assumed to be viewed and treated as the "point-like," point-mass (with the mass is being attached to this object?) or having no extended body in space. That was done because there were tremendous difficulties in treatment of many-body problems in general physics and mathematics in XVIII - XIX centuries. There were no mathematical methods for that treatment and even now these problems having approximate simulating solutions.

2) All particles and surrounding media as, for example, an air or the vacuum were treated as the one-phase Homogeneous medium with either the space indistinguishable locations of point-particles or with use of the Dirac's δ -function.

3) Because at that time there were also no concepts and theories of multi-phase media and their methods of interaction, modeling and solution. Those were developed much later in continuum mechanics of fluids and gases (with later on the wide applications to other sciences and engineering) while supported by the corresponding newly developed mathematical tools.

4) There were no boundaries, bounding surfaces for point-particles. No need to have those. That postulate brought in the great problems.

5) So, with introduction by Dirac the theory of electron simultaneously with the theory of δ -function in 1929 there were solved two and even three tasks in atomic, sub-atomic physics:

- a) physical and mathematical fields could be continually considered as the homogeneous ones and all powerful existing at the time mathematical mechanisms and tools for solution of those homogeneous problems could be applied;
- b) the location and movements of particles and atoms could be assigned as for the Homogeneous fields source functions in mathematical formulation of the tasks;
- c) the powerful methods of statistics were free to apply to the point-particles in space behavior, advantageous for their assigned interaction collective movements and characteristics. That was the beginning of statistical mechanics shining.

That also created the problem of near particle field's description that became the statistical qualities of a field.

And nobody since then is willing to explain to students - that all of this vision of particles as point-mass particles and fields as the Homogeneous ones, was accepted in 1920s - 1930s because they couldn't solve correctly the particulate problems as is. With particles as small, but still physically volumetric particles and the physical fields as Polyphase, yes, of different phases nature distributed spatial fields. Now we can do this and are in making that.

Since then, the electron and photon are the Point-mass objects in COHP with no volume and volumetric characteristics.

Since then, the huge body of mathematics, let alone physics, has been developed just to support this artificial picture.

While physics became a metaphysical science, because of false point-particles, MHL electrodynamics, SR and GR following from this short-hand electrodynamics, and QM that became the compounding original theory for everything that small enough to not study it within.

6) With these above assumptions (1-4) that was not surprising that Quantum Mechanics was introduced and advanced in this fantastic mathematical formulation as we know it now. Little later Dirac's δ -function added greatly to the functionality of the hard solid rock of QM that is laying on the road to further progress in physics for many decades.

People started to find inconsistencies, flaws in QM in the earlier years of QM appearance. And that was not too hard.

Unfortunately, QM is being taught to students and used for research up to now as the primary theory for the micro-world, sub-atomic physics. Teachers do not tell that QM is just one of the approximate theories that was developed due to insolvency of mathematics and physics regarding mentioned issues at that time.

But not at present situation, when those statements of 1920-1930s can be solved and many issues had been resolved, because the theories for that solution during the last 20-30 years have been advanced far enough.

3. HIDDEN, CONCEALED AND/OR INCORRECTLY INTERPRETED PHENOMENA IN THE SUB-ATOMIC ELECTRODYNAMICS AND PARTICLE PHYSICS (IN CONVENTIONAL ORTHODOX HOMOGENEOUS PHYSICS - COHP)

3.1. COHP Statements regarding the Sub-Atomic Particles and Their Properties

In many (most) parts of physics we cannot refer and consider the Homogeneous physics "theories" where there are no physical objects present and where the theoretical (physical) and mathematical constructions (often wrong simply by the usage of homogeneous tools) are placed in the field as the pure imaginable objects that are free for conjectural developments.

While the physical ground is also of conjectural nature.

1) At the sub-atomic scales the electrodynamic phenomena are completely for and by the point-mass, point-charge structure-less particles.

2) Particle physics is based on QM (and similar) concepts and tools and in this capacity genially has only point-mass structure-less particles to work with.

That is no wonder that in a time frame of more than hundred years we don't know for sure and don't seen even an electron - because it was accepted just from the beginning as a point with mass and charge, and spin; nothing more.

3) That is why it is "flying" (curling) over the nucleus, but nobody seen that how? Contrary, there are already images of stable location of electrons over the nuclei

4) All these countless particle physics methods using the Lagrangians and Hamiltonians (LH) are the XVIII-th century tools, developed for the point-mass volumeless particles (bodies).

5) Because of this in all these LH assessments there is no spatial or correct statistical averaging, even in the atom's volume. The technique of statistical averaging of point-mass particles and/or their properties cannot include the structure of particles by the definition of those. The point is a point - no structure in it, it is a volumeless object.

Lagrangian mechanics is used in particle physics because it gives the simplified point-mass particle systems behavior.

Not a phase-related continuum homogeneous or heterogeneous media. So, all the parts of the "system" are the point-mass (PM) particles that are connected (coupled) in some system of interacting in some way the PM particles.

In this way one can freely avoid the volumetric and surficial consideration of particles, and of averaging difficulties regarding the heterogeneous media.

The methods explored, used in particle and atomic physics can be traced back to the XVIII century, when mechanics of Newton cannot been used for many many problems that were appeared, created with the formidable thrust in advancements of mechanics itself as well as of astronomy.

There was a burst in classical mechanics and astronomy with the many body formulated problems. All of them were considered as a one phase many body tasks. For the point-mass bodies.

The kind of undoubted conventional Homogeneous physics statements that we will put in below is probably can be found in every textbook on Quantum Mechanics (QM) and atomic physics. These theses are intended to prove the claims of QM proponents that everything is good apart of the point when the classical physics "seems" cannot overcome the difficulties of the theory of sub-atomic physics.

We took these theses from a university book and don't want to spell out the name of author of this textbook - because those books are million, and all are similar in their teachings and content. So, in these sentences there are nothing new or extra- special in terms of uniqueness or originality of this text. If anybody wants to know the author of this textbook - we will spell it out, turn in for this to us.

Then, seems better if we won't spell out the author's name - because we would like to affirm the HSP-VAT arguments that are destroying these many decades taught QM false statements.

4. FUNDAMENTAL CONCEPTS OF CONVENTIONAL ORTHODOX HOMOGENEOUS PHYSICS (COHP) AND QUANTUM MECHANICS

4.1. Breakdown of Classical Physics as COHP and Comments Based on HSP-VAT

"The necessity for a departure from classical physics is demonstrated by the following phenomena:

1. Anomalous Atomic and Molecular Stability.

According to classical physics, an electron orbiting an atomic nucleus undergoes acceleration and should, therefore, lose energy via the continuous emission of electromagnetic radiation, causing it to gradually spiral in towards the nucleus. Experimentally, this is not observed to happen."

Our comment: The problem with this statement of COH physics is that they declare the wrong initial premise - that "an electron orbiting an atomic nucleus undergoes" while this fairy tale that started by N.Bohr is not of reality. The planetary model of Atom does not correspond to many evidences, experimental results - see publications by Kanarev, Ph.M. [2-10] and other professionals agreed with him.

So, because electrons ARE NOT CIRCLING THE NUCLEUS the said above statement of COHP is dismissed in whole.

"2. Anomalously Low Atomic and Molecular Specific Heats.

According to the equipartition theorem of classical physics, each degree of freedom of an atomic or molecular system should contribute $R/2$ to its molar specific heat capacity, where R is the molar ideal gas constant. In fact, only the translational, and some rotational, degrees of freedom seem to contribute. The vibrational degrees of freedom appear to make no contribution at all (except at high temperatures). Incidentally, this fundamental problem with classical physics was known and appreciated by the middle of the nineteenth century.

Stories that physicists at the start of the twentieth century thought that classical physics explained everything, and that there was nothing left to discover, are largely apocryphal (see Feynman, Volume I, Chapter 40). "

Our comment: That is not true - well, may be in the North America physicists wanted to say just differently- afterwards, but in Europe that mode was real and widespread.

In his autobiography A.Ioffe wrote about that mode - and Ioffe knew everyone significant physicist in Europe and might be in the US. So, that was true, and nothing was said by Feynman - oh, he was about like to exaggerate, even dangerously.

Now, returning to the fabricated "Anomalously Low Atomic and Molecular Specific Heats" clause - we might say that this story is belonging to the Homogeneous One Scale for All (OSFA) classical physics, along with Equilibrium Homogeneous Thermodynamics. And in reality is not to be

described as that - it is the polyscale matter problem and assessments should be attained via Polyscale Polyphase methods.

Of course, the atomic or molecular systems are the polyscale matter to talk about - and in these terms "its molar specific heat capacity" not to be determined as in the OSFA physics that does not distinguish properly the Heterogeneous systems and their properties.

Meaning, there is no such a problem at all.

"3. Ultraviolet Catastrophe.

According to classical physics, the equilibrium energy density of an electromagnetic field contained within a vacuum cavity whose walls are held at a fixed temperature is infinite, due to a divergence of energy carried by short wavelength modes. This divergence is called the ultraviolet catastrophe. Experimentally, there is no such divergence, and the total energy density is finite."

Our comment: Oh, yah, there is no such divergence as long as - there is no such an electromagnetic field based on presentation of electromagnetic radiation in Conventional Orthodox Homogeneous Physics (COHP) as the field - but the flux of photons of different energy. Because of this - the conceptual mathematical construction for a real amount of photons within the cavity - is the subject of correct Polyphase particle physics - but not mathematical constructions of "mythical" electromagnetic field. There is the PHOTON FIELD which can be modeled via wave mechanics at some conditions.

"4. Wave-Particle Duality.

Classical physics treats waves and particles as completely distinct phenomena. However, various experiments (e.g., the interference of light, the photoelectric effect, electron diffraction) demonstrate that waves sometimes act as if they were streams of particles, and streams of particles sometimes act as if they were waves. This behavior is completely inexplicable within the framework of classical physics."

Our comment: There is no any "wave-particle duality" as long as there is no the one scale physics when we deal with the mass number of similar acts, bodies, particles, phenomena.

This behavior IS COMPLETELY EXPLAINABLE within the scaled Heterogeneous physics (HSP-VAT) as long as the whole amount of moving particles with the correct physical, mathematical treatment of their collective interacting movements and properties can have the PATTERNS OF WAVES (and mathematically) or the behavior of particles.

"4.2 Fundamental Principles of Quantum Mechanics

There is nothing special about the transmission and absorption of photons through a polarizing film. Exactly the same conclusions as those outlined above are obtained by studying other simple experiments, such as the interference of photons (see Dirac, Section I.3), and the Stern-Gerlach experiment (see Sakurai, Chapter 1; Feynman, Chapter 5). The study of these simple experiments leads us to formulate the following fundamental principles of quantum mechanics:"

"1. Dirac's Razor.

Quantum mechanics can only answer questions regarding the outcome of possible experiments. Any other questions lie beyond the realms of physics."

Our comment: This is true about the first sentence, but not a complete truth, we do not have doubts about that. The issue is - What about to form the more correct questions and models for those?

Saying that QM is the only tool and no other tools for physics are in need it's over-bluffing. It's incorrect.

"2. Principle of the Superposition of States.

Any microscopic system (i.e., an atom, molecule, or particle) in a given state can be regarded as being partly in each of two or more other states. In other words, any state can be regarded as a superposition of two or more other states. Such superpositions can be performed in an infinite number of different ways."

Our comment: Oh, this is the clever formulated principle - instead of honestly say - that we consider only the linear and potential kind of interactions, states.

In this formulation physicists at the beginning of XX went far enough to change the names of the subject - it is easier to say the "state", instead of some real physical definition like - coordinate, velocity, mass, field value, etc.

Because not many people mathematically proficient to the level to understand - that the "superposition principle" just means that we don't want to say straightly that we do only addition of effects, we can not assess, calculate the real total collective interactions, period.

And you know why conventional physicists could not calculate the collective interactions - yes, that is the mathematical problem, not solved at that time and not solved by COHP even now! So, they decided to hide these words and saying like - "any state can be regarded as a superposition of two or more other states."

That is not true and even great simplification for most of the states, because most of the problems are Collectively Interactive and ARE NONLINEAR.

Another great reason is that what we have been saying for decades - is that in COHP there is no ways to determine the correct averaging procedures, because everything and especially in a microworld - is a heterogeneous matter.

While COHP can not do the bulk assessment, averaging of Heterogeneous matter - either in the sub-atomic or macro- scales. Yah, professors even don't know about that.

Also, this is the great secret in COHP.

"3. Principle of Indeterminacy.

An observation made on a microscopic system causes it to jump into one or more particular states (which are related to the type of observation). It is impossible to predict into which final state a

particular system will jump. However, the probability of a given system jumping into a given final state can be predicted. The first of these principles was formulated by quantum physicists (such as Dirac) in the 1920's to fend off awkward questions such as "How can a system suddenly jump from one state into another?",

or

"How does a system decide which state to jump in to?".

As we shall see, the second principle is the basis for the mathematical formulation of quantum mechanics. The final principle is still rather vague. We need to extend it so that we can predict which possible states a system can jump into after a particular type of observation, as well as the probability of the system making a particular jump. "

Our comment:

To be politically (in present days) correct the author, who is the fan of Dirac seems, does not mention first of all the name of Werner K. Heisenberg who's name has this principle.

It is known generally that this postulate is actually incorrect: either from the polyscale HSP-VAT point of view or/and following other arguments including experimental evidences.

We are not supporting or share most of Homogeneous one-scale (other reviewers say simply incorrect) mathematical constructions by group of AIAS scientists, but this one is found to be worth of citing regarding the uncertainty principle in - <http://www.aias.us>:

"9) Refutation of the Heisenberg uncertainty principle.

http://www.aias.us/index.php?goto=showPageByTitle&pageTitle=Some_Obsolete_Concepts_of_the_Standard_Model

....."7. The principle of indeterminacy has been refuted experimentally by up to nine orders of magnitude, and is meaningless dogma that violates causality.".....

Good words on refuting one of the QM outdated approximate statements.

But the most dramatic and simple argument against this "principle" is of the scale consideration:

As long as all sub-atomic particles are the Volumetric objects - that means that at any different moment and angle of interaction with observation or instrument of another influence - the response (reaction of collision, for example), momentum after collision and location of collision can be different in dependence of the size, angle and other properties of this Volumetric objects - particle and of another Volumetric object (particle) that collides with it.

Now, we demonstrated that there is no need to blame the physics in general to shift for explanation to only QM and point-mass structure-less particle physics, because that COHP physics of the beginning of XX has been advanced definitely and in many directions since then. The polyscale polyphase physics HSP-VAT that is the covering for COHP and is restoring value of an aether (along with other great scientific advancements by non-orthodox physicists) as a component of interaction (no action-at-a-distance, but polyphase interaction as in nature is indeed) explains with its methods and results the all like "roadblocks" toward the sub-atomic physics theories.

Regarding the Polyscale-Polyphase Electrodynamics (HtGEK) that might be seen as introducing the polyscale electrodynamics to the particle physics, now our findings and descriptions are available for scientists, engineers in [11].

From that chapter where we started publicly the polyscale GEK Electrodynamics (Electrodynamics 2) and counted of more insufficiencies in MHL electrodynamics we would like to have the same question that is applicable and to the sub-atomic scales particle physics:

5. WHAT IS THE MATTER AT ANY SCALE - INCLUDING AND OF PARTICLE PHYSICS, AND HOW WE SHOULD UNDERSTAND AND TREAT THE MATTER'S PROBLEMS?

By most of the conventional physicists or other close to physics communities it is not what you think when watching onto the sky, or seeing a mountain, or water, or closing into the microscope eyepiece. Let's cite some good words by R.M. Santilli who did spend an effort and time more than 30 years ago attempting to open the closed eyes.

In his 1984 work [12] on ethics in the US physics R.M.Santilli wrote (we comment seldom on some ideas):

"According to a rather widespread view in contemporary physics, the entire universe can be reduced to a collection of points (resulting into the so-called local theories), with only action-at-a-distance interactions (resulting into theories of potential type).

(Our comment:

This is a great statement, really what is in mind of professors and in their teachings. While action-at-a-distance is provided through the unknown medium, because the point was/is explored to disregard the aether presence. Action-at-a-distance is via "NOTHING," but it has the electrodynamic properties? Can this be swallowed?)

According to this view, the entire universe can be described by only one quantity, the Lagrangian or the Hamiltonian, defined locally, at a collection of distinct points. In fact, all known interactions are totally reduced to local-differential and potential treatments. I am referring to electromagnetic, weak, strong, and gravitational interactions.

Now, the existence of interactions that can be effectively treated via these local-differential and potential techniques is unquestionable, as typically the case of the electromagnetic interactions.

(Our comment: This is not true with regard of electromagnetic interactions - we ought refer to the mentioned above studies of the MHL electrodynamics and this is the true scaleless physics that mentioned by R.Santilli all about. It is not true after 1967).

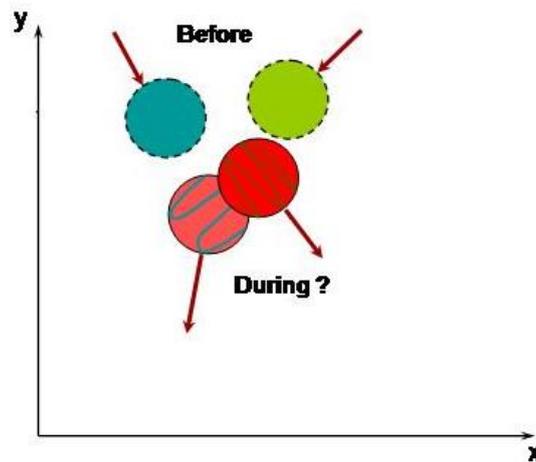


Fig.1.6.1 (modified after R.M.Santilli)

However, the existence of interactions which are structurally beyond local-differential and potential techniques is equally unquestionable. This is typically the case for the strong interactions whose range is exactly of the order of magnitude of the size of all hadrons, 10^{-13} cm. The diagram above therefore depicts the conditions of mutual penetration of the wave-packets of particles which are necessary to activate the strong interactions.

(Our comment: yes, Santilli using here the old tools of QM with the wave-packets as all you was need and no aether. That is no more true anywhere with the Heterogeneous and particulate medium, scale dependent media. Meaning that for almost all serious, practical problems the interaction should be accounted for.

Meaning - most of the issues should be treated as the scaled, averaged for a purpose, non-potential, polyphase).

It is then evident to all that wave-packets in conditions of mutual penetration cannot be effectively reduced to isolated, dimensionless points, unless extremely crude descriptions are desired.

The diagram above therefore identifies the insufficiency of the contemporary reduction of the universe to a collection of isolated points (locality) with only action-at-a-distance interactions (potentiality), in a favor of **suitable, non-local/integro-differential generalizations**.

Regrettably, the mere view of the experimental reality depicted by the diagram above generally creates semi-hysterical reactions by physicists with vested interests in local/potential models;

by therefore precluding the implementation of a constructive scientific process of trial and error in the selection of the appropriate generalizations. In fact, the diagram presents a visible illustration of the lack of exact character for strong interactions of the most essential structures of contemporary particle physics,"

Yes, R.M.Santilli writes correctly on the point - "in a favor of suitable, non-local/integro-differential generalizations."

That was the story written ~30 years back about the potential type of interactions between the "pseudo-particles", we refer in here only for electromagnetic interactions, without an inter-medium and its physics all along. As they continue to teach about that in the universities. The mathematical schemes gauged to the experiments, and experiments explained with this inappropriate mathematics.

6. CONCLUSIONS

1) Because the problem of averaging of the array of moving atoms, molecules, free electrons, photons embedded in a medium that can be called vacuum (and is not really empty space - it is what for hundreds years called as aether) or other more complicated media is the problem of scaled heterogeneous physics, it should be treated with the tools of that physics, including first of all the various Volume-Surface integration theorems, developed for Heterogeneous media.

That is why the methods used in homogeneous physics must fail and have been failing for >130 years to develop the correct macroscale medium electrodynamics governing equations.

2) Here we put forward the real reason for the forced desertion (falsified) of the aether in physics just at the beginning of the sub-atomic physics time (among other well spelled out, but seems of the secondary significance reasons). This was supported by many physicists because of the absence of physical and mathematical theories, tools, methods to treat, theorize, study the polyphase (Heterogeneous) polyscale (at least of two scales) matter as the particulate (poly-particle) media altogether with the continuum medium of aether (at the scales of the sub-atomic value $10^{-(10-18)}$ [m] in between.

The problem was as such - here are the real very important phenomena because of these super-small sub-atomic size particles existence and we need to tackle at least some of them and make a progress in physics. But how we can do this because we don't know - How to treat these particles physically and mathematically altogether with the aether? As a Two-phase medium? How to do this, we don't know.

Well, they decided to drop the aether existence, as if it does not exist. And study the sub-atomic particles just as a bunch of small point-mass "particles" (artificial so far, of course, until something of more tools in physics and mathematics will allow to include an aether into the picture?). While experiments of Michelson and Morley (1887) seems might be interpreted in this way?

And Tesla with his unlimited ocean of energy in an aether can be forgotten.

Later on, in the midst of XX, when the nuclear physics, nuclear arms, nuclear power got to the position when they could not be studied and advanced without the polyphase heterogeneous medium being accepted and methods being created for their research and modeling, the commence of the polyphase Heterogeneous physics brought in these abilities.

But physicists up to the time of after the WWII had developed a huge amount of knowledge (approximate) within the regarded particle, nuclear, and atomic physics without an aether, that should lay out the foundation for all these above physical sciences, constructions on the base of

particle physics that was the one phase homogeneous one scale physical science at that time and mostly continues to be in this condition now. See the most advanced chapters in COHP on polyphase physics that are not correct and present embarrassments to physics and to the authors of this "science" [13].

In this way leading physicists silently drop the issue of relevance of the polyphase heterogeneous particulate media physics that spread within the nuclear power science and of the base for particle physics that should be of the polyphase nature also.

For that to be the real upgrading in particle physics it just was needed to make a large re-formulation of the particle physics to the polyphase heterogeneous (two phase at least - particles and aether or other medium) polyscale (two scale at least - particle scale and of the bulk, averaged medium properties scale) science.

And that was too complicated task for physicists and physics, with the absence of the most needed methods and heterogeneous mathematics in 1950-60s, that was/is not up to the polyphase heterogeneous science even at nowadays.

That is one of the reasons why we have the defective, full of mistakes, mathematical cheating the major body of COHP, particle physics, electrodynamics, etc.

3) Well, now - Who would confess on this treasury of science, treasury of mankind? They are gone, while their scientific successors are of small enough scientific caliber and bravery to recognize errors in physics. Our hopes now relies on inventors of the COP >1 energy devices. The number of these pioneers is substantial. Most of these devices are performing on the base of electrodynamics phenomena - Searl's generator, Cold Fusion of Rossi's type reactor, magnet motors, electric self-sustained motor-generators, solid state electrical generators with COP > 1, etc., etc.

4) There are two methods used in homogeneous physics for pseudo-averaging of atomic scale Maxwell-Heaviside-Lorentz electrodynamics equations: a) is the expansion in series of the difficult terms that need to be averaged and with the great simplifications (unacceptable) forcefully bring mathematical expressions to the Maxwell-Heaviside-Lorentz conventional continuum mechanics set of equations; b) starting from the one atom averaging of forces the following line of derivation using the mixed methods of unacceptable simplifications along with the recursive use of known Maxwell-Heaviside-Lorentz equations - the same equations that not yet been averaged in an algorithm.

Still, the worst thing in both approaches is that used the incorrect formulae for averaging of differential operators [14-15].

5) Generally, these averaging formulae and pseudo-averaged EM governing equations used up to now in homogeneous microscale electrodynamics are not correct for atomic scale, for the Upper scales averaging, for Heterogeneous media. That is why the orthodox conventional physics for so many years since 1967 and during the following in the 80-90s developments in the HSP-VAT tried to ignore, suppress, and silence the truthful physics and mathematics of multiphase microscale electrodynamics theory, modeling with averaging and scaleportation, presented in the HSP-VAT methods and math.

Because of this way of homogeneous averaging in atomic and particle physics as said above for averaging of Maxwell-Heaviside-Lorentz equations, the Upper scale (continuum mechanics) equations have been falsified and are incomplete.

All conventional textbooks on electrodynamics and materials science are showing the same type of incorrect mathematical procedures for heterogeneous averaging. Well - this is actual cheating on the students and general public, professionals in various sciences and technologies [14-15]!

Meanwhile, this falsified electrodynamics that is being adjusted for every case, lies in the very core of the Conventional Orthodox Homogeneous physics - from particle and atomic physics up to astrophysics.

6) Lorentz himself in his "Clerk Maxwell's Electromagnetic Theory. The Rede Lecture for 1923, Cambridge" (1923) used to say that:

"Will it be possible to maintain these equations? I am not thinking here of the comparatively slight modifications that have been necessary in the theory of relativity;.....

A greater and really serious danger is threatening from the side of the quantum theory, for the existence of amounts of energy that remain concentrated in small spaces during their propagation, to which several phenomena seem to point, **is in absolute contradiction to Maxwell's equations.**"...

Physicists in 1920-30s had pretended to appear as that this strong remark was not for them. Instead of actual research, they started to make mathematical conjectures, false fully fitting (fixing) the MHL electrodynamics for Continuum Mechanics media to the sub-atomic scales of particle physics. This is a pure mathematical cheating. While physics had gotten into troubles.

7. REFERENCES

- [1] Lewis, E., *The Periodic Production of Rationalized Phenomena and the Past Periodic Depressions*, <http://www.padrak.com/ine/ELEWIS6.html>; retrieved 05/10/2012
- [2] Kanarev, Ph.M., *The Foundations of Physchemistry of Microworld*, the 15th edition, [http://www.micro-world.su/ Folder "Monographs;"](http://www.micro-world.su/Folder%20%22Monographs%22) retrieved 05/05/2013
- [3] Kanarev, Ph.M., "Orthodox Knowledge and New Knowledge," <http://www.guns.connect.fi/innoplaza/energy/story/Kanarev/index.html>; retrieved 05/05/2013
- [4] Kanarev, Ph.M., "The Transfer of Information in the Space, 7th New Lecture on Unity Axiom," [http://www.micro-world.su/ Folder "Lectures;"](http://www.micro-world.su/Folder%20%22Lectures%22) retrieved 05/05.2013
- [5] Kanarev, Ph.M., "Model of the Electron," *Apeiron*, Vol. 7, No. 3-4, pp. 184-194, (2000)
- [6] Kanarev, Ph.M., "A Model for the Free Electron," *Galilean Electrodynamics*, Vol. 13, No. S1, pp. 15-18, (2002)
- [7] Kanarev, Ph.M., "Electrons in Atom," *Journal of Theoretics*, Vol.4-4, (2002)
- [8] Kanarev, Ph.M., "Modelling the Photon and Analyzing Its Electromagnetic and Physical Nature," *Journal of Theoretics*, Vol.4-1, pp. 1-12, (2002)

- [9] Kanarev, Ph.M., *Photon*, <http://www.micro-world.su/> Folder "Books;" retrieved 05/05/2013
- [10] Kanarev, Ph.M., *Introduction to New Electrodynamics*, <http://www.micro-world.su/> Folder "Books;" retrieved 05/05/2013
- [11] Travkin, V.S., *Electrodynamics 2 - Elements 3P (Polyphase-Polyscale-Polyphysics)*, <http://www.travkin-hspt.com/eldyn2/index.htm>; retrieved 06/05/2013
- [12] Santilli, R.M., *Ethical Probe of Einstein's Followers in the USA: An Insider's View*, 354 pages, 1984, <http://www.scientificethics.org/IlGrandeGrido.htm>; retrieved 05/10/2012
- [13] Travkin, V. S., "Homogeneous Mathematical Schemes for Heterogeneous Multiphase Fluids - 14 Years After 1998 Analysis and Criticism," <http://travkin-hspt.com/fluid/homofluids2012/homofluids2012.htm>; retrieved 06/05/2013
- [14] Travkin, V. S., "What's Wrong with the Pseudo-Averaging Used in Textbooks on Atomic Physics and Electrodynamics for Maxwell-Heaviside-Lorentz Electromagnetism Equations," <http://travkin-hspt.com/eldyn/maxdown/maxdown.htm>; retrieved 06/05/2013
- [15] Travkin, V.S., "Incompatibility of Maxwell-Lorentz Electrodynamics Equations at Atomic and Continuum Scales," <http://travkin-hspt.com/eldyn/incompat/incompat.htm>; retrieved 06/05/2013