

QUANTIZATION AND SOME PROBLEMS WITH ITS.

Milos Abadzic, Belgrade, Serbia, E-mail: milabster@gmail.com

ABSTRACT

In the article [2], presented at this conference, is a point out to the need for re-examination of attitudes, which is base of modern physics. Since the theory of relativity and quantum physics are the foundations of modern physics to review applies to them. One of the assumptions of both of these theories has been experimentally obtained data on the behavior of radiation energy of black body that has established Planck in 1900 year. According to them the value of radiation's energy is equal to the product of a constant and frequency, which belongs to a series of natural numbers. This constant is called Planck constant h . It represents a fact that then, and even to this day, is not got the physical background and explanation. This is not bothered that its value has build into the explanation of behavior of many physical quantities, and that the process of quantization expand on the more physical and nonphysical magnitudes. Indisputable that the Planck constant has great significance in physical processes, but the question of whether so universal as presents, and whether there are some limitations of its implementation. The analysis that I made show that such restrictions exist, which puts in doubt the validity of some relevant views in the modern physics. In this paper, I turn attention to some of these. Thereby it is based on the assumption that the process of quantization, no matter how broadly we understand it, should be linked to the most elemental particles that can meet in nature, or that the entire analysis should be place on the so-called subelemental level (SEL).

1.INTRODUCTION'S REMARKS.

In order to quantization had meaning or that the general was acceptable it should be originally related to some of whose values are constant and invariant of time and spatial coordinates, or that are not related to a variable function. It would be most logically that they are originally related to some fundamental particles and their behavior in different natural conditions. Just what would these particles had to be a real natural, or as I call them subelemental, with precision defined unchangeable characteristics and nature of physical processes in which the particles have a role. At today's level of knowledge of nature and subelemental particles have not yet been identified, and with it many of the registered processes, which should be associated with them, did not get physically based explanation too. In such conditions, quantization has a formal character or its application is no selectively. Therefore, in order to be approached to general analysis of this phenomenon, the starting point must be in defining the basic characteristics of nature, phenomena and processes in it, which are on today's level of knowledge beyond any doubt. Therefore, in

order to be approached to general analysis of this phenomenon, the starting point must be in defining the basic characteristics of nature, phenomena and processes in it, which are on today's level of knowledge beyond any doubt. Therefore, in order to be approached to general analysis of this phenomenon, the starting point must be in defining the basic characteristics of nature, phenomena and processes in it, which are on today's level of knowledge beyond any doubt. Since quantization generally deals with magnitudes that should be at least possible in its type, should first of all define the primary or sub elemental particles (SEP), and our observation should provide on subelemental level (SEL), because everything outside of this level has a complex structure, so they all the associated physical magnitudes are not original but complex.

This work is partially based on the views given in [2], also presented on this conference, of which the initial position of the reality of Nature is the basis for all further considerations. This implies that each of the magnitudes, which is used in explaining of Nature and some it's accompanying phenomena and processes, it must be unambiguous and without the introduction of a different paradoxes, dualism and physically unsubstantiated basis for its introduction and the consideration. I know that at the level of our current knowledge cannot be avoided and some mistake, but they must be in the possible measure in line with the above quotations.

2. BASICALLY SETTINGS ON THE STRUCTURE AND CONDITIONS AT THE SEL.

This analysis is based on the theory given in the framework of the book [1] in which I developed a new model known as a Natural Model of Nature (NMN model). I will cite some attitudes important for consideration of the quantization problem without engage in the explaining this model. I can only show that the NMN model is answer on the questions within [2], which are just some of the questions related to the essence of the complex Nature.

2.1. BASICALLY STRUCTURES OF NATURE.

Background of Nature in its complexity makes its three subelemental substances:

- Two physical:
 - Electrical
 - Material and,
- One nonphysical or mental,

These subelemental substances have their subelemental particles (SEP), general called demo, or accompanying terms elektrion, materion and menion, respectively. Each of these demos is characterized by three magnitudes:

- Appropriate mass,
- Space, or its diameter by assuming that it has the spherical shape, to occupy by this mass,
- Impossible split on small parts under any conditions.

The first two magnitudes are invariant of time and spatial coordinates. This excludes the attitudes present in the modern physics:

- All transformation as *mass* \leftrightarrow *energy*.
- Dependence mass of the speed of movement $m = f(v)$.
- Annihilation of matter (transformation type *something* \leftrightarrow *nothing*).

- Perceptions as basic guideline realities of Nature and its phenomena and process. It is only a reflection of our possibility capabilities to understand such a nature.

They would have to be replaced by attitudes based on the realities of Nature, single-minded characteristics especially it's basically substances and consistently implementation of natural laws.

Each of these substances with their SEP creates their subelemental system (SES) whose characteristics are:

- Evenly fills the space of whole cosmos.
- These three systems pervade it selves on the SEL in the framework of the whole cosmos.
- Condition of SEP in the SES is quasi-steady, because in most cases particles oscillate only around their equilibrium position. In rare cases, depending on conditions at other levels (atomic and molecular level), they may be completely static, or have someone no cyclic movement, which isn't the subject matter of this article.
- Electrical and material demos doesn't interact mutual spontaneously, while menions interact according a program with both physical demos, which may lead to their interaction also.
- Quotation specified demos through the appropriate interaction processes create structure of all the natural appearance forms, be they dead or living matter.
- Each of these SES with its SEP is carrier of specific processes and influence on the SEL in the whole cosmos. In the macrocosm on the SEL does not exist anything and act nothing that is outside of these systems.

Based on these characteristics the Nature could be defined as:

Nature is one space wide jagged system of basic substances and their combination, whose behavior is matched by some natural laws. Everything in Nature, that exists and acting, is the result of interactions between basic substances [2].

2.2. BASICALLY STATEMENT AT SEL.

Elementary image which SES provides about itself, except of mass and dimension of appropriate demos, represent its energy state. It may be two basic types:

- Static or stationary state of the corresponding components of SES, which is characterized by their potential energy.
- Dynamic or moving state of the corresponding components of SES, which is a reflection of their kinetic energy.

Static state is uniquely and is characterized only by geometrical arrangement of their components that depend on their potential energy. Strictly speaking such a situation does not exist in nature even at SEL, and certainly not on the other levels. Before you can talk about the quasi-steady state in which the movement component of SES is reduced to the oscillations, with sufficiently small deviation from their balance position, that the consequences of such deviation cannot be perceive neither by our sensors nor with our devices. Kinetic energy level of such disorders is lower, and speaking in general, negligible compared to the potential energy in the components observed SES. It can lead to durable disorder of components observed SES.

By dynamic state moving components SES is much more intensive and may be the cyclic or non-cyclical character. Which of this movement will be present depends on the energy level of disturbance whose source can be outside the SEL only.

In the normal, mainly present conditions on the SEL the movement has a cyclic character, what means that the components of the system oscillate around their equilibrium position, excited by some certain disturbed level of kinetic energy. The energy levels in these cases are not sufficient to lead to permanent disturbances of components' schedule appropriate SES, thanks to a high level of their potential energy and the small distances between the neighboring components. Only in exceptional cases, which are not subject of this consideration, the energy level may be a disorder that damages the structure of SES and leads to the non-cyclic movement its components. In such cases establishes the flux of demos and impairs balanced local structure of SES.

The static state of the system does not reflect any processes in them, and the existence of the processes is the basic characteristics of Nature. They are determining by the mass of the appropriate demos and their geometric relationship, which are constant values. The analysis of phenomena and processes the values of these quantities can be used only as starting values in transition to dynamic processes. By the analysis of dynamic processes should be taken into consideration the following circumstances:

- Within the SEL in normal conditions, which will be analyzed in this article, there is no initial source of energetic disturbances. These disturbances have come from other levels.
- The SEL is the highest energy level in the cosmos for two more orders of magnitude compared to the closest level, as would, for example, could be atomic level.

Disturbances that come from these levels on the SEL may not lead to destruction demos arranged in their SES. They can only lead to elastic deformation of these systems, which disappear by stopping activity of disturbances. Appear and disappearance of such deformation is carried out through appropriate transitional processes whose flow depends on the initial energetic state of the system and energy cause of disturbance, or of their dynamic characteristics at the time of the disturbance emergence. These circumstances are accepted by the further consideration of specified problems.

2.3. BASICALLY LOWS ON SEL.

Established characteristics of SES on the SEL in the universe are the consequences of certain action of the natural's laws. There are more laws, but for this analysis are the most important.

- Law of the mass
- Law on the minimum potential energy of the closed systems.

Law on the action at and distance says:

Actions at distance of demos and their group one another are followed by the appearance of appropriate force between them. Action is general present and does not require any mediators between the particles, which interact. Value of these forces is proportional to the product masses interact particles and inversely proportional to a square distant of their centre of gravity.

Masses all particles, and demos too, have been reduced to mechanical level using the appropriate coefficients¹. Thanks to the activities of these forces, whose influence extends theoretically to infinity in a practical to distant, while is a respectable considering the influences of other components of SES, it come to their balancing by each of particles and established balanced state with uniform distributed particles within the corresponding SES. Character of this balance for each component is a kind of "elastically" interaction's force, which the resultant for each parcel is equal to zero in this balanced or stationary state. Any energetically disturbance ejects one or more particles from balance position and creates a transient process, while not reestablish an adequate state of equilibrium. In the balanced state the potential energy of the system has minimal value. This process is connected with the law of the minimum potential energy of the closed system, which reads:

Every closed system of particles or their groups under actions the interactive processes seeks to capture the position and the disposition in which the total potential energy is minimal. That means, regardless of whether the system is in a dynamic or not, that at any time there is any arrangement which would have the minimum potential energy and to which that the system to aspire. It can be assumed that, in a given external and internal conditions, this assumed energy level have a constant value.

This law, with only minor corrections, may also be calling the law of a system's inertia. While the application of the law on mass actions at distance remotely decisive in the static conditions of the SIS (although its influence does not stop even in dynamic conditions), the law of the minimum potential energy gets to the importance of the dynamic conditions systems and on increasing the speed of the system components, or with engaged the size of kinetic energy. When it should have in mind the relationship dynamics with the process of transformation type potential ↔ kinetic energy and the attitude that every process in the nature is durable and the rate of the changes the state cannot be endless but always some finite value, no matter how much it was great. The behavior of these two energetic components is the following:

- A potential energy particle, or reaction to change the system equilibrium configurations of its components, increases with increasing its distance from its equilibrium position and vice verse.
- Kinetic energy changes with the square speed of movement components.

Thus the size of deflection and velocity of the referent components is determined by energy balance in the observation's time during the operation of the corresponding transitional process.

2.4. ENERGETICALLY PROCESSES ON SEL.

When we view the energy processes in the complete nature, especially on the SEL, they are in principle resulting from the transformation of energy type

Potential energy ↔ kinetic energy.

At levels above the SEL these transformations are not always obvious as they may be associated with specific phenomena and processes, and are often called a special name, although essentially they are the special forms of these two energies. Source of potential energy and followed the interactions are the law of mass actions which is determined by the configuration and size of masses

¹ Should be remember definitions of units for the electric current and from it derived unit for electric charge and their dimensions.

corresponding demos. Result of their acting is forces between particles and their structures. By kinetic energy source are momentum, hence the masses and velocity of particles, although the accompanying processes of more complex because it depends how the external dynamics of particles, and their internal dynamics too, which is usually manifested as their spin. In addition, by dynamic processes is presence also the action of masses with changing their distances as the vector magnitudes. Complexity of these processes comes to the fore at higher structural levels, while the SEL lack simplified forms of low action of mass and momentum, in other words the kinetic energy.

Carriers of energy processes at the SEL may be only the mobile system's components, with their deployment within space, mass and momentum, which act according basically natural laws at the SEL. Only is the question of their mechanism of activation at this level. In any case, the disturbance must be the dynamic nature of which there are more possibilities:

- Moving particles from other levels, which by their momentum excite demos the same kind of proportional to their momentum.
- Incursion of some major structures in the referent locality when their motion suppresses all demos affected by their cross-section. This process is similar to flow of some fluid around the mobile body.
- The activities of the periodic fields, which will run demos in their rhythm.
- Responding already excited demos which through the secondary excitation excite other demos.

The first two cases of excitations have an impulse character after which action the demos give the free oscillation. As a rule, because of its dimensions, these exciting processes include the increasing number of demos. By it is clearly separated the process of excitation, which was occurring once character, and a followed process of free oscillations, which is identical for all the free oscillations. Secondary excitation is specific and each demos by its plays a double role. At first time is the exciter and after that is excited. It is not just occurring once but lasts for the duration of oscillation of excitation's sources, and after that begin with the free oscillations. By excitation with electromagnetic field, which in principle occupies bigger space, the oscillations have forced character within the area in which this field is present and becomes free where the influence of this field does not feel itself.

A consequence of all this excitations is movement of the demos as part of its SES, which represents their oscillations around their position before excitation, and has no character non cyclical movement through space. In their oscillations they trigger processes that are characterized by:

- Change the values and direction of the appropriate fields as characteristic the subelemental magnitudes of various demos.
- Changing the value of momentum, as vector magnitudes, of demos due to change their speeds.

Character of movement demos affected some energetic disorder depends on the dynamic's characteristics of disturbances, on the one hand, and of the dynamic state of demos before the disorder, on the other side. The affected demo can already be in an excited state when the two state gather as vectors and demos to continue their movement under the actions of the result momentum (for simplicity, we see the case when neighboring demo is not in the excited state). In any case, first excited demo transmitted momentum, that is notify to its, to the neighboring demos and it come to their attraction through process $W_k \rightarrow W_p$. Attracting lasts until all notify kinetic

energy would be spent on the disturbance of equilibrium state of the system and then is $W_k = 0$ and $W_p = W_{pmax}$. At that time the movement stops and the particles in the activities of the system's reaction begin to return to its balance position, with the increasing their kinetic energy. In the balanced position the energy state of particles is $W_p = 0$ and $W_k = W_{kmax}$, and movement continues while this kinetic energy would be spending. The process is repeated under the actions of disturbance that has a cyclical character. The movement of secondary excited demo also acting on its neighboring demos and process spread through the space. A characteristic of this process is that the neighboring demos range asynchronous, or that they are always the opposite direction of movement. This model's of the wave processes at SEL differs significantly from the current models in two basic attitudes:

- No non cyclic movement of particles that are attributed to the carriers of this phenomenon and that the moving with speed c . The carriers of this process oscillate around their equilibrium position.
- The carriers of the processes are subelemental magnitudes with single-minded define characteristics, that are behaving in accordance with the basic natural laws.

Oscillation's process at the SEL has harmonious character represent by trigonometric function of velocity of movement the affected demo

$$(1) \quad v(t) = v_m \cdot \cos(\omega \cdot t)$$

This process is based on the clear physical basis and on the real characteristics of their carriers. Under normal conditions, these processes are the only ones who can be held at the SEL.

3. QUANTISATION'S PRBLEMS.

Expressed attitudes imposed questions: what is the mean quantization and what importance is a series of discrete values of some natural magnitudes. Originally, the concept of quant was tied to the results of experimental research Planck and his constant. The value of these constants is absolutize that it still hasn't the physical justified the appointment of an absolute constant. Even by follow on it was made the quantization of many natural magnitudes whose haven't some physical bases for this operation. From the above analysis follows that Planck constant is amount of kinetic energy whose value, reduced to one period of electromagnetic waves, do not change, regardless of value of his periods, or its frequency. The result of these experiments is give by

$$(2) \quad W_k = h \cdot f \quad [J]$$

Where is

$$(3) \quad h = 6,626063 \cdot 10^{-34} \quad [J \cdot s]$$

value of Planck constant and f a frequence of EMW.

Importance of the Planck experiment is just that it showed that this value is constant for each period of wave, so the expression (2) is logical conclusion. However, the logic is finishes here because are put two questions:

- What happens between the values 0 and T?
- What's happens when the frequency is less than 1 [Hz]?

The expression (2) represents one no continual function whose value changes with the jump by each increase in frequency for 1 [Hz], because if the size of $h = \text{constant}$ then the only possible

discrete series of its value. If the term *quantum* indicates the minimum value of some magnitude, in this case the energy, then we arrive at the dilemma:

- In the time interval 0 - T is not any physical process, or
- The notion of quantum was here wrongly applied.

The first option is not acceptable because it is in the nature constantly present some processes, even when we are not aware of their activity. Its rest that term quantum has wrong definition or wrong use. I think the basic mistake made here is that quantization procedure unjustifiably expanded on the magnitudes which cannot have the smallest values. This procedure may originally be only related to basic subelemental magnitudes. It certainly cannot be magnitudes to define some processes. In line with this is possible to make the following classification:

- Quantization is present as a constant value at:
 - Masses of basic subelemental phenomenal forms, or demos.
 - Their dimensions.
 - Sizes of the forces when the demos touched in one point, but this would be the largest value of force at the SEL and not the smallest.
 - The size of the potential energy at the surface of demos (also the largest value on the SEL).
- The quantization, as now we understand it, is not possible in the cases:
 - The processes quantization. Quantization of the processes. By they it can speaking only about conditioned quantization of the processes that take place under certain conditions and accurately and unambiguously defined the specific characteristics of participants in the processes;
 - Time;
 - Space or the geometric's dimensions.

Quantization processes have a conditional character because it reduces to occasional determination values of selected magnitudes, which receive the discrete series of their values under certain defined conditions. As an example can serve Planck constant this is determined as the balance of the effects of transformation $W_k \leftrightarrow W_p$ during the entire period of observed wave's process. Decide on the monitoring a process through a series of discrete values of some of its characteristic magnitudes us away from the real events that take place between the control points, and the obtained values are only a reflection of these events. Such a procedure reminds the procedure when we define a life of one man as a discrete series of values of some selected magnitudes (weight, height, or anything else) measured periodically. These results can be processed statistically, graphically or in any other way, but it would not be life. Life is a set of processes and interactions of substances that occur between the selected control points. This is true not only for man or other living phenomenon's form but for each process would be it a simple or complex.

According to the NMN model, and by the logic of things, is not acceptable the idea of quantification of time and space. These two magnitudes are continuous and monotone, and we are using them by continual monitoring the performance of the process in time and space. If some event we put in a series of discrete values of these magnitudes we would have in each control point a singular value as result of momentary jump from one to the other value of observed magnitudes, which is determined by a function of one or both of these magnitudes. May be cited a lot of examples that would show the absurdity of such an attempt.

Realistically quantization is applicable to some of the quantities related to the basic subelemental magnitudes. Its wider application to more complex structure represents, to some extent, the creation of alibi for our lack of knowledge of natural phenomenas and processes. It represents some case of run to the formalism instead to develop realistic models of natural phenomenas and processes. At the same time it is non hold on the causal - consequence hierarchy by the event of Nature. Unfortunately, we often first come to the formal information about the phenomenas and processes, which is not an error but a reflection of the state of our knowledge of nature and our technical capabilities. Error occurs only when based on these informations we bring some conclusions without physical explanation, and called them fundamental. Sources of these informations are usually the results of experimental investigations. Their importance is exceptional, just is a question: *would we know them understand in the right way and use in our attempts to understand the nature on a real "natural" way*. As a good example for conditioned quantization may serve to question the Planck constant with the point of view that is still used or could be, or had to use if it is understood in the right way. In the following pages attempt to give it's a different observation.

4. NATURE AND IMPORTANCE OF PLANCK CONSTANT.

In light of this set of model of electromagnetic wave processes their essence is a transfer of kinetic energy over the space, which is built on a one locality of SES as energetic disorder specific size and dynamic characteristics. This transfer is realize as a series of energy transformations of type $W_k \leftrightarrow W_p$ and has the time and spatial dimension. Linking the physical flow of these processes with formal experimental data given by Planck represent the foundation not only for changing our understanding of the processes of generation, transmission and action EMW, but also some physical magnitudes that have so far been outside the range of our knowledge.

4.1. SOME FORMAL NOTES.

According to the definition of value Planck constant is $h = 6.626063 \cdot 10^{-34}$ [J · s], and expression (2) is used to determine the energy of this wave. These two expressions are formally adjusted when we did not know the nature of EMW. But then it made a mistake, which extends to the present. It is a fact that using the expression (2) observation of this process of energy reduced to 1 [s], which by definition is the power expressed in [W]. If we accept the proposed model of EMW then should follow the energy processes that take place in a time interval of 0 - T, regardless of the frequency, and should introduce a magnitude that it characterize and which could be a function of shape

$$(4) \quad h(t) = h_m \cdot \cos(2 \cdot \pi \cdot f \cdot t)$$

It would represent a changing power of radiation in this time interval. By the integration of this expression in the above limits would be given for $W_k(T)$

$$(5) \quad W_k(T) = 2 \cdot h_m \int_0^{T/2} \cos(2 \cdot \pi \cdot f \cdot t) \cdot dt = \frac{2}{\pi} \cdot \frac{h_m}{f} = \frac{2}{\pi} \cdot h_m \cdot T = h = const. \quad [J]$$

According to the results of Planck this magnitude has constant size marked as h and has unchanged value for each period EMW regardless on frequency. It is important to recognize that the value of h_m in this case is determine by expression

$$(6) \quad h_m = \frac{\pi}{2} \cdot h \cdot f$$

and that increases linearly with frequency f .

Radiation energy is not related to the period 1 [s] but for any time interval and could be obtain only by multiplying with dimensionless number which value is equal

$$(7) \quad n = \frac{t}{T} \quad [-]$$

so that the energy of radiation during the time t is

$$(8) \quad W_k(t) = h \cdot n$$

The difference between expressions (2) and (8) is not formal, because the value of energy includes the complete time interval in which the observed energetically processes happened, and not the power of these processes.

4.2. DETERMINE ELECTRION'S CHARACTERISTICS.

Based on the model EMW ongoing energy processes are reduced to a change in kinetic energy of the carriers of process over time. Carriers of this process are the mass of particles, in this case the electric charge of elektrion, and its speed of movement. The general expression for their relationship is

$$(9) \quad w_k(t) = \frac{1}{2} \cdot e_e \cdot v^2(t)$$

Here is with e_e marked electric charge of elektriona in order to distinguish the value of electric charge of electrons e . Considering the expression (1) can be written that the value of the energy changes over time is according to the expression

$$(10) \quad w_k(t) = \frac{1}{2} \cdot e_e \cdot v_m^2 \cdot \cos^2(2 \cdot \pi \cdot f \cdot t)$$

Integral of this function within the limits from 0 to T has the value

$$(11) \quad W_k(T) = \frac{1}{2} \cdot e_e \cdot v_m^2 \cdot \int_0^T \cos^2(2 \cdot \pi \cdot f \cdot t) \cdot dt = \frac{1}{4} \cdot e_e \cdot v_m^2 \cdot T = \frac{1}{4} \cdot e_e \cdot v_m^2 \cdot \frac{1}{f}$$

If it is about the same energy process then expressions (5) and (11) should give the same value

$$(12) \quad h = \frac{1}{4} \cdot e_e \cdot v_m^2 \cdot \frac{1}{f} \quad \text{or}$$

$$(13) \quad h \cdot f = \frac{1}{4} \cdot e_e \cdot v_m^2$$

In expression (12) magnitude h i e_e have constant size while the f and v_m are changeable. It would have to apply to a wide range of frequencies, starting from 1 [Hz]. In this case, would be to 1 [Hz] existed numerical relationship between Planck constant and electric charge of elektriona

$$(14) \quad h = \frac{1}{4} \cdot e_e$$

what gives

$$(15) \quad e_e = 4 \cdot h = 2,6504252 \cdot 10^{-33} \quad [\text{C}]$$

Left side of expression (13) is a linear function of f with coefficient direction h , and on the right side of a function that is linear in the system v_m^2 with coefficient direction $e_e/4$. These two functions have the same value, the first for series of natural numbers n and to the second for

series of natural numbers n^2 . On Fig.1. are shown values of the these functions for the corresponding natural numbers.

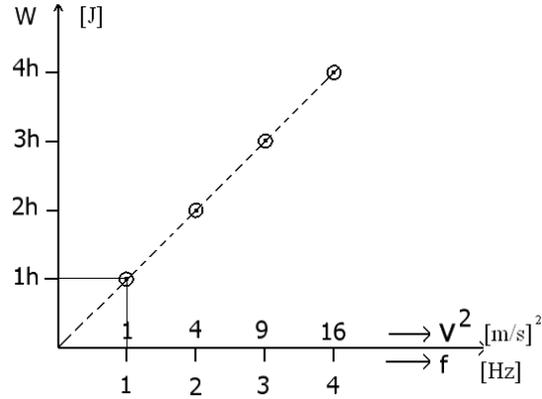


Fig.1. Relationship of energy of the wave function of frequency and velocity of cyclic movement of carrier's waves process.

With such determined a elektrion's electric charge follows the numeric value of the maximum speed during the $T / 4$

$$(16) \quad v_m = \sqrt{f}$$

what can be concluded with Fig.1.

This analysis allows obtaining another magnitude, which is the characteristic of the elektrion as subelemental particle. This is its radius. Using well-known expression for the energy of an electric charge, in this case e_e , accelerated to speed v_m

$$(17) \quad W_{e_e} = \frac{1}{2} \cdot \frac{\mu_0 \cdot e_e^2}{6 \cdot \pi \cdot r_e} \cdot v_m^2$$

If we observe the state of energy during the $T / 4$, when the elektrion's speed achieve maximum value and when the kinetic energy of the amount of WK $(T) / 4$, using expressions (2), (16) and (17) we can write that is

$$(18) \quad r_e = \frac{4}{3 \cdot \pi} \cdot \mu_0 \cdot e_e = 1,4135601 \cdot 10^{-39} \quad [m]$$

This magnitude r_e is a radius of space filled with electric charge e_e . In this way is, instead the photon as physically unestablished carrier of electromagnetic waves, introduced the magnitude with clear physical characteristics and model of the electromagnetic wave processes. This is subelemental electric magnitude named elektrion.

If we want to quantize a charge of the smaller electrical particles that would be an elektrion's charge instead the electron's charge. Anyway electron charge even with the current understanding could not withstand criticism if it wants to designate as a quantum value. According to the standard model is calculated with values of charge $1/2$ and $\pm 2 / 3$ of e at the appropriate quarks so the question is how the value of e can be the quantum value of electric charge. Following that, the electron is not elementary magnitude, because its structure consists of a number of elektrions which is

$$(19) \quad N_e = \frac{e}{e_e} = \frac{1,6021892 \cdot 10^{-19}}{2,6504252 \cdot 10^{-33}} = 6,0450270 \cdot 10^{13}$$

The calculated values are characteristics subelemental electrical particle based on new physical model wave's process, whose carriers are elektrions, and obtained experimental results with the study of electromagnetic waves.

On the basis of this analysis can be found following conclusions that are not in conformity with the existing positions:

1. Carriers of the electromagnetic waves processes are elektrions as a component of SES evenly distributed in the universe and not the photon.
2. The role of the carriers these processes the elektrions perform by oscillation around their balanced position, whereby they generate the variable electrostatic and magnetic field around its path.
3. Elektrion's speed during wave's processes can be higher as the speed of light c by the high frequencies.
4. Electron is not elementary particle, because its electric charge consists of $6,045 \cdot 10^{13}$ charges of elektrions.

The physical image of wave's processes and their correlations with the discrete series of experimental data follows from above conclusions.

From this analysis of Planck constant and the expression for energy EMT may notice another phenomenon also. If oscillation elektrions around their balanced positions basic process of spreading EMT, whose energy depends on the square of its oscillation's speed, then, must be counted in this movement, even on the SEL, there are some resistances to movement that express a certain decrease their speed of movement. No matter how little to reduce the speed of elektrion it will, because of established quantization energy by EMT, leading to a reduction of their frequency. This circumstance must be taken into account when analyzing the appearance of red shift by the observation of radiation of heavenly bodies. This does not eliminate the influence of Doppler effect as the cause of this phenomenon, but is also drawn attention to other possible triggers. This circumstance requires a certain correction to the conclusions related to this phenomenon and its importance for processes in the universe.

5. SPID OF LIGHT.

Presented model of the processes at SEL is in contradiction with existing images of the nature of electromagnetic waves with photons as their carriers. This opens the question of their speed. Already the term speed of EMW associate at the continuous movement of their carriers, which does not comply with the processes shown at the SEL. These are, namely, the complex process that is spreads through space and is based on oscillation of the elektrions around their balanced position, to which is more suitable term spreading EMW. According to these model, it is a chain process which is transferred from the particle to the particle. Essentially it is a continuous transformation of kinetic energy \leftrightarrow potential energy in the rhythm frequency EMW. It is for the speed of spreading important phase of excitation activation of each particles. This excitation is not momentary, it search for a specific time, which can be designated as the time delay in the transfer of momentum by each pair of the observed particles. If we would search for possible influential elements on the size of this delay we would find that they are in electrical characteristics of SES. There certainly are included:

- Density elektrions assigned to SES.

- The energy level of their interaction on the SEL
- Character connections between the components of SES.
- Characteristics of the elektrions, and above all their electrical charge.

Experimental data on a constant light speed in vacuum indicate a high likelihood that these influential factors is stable by normal conditions. On this basis, the speed of EMW could mark the following:

As the speed of spreading EMW can designate an amount of delay in transmission momentum from elektrion to elektrion, under conditions within the SEL, reduced to 1 [s].

Thus defined speed spreading process, not just electromagnetic waves, there is no direct connection with the movement of material structure of different sizes and shapes through a space, and vacuum too. In this case are unacceptable, and the attitudes of the theory of Relativity in which the speed of light represents a significant landmark by observation of movement the material structure and accompanying energy effects. Analysis of this problem is not the subject of this work, but it points to the need to review many of our attitudes, which are the result of applying the theory of relativity to explain some experimental results obtained to investigate.

6. CONCLUSION.

In this article, based on the analysis of phenomena and processes in subelemental level, are expressed more conclusions that are completely or partially disagree with the current attitudes in contemporary physics. I think that they are formulated on the basis of real comprehension of phenomena and processes in nature on the SEL, which is the starting point for everything within Physics. I will not repeat them, but I pointed out the basic starting point in this analyze. The analysis is based on the assumption that the level of events, that is dimensional still considerably lower than the one on which are our current research, but their energy levels are above our assumptions. These conclusions seriously endanger not only individual existing attitudes but also the approach to the study of natural phenomena and processes that modern physics relies. I take the opportunity to draw attention to one circumstance, which is not considered in this work, and refers to the inevitable fact that in nature there are dead and the living phenomenon's forms, which in certain conditions, constantly transforming into one another. Is it not also the fields of physics, perhaps understood a little wider, which would also have to deal with? I am not optimistic that these attitudes may be easily accepted, and I would be pleased that at least partially be considered. At the same time I believe that if we don't do so now this will have to make someone who comes behind us.

REFERENCE

- [1] M.Abadžić: Razmišljanja o prirodi Prirode-1: Pojave i procesi; Beograd 2007 (Concerning Nature: Part 1: Appearance and Processes; Serbian text only)
- [2] M.Abadžić: One step back two steps forward, 16.NPA Conference 2009.