American Journal of Applied Scientific Research
2018; 4(2): 20-27
http://www.sciencepublishinggroup.com/j/ajasr
doi: 10.11648/j.ajasr.20180402.13
ISSN: 2471-9722 (Print); ISSN: 2471-9730 (Online)

On Corresponding Between the "Epochal Character", "Stage" and "Hierarchy" of Physical Theory and Evolution of Material Structure

Yuan Lixin

Shenzhen TELLUS Holding Co., Ltd., Shenzhen, China

Email address:
Wyyw112233@163.com

To cite this article:
Yuan Lixin. On Corresponding Between the "Epochal Character", "Stage" and "Hierarchy" of Physical Theory and Evolution of Material Structure. *American Journal of Applied Scientific Research*. Vol. 4, No. 2, 2018, pp. 20-27. doi: 10.11648/j.ajasr.20180402.13

Received: August 13, 2018; **Accepted**: August 31, 2018; **Published**: September 30, 2018

Abstract: The evolution of the universe has identity with the evolution of material structure. The evolution history of the universe is also a history of the evolution of material structure. The evolution of material structure has the characteristics of the "epochal character", the "stage" and the "hierarchy". The physical theory determined by material structure, also correspondingly has the "epochal character", the "stage" and the "hierarchy" In the process of the evolution of material structure; In the process of physics experiment at present under "extreme conditions", occurring the phase transition of the material structure occurs, and the existing failure of the theory, such as superconductivity, can be defined as an experiment that make the material structure undergo the times phase transformation; We should make an “epochal character” analysis of the phenomena and theories arising from experiments. the "stages" and "hierarchy" are the secondary levels of the "epochal character", which constitutes the completeness of the "epochal character" structure; In the construction of the "epochal character" of the physical theory, this paper discusses the setting up physical elements, experimental items and experimental methods, and discusses combination and intersection of "epochal character", and demonstrates the correlation between the evolution history of the universe and the evolution history of material structure and physical theory, and expands the thinking of the study of physics theory.

Keywords: The Evolution of Material Structure, Hysical Theory, Epochal Character, Stages, Hierarchy, Failure of the Theory, Phase Transformation, Combination and Intersection

1. Introduction

On the evolutionary theory of history, existing the evolution history of celestial bodies, the theory of biological evolution and the history of social development. people put forward the evolution concept of celestial bodies, the author thinks substantive content of the evolution of the universe have not been established. The evolution of the universe should be the evolution of material structure and material structure energy with time, thus dynamics and trend of the evolution of the universe is determined.

There is a fundamental problems in the modeling of the evolution of the universe: although people think that the evolution of the universe is dynamic, but they have constructed a static model of the universe. In the specific construction of the cosmic static model, the following examples can be seen: first, People think to exist an insurmountable interface between radioactive and non-radioactive elements, and can do not conversion, and the half-life theory of radioactive elements is derived from this; A constant system from microscopic to macroscopic is established, such as gravitational constant, Planck constant, speed of light, electron charge, vacuum dielectric constant etc. Since the physical constants do not change, why does the universe made of physical constants change ? The universe constructed by physical constants must be a static universe, but the universe that we live actually is a dynamic, expanding universe, the dynamics and the expansion of universe which are driven requires energy. Where is the energy that drives the universe and how is it released? These all need to have a correct understanding and to make a reasonable explanation. Otherwise, we can not grasp the trend of the universal

development, or we can not grasp the trend of the evolution of material structure.

The gravitational constant decreases year by year through the analysis of the orbit between the earth and the moon [1]. In other words, the change of physical constants has deermined the structural change of matter, and thus determines the evolution of the material structure, that is, the evolution of the universal structure. The energy that drives the universal development is stored in the material structure. to the decrease of the gravitational constant, the energy stored in the material structure, or the original energy[1,2], is released. The dynamics and evolution of the universe are driven by the original energy, forming the dynamics and evolution of the universe; the gravitational constant decreases with time, the internal structural energy continuously released, which makes the continuous relaxation and expansion of the material structure. It shows that the radioactive elements and stable elements in the periodic table of elements are relative, not absolute. Non-radioactive elements will also be converted to radioactive elements with time[1]the stability of the universe and material structure that we construct with physical constants should be relative, a time period, not absolute; we are not difficult to find out that the thinking for the "unified field theory" should also be establishment on a static basis. At the same time, the author believes that there are still many problems in the construction of the basic theory of modern science, which is far from the completeness of the basic theory. In this sense, there is no theoretical basis for the construction of the "unified field theory". In conclusion, several problems should be solved in terms of understanding: the first, the identity of the universal evolution is determined by the evolution of the material structure;the second,it is the unity between the dynamic universe and the understanding; The third,it is the unity between universal evolution and the basic theory of the material structure evolution established by us.

This paper discusses the identity between the material structure, structure energy and universal evolution, and the unity to the evolution of material structure and physical theory. Based on the correspondence between material structure, evolution of structural energy and physical theory, the analysis of "epochal character", "stage" and "hierarchy" of physical theory is carried out. On the basis of this, the author makes a discussion to the intersection between the physics disciplines and the related experiments, and to a series innovation of the theories at discipline and the material.

2. The "Epochal Character" of the Physical Theory

The study of the "epochal character" is not based on scientific theory, but on physical theory, because physics is the basic science for studying the basic laws of matter and motion. The contents of its research include the structure of matter, interaction, the motion form and the transformation between them. Physics is concerning the thinking about the material composition of basic unit, comprehensive motion and law. “The intersection and combination for physics and other disciplines is the inevitable trend of the development of science in the new century, which will greatly promote to physics itself and other disciplines” [3]. The study of "epochal character" with physical theory is easier to make substantive expansion, in terms of generality and particularity, abstraction and specificity. At the same time, there is a direct relationship and intrinsic identity between the evolution of the universe and the evolution of the material structure. Physical theory as a research discipline which study “epochal character”is the most suitable subject for the evolution of the material structure.

The history of social development and theory of the "epochal character" of social development are relatively mature. It is helpful to understand the "epochal character" of physical theory by comparing it with the "epochal character" of physical theory. In the history of human society, society called "epochal character" has primitive society and class society. In the class society, the "stage" social system exists in the slave society, the feudal society and the capitalist society. In these three different "stages" society, the main class contradictions of the "hierarchy" are the slave owners and the slaves, the landlords and the peasants, the capitalists and the workers.

The simplest way of dividing the history of material structure into the "epochal character" is to divide the time into three periods of the past, present and future, and the three periods are called,in this paper, " past world", " present world" and " future world".

The transformation of elements from radionuclides to stable nuclides is a mutational and discontinuous process, and the fission made the theoretical description of the nuclide into the "present world" from the "past world". Strictly speaking, the radioactive theory of nuclides does not belong to the theory of "the present world", but at least belongs the transition theory from "past world" to " present world". Energy conservation is a general concept. The energy conversion is obtained by detecting the kinetic energy of radionuclide fission fragments. Such as the most typical asymmetric splitting in thermal neutron fission [4]:

$^{239}_{99}U + ^{1}_{0}n \rightarrow ^{139}_{57}La + ^{95}_{42}Mo + 2\,^{1}_{0}n$, in the formula, $^{235}_{99}U$ fission produces the non radioactive nuclides $^{139}_{57}La$ and $^{95}_{42}Mo$. However, this process of fission and transformation of the nuclide structure is a step forward, and it can not be explained continuously by our present theory. Therefore, this transformation has the significance of "epochal character". The energy level of the material structure in nature constitutes its "epochal character"[2, 5], and expand with "stage" and "hierarchy". During the transition, the material structure will appear transition elements between two different"epochal character". For example, the radioactive element in the periodic table is the transitional element from the "past world" to the "present world", or the residual element of "the past world." The transformation of material

structure from "past world" to "present world" is a transformation from high-energy structure to low-energy structure, or called decay.Such decay law not only determines the evolution trend of material structure and structural energy, but also determines the direction of cosmic evolution. The low-energy level elements in "present world" are not able to enter the state of high-energy elements in "past world" by natural transition [1]. On this point, we must have a clear understanding.

Nuclear power generation and nuclear fission of atomic bomb are all artificial ways to promote the nuclear structure to break away from natural decay, shorten the natural decay time of radioactive elements, release the structural energy stored within the elements, and make the elements quickly enter "present world" state from intersection of "past world" and " present world". The transformational process for the natural decay of radioactive elements into non-radioactive elements has revealed the natural evolution of elements from heavy nuclei to light nuclei. The generation of artificial heavy nuclei makes the particles enter "the past world" from "the present world", or from intersection state of "present world" and " past world", and rapidly decay to reveal the transformation of "epochal character" for the material structure and the structure energy.

The matter forms superconducting at ultra-low temperature, and the electromagnetic theory fails now. The matter of "present world" enters "future world" under extreme conditions. Therefore, the theory of "present world" is not applicable to "future world", and it should not be suitable for "the past world". At least, it should question its generality or universality. "At present, the international nuclear physics community generally believes that the hot spots and opportunities of the current physical research include the following 4 aspects: the nuclear structure in extreme conditions, the dynamics of the quark in the nucleus, the relativistic heavy ion collisions and the quark gluon plasma, and the nuclear astrophysics. In general, the current trend of study on nuclear physics is to develop towards extreme conditions (high energy, high temperature, high density, high spin, far away the stable line, the overweight nucleus, etc.) and the combination of two directions with particle physics and astrophysics" [3].The super times of modern physics can be seen from the understanding of modern physics and experimental description. The study of the material structure of the"present world" under extreme conditions is in essence a study of interdisciplinary across "epochal character". Science not only finds new phenomena, but also makes it possible to invent and construct new phenomena. As a result, the French philosopher Gaston Bachelard put forward the concept of phenomenal technology , for microphysics, existence is neither within nor outside phenomena, but the product of phenomenological techniques of microphysics. In other words, science is not a phenomenon of discovery, but a phenomenon of construction

With the deepening of human understanding to nature and the renewal and innovation for concepts and experimental methods, Experiments such as ultra-high energy levels, various intersections, and intersections have brought scientific research into a new times.

Some experiments have entered to the research field of cross times, and formed a new physical theory of the times. history of science and technology created by artificialness, and the "epochal character" of research that is realizing across-"epochal character" has come.

3. Correlation Between the Evolution of Cosmology and the Evolution of Material Structure

The history of the cosmological evolution and the history of material structure should be identical. The history of the evolution of the universe with essential content should be made up in the following aspects:

3.1. The Process and Trend of the Evolution of the Universe

The evolution of material structure and structural energy should correspond to the history of the evolution of the universe, and determine the process and trend of the evolution of the universe [2, 5].

3.2. Relevance of "Epochal Character"

Physical theory corresponds to "epochal character" of evolution of material structure and structural energy.

3.3. The Difference Between the Three Periods of Time in the Physical World and the "Epochal Character"

With the present as the reference, In order to analyse easily, the evolution of material structure and structural energy are divided into three periods in "past world", "present world" and "future world", and this is not the same as "epochal character" in a sense. "epochal character" refers to the new physical phenomena and laws that cannot be explained by the original theory, The same material is in two different"epochal character", and formed into two different material structures corresponding to different physical theories.

3.4. Physical Theory Should Contain Time Factor

Physical theory associated with cosmological expansion should contain time factor. The physical theory without time factor is only in accordance with the approximation of a period of time during the evolution of the material structure and structural energy, but it does not have the general meaning of the evolution of the material structure and structural energy with time.

3.5. The Non-uniqueness of Physical Theory

The physical theory corresponds to the "epochal character", different the times correspond to the different physical theory, as a result, the physical theory in the evolution of the universe is determined to the non-uniqueness. For example,we not only

accept the superconductivity theory of material phase transitions at ultra-low temperatures, but also accept the Ohm's law at conventional temperatures. The superconductivity theory has cross the times. Although correctness of the both have been chosen, we did not realize that this is the choice of the "epochal character" on our physical theory.

4. On the Combination Mode of the Intersection of the "Epochal Character" and the Design of Physical Experiment

4.1. Setting up Physical Elements, and Determining Experimental Combination by the "Epochal Character" of the Evolution of Material Structure

Experimental combination mode are set as follows:

(1) Mass m

(2) Electric quantity q

(3) Force F

(4) "Past", high temperature (${}^0C_1$); "now", normal temperature (${}^0C_2$); "future", low temperature (${}^0C_3$).

(5) "Past", high pressure (P_1); "present", constant pressure (P_2); "future", low (P_3).

(6) Electric field E

(7) Magnetic field B

(8) Argon-arc plasma field PF

(9) Ultrasonic wave KH_Z

(10) Light energy hv

(11) Density ρ : "past", high density structure (ρ_1); "now", constant density structure (element periodic table) (ρ_2); "future", low density structure (ρ_3).

(12) Speed V : "past", high speed V_1 ; "now", constant speed V_2 ; "future", low speed V_3

(13) Combination form the Experimental element i : single (single element) i_1 , composite (multielement) i_2 ,

(14) The representation of element state , such as the moving mass: m_v

(15) Experiment of particle collision A

(16) Setting up the experimental project: gravitational F_G ; superconductivity SQ ; new particle J ; new materials(including synthetic material K ; study of quark-gluon plasma state and its possible phase transition, at extremely high temperature and very high density [3]) L .

(17) General combination of experiments: experimental elements (mass, charge, etc.) + structure of experimental elements (singularity, compounding, density, etc.) + experimental environment conditions (temperature, pressure, electromagnetic fields, etc.) + experimental methods (contact type-particle collision, Non-contact-gravity, electromagnetic force) $+\cdots+\rightarrow$ experimental purpose.

(18) The combination of several experiments.

a Combination mode of the particle collision:

$$J = f\left[m_v\left(m_{v_1}, m_{v_2}\right), {}^0C\left({}^0C_2, {}^0C_3\right), P\left(P_1, P_2, P_3\right), A\right]$$

b Superconducting combination mode :

$$SQ = f\left[m, q, {}^0C\left({}^0C_2, {}^0C_3\right), i\left(i_1, i_2\right), P\left(P_1, P_2, P_3\right)\right]$$

c A moving object should produce a vortex gravitational field, and the moving object in this field will be generated[8,9]:

$$F_{G_V} = f\left(m_{v_1}, m_{v_2}\right)$$

(19) The "times" experimental combination of the "monatomic phase" of metal hydrogen superconducting state:

$$SQ = f\left(m, i_1, {}^0C_2, P_1\right)$$

The metal hydrogen of "monatomic phase" has very strong electron-phonon interaction[10], which leads to its high superconducting transition temperature, that is, the superconducting transition temperature of 291.40 K is close to room temperature when P = 539GPa, so it is a potential room temperature superconductor.

(20) Scientific experiments on the intersection with "times" and across "times".

It is easy to produce new scientific discoveries by intersecting different disciplines with "times" and across "times". However, this kind of intersection is divided into the intersection with "times" and across "times". superconductivity is the intersection across "times".

(21) Scientific innovation at the intersection of the times.

When the physics experiments is across the “times”, the conclusion of the physical experiment is beyond the "times". Thus, the intersection of the "times" should be a rich field of scientific innovation.

The times intersection for scientific discipline, and innovation for scientific discipline.

(22) In the discipline innovation of the future science, the innovation of the discipline intersection of same "times" is an important field. “in the development of physics, many of the most important scientific issues may be more interdisciplinary. The prosperity and development of interdisciplinary disciplines will make the boundaries of science dissolve, desalinate, which promote a closer and more substantial relationship, and can lead to a new breakthrough in natural science research” [3]. Experiments and innovations for science and disciplines can be realized according to the requirements, such as the setting of physical elements, the increase and decrease of relevant physical quantities, and the choice of experimental combination methods.

4.2. The Discussion for the Physical Elements

(1) Physical elements can be single elements or multiple elements, or materials, such as alloy materials, semiconductor materials, etc.

(2) As long as present materials enter the future state at low-temperature, the intersection appears between the present and the future, and can do related research according to the requirements.

(3) Radioactive elements are transitional elements from the past to the present. The radioactive elements are polonium and uranium, etc. polonium is a typical transitional element, because bismuth is one electron less than polonium as a stable non radioactive element.

(4) For the comprehensive study of multiple physical elements, Matrix and other methods can be used.

(5) Theoretically speaking, as long as reaching the critical point of "times" for physical conditions of experiment will produce new phenomena and laws which cannot be explained by theory now. Because the new phenomenon is across "times", its existence condition must be harsh, once its generating condition is not satisfied, the new physical phenomenon and law will disappear quickly. For example, the half-life of the artificial element Mt is only 3.4 Ms.

(6) The discussion for the dark matter is very heated now, Whether a physical phenomenon must correspond to a substance or not?

Looking at the following general description of dark matter, we have reason to query the explanation for matter uniqueness about the dark matter. First of all, "dark matter has the characteristics of uncharged, non luminous and non absorbable light, stable, and no strong interaction except gravity"[3]. Secondly, "if we find a particle predicted by some new physics in the Collider (stable and neutral), it is likely to be a particle of dark matter"[3]. On the first point, since dark matter is mainly manifested as gravity, this is the result of some kind of gravitational effect that we do not yet know[8,9], not necessarily something material, or at least part of dark matter is the result of some kind of gravitational effect; on the second point, Since the Substances produced by ultra- high-energy collisions may be super "epochal character" , the existence of such ultra-high energy matter in the" present world "should be unstable. How can this impossibly large amount of matter produce the effect of dark matter that we think it does? Moreover, since dark matter is neutral and has a gravitational property, why is it not reflected in the operation of the planets of the solar system? is There not dark matter in the solar system? Therefore, the thinking of present research and the existence mode for dark matter should be queried.

(7) Relationship between pressure and the phase transition of material structure.

Pressure and temperature are two important environmental factors in modern physical research. As following 2 examples show the relationship between pressure and material structure: First, the radius of silicon ion and oxygen ion are decreasing with increasing pressure. The reduction rate of silicon ion radius is smaller than that of oxygen ion radius [11]. Second, under the condition of constant temperature, when high pressure is applied, phase transformation of solid materials will occur. This important phenomenon has attracted extensive attention in experiments and theoretical circles. Some processes of geophysics and the formation of certain minerals are directly related to this phenomenon. high pressure considerable amount of material occurred phase transition observed in experiments. example SiO2, GeO2 and Ca (OH) 2 and alpha AlPO4 system, amorphous phenomenon is induced by the system pressure. that is, it becomes an amorphous solid, under the condition of constant temperature and high pressure. These phase transitions can be divided into two types. One is irreversible. When the pressure returns to the normal pressure condition, the new high-pressure phase can continue to be stable, such as the SiO2 and GeO2 systems. The other is reversible. The new high-pressure phase for α-AlPO4 can not exist under normal pressure. If a single crystal is initially used for the pressure test, the restored crystalline structure has the same crystal orientation. Therefore, α-AlPO4 is said to be a material with "structural memory"[12]. This experiment can simulate the structural change of rock under high temperature and high pressure in the earth. It should be a realistic research. The corresponding experimental methods are: $K = f\left[m, {}^{0}C_2, P_2, i\left(i_1, i_2\right)\right]$.

(8) When making experimental settings for the material structure "past world", "present world" and "future world", we must realize that our experimental basement material is based on "present world", and thus discovered the current physical phenomenon. That is, the phenomenon of superconductivity is the combination between the material at the "present world" and the environmental conditions of the "future world". The physical conclusion of such a physical condition setting itself is the intersection of the "present world" and the "future world." From the natural evolution of the material structure, it is known that when the material of the "present world" evolved into the "future world", the structural energy had been released completely already. Therefore, we may not see the superconductivity phenomenon we see now, even under condition of ultra-low temperatures in the "future world". that is to say, we must have a clear understanding and orientation to the setting of experimental conditions and the acquisition of physical theoretical conclusions.

5. The Historical Process of the Evolution of the Material Structure and Structure Mode

5.1. The Correlation Between the "Epochal Character", "Stage" and "Hierarchy" of Physical Theories

(1) The"epochal character" characteristics: there are

completely different phenomena and physical laws, such as Ohm's law and superconductivity; the same substance, under certain environmental conditions, has a physical theoretical difference and a related physical theory, which is called the "epochal character". The synthetic superheavy nuclear elements are the elements of the "present world" that are artificially transformed into the "past world" of high-energy structures. The elements in the "present world" are transformed to high energy structure by artificial means into elements of the "past world". when such artificial elements enter the "present world", they will quickly release their nuclear energy, and decay into the general elements of the "present world", and realize the same as the "present world" nuclear structure. Compared with the stable material structure of "the present world", superconducting and artificial radioactive materials are in different "times". However, due to the different objective environment, this "times" may have a relative significance. For example, in the high density, high pressure and high temperature star nuclei, the radioactive element polonium (Po) we see on earth may be a non radioactive element. The superconductivity phenomenon is a physical phenomenon for the material of the "present world" in the environment of "future world" .

(2) "Stage" feature: the physical theory identified as "stage" has two characteristics, one is the time difference; the two is the theoretical difference. Such as mechanical energy and nuclear power, Newton kinematics differs from the special relativity. The "stage " has a certain time-order and a qualitative difference in the structure under the same background. The "stage" has the characteristics of gradual development with the ”hierarchy”of energy level. For example, material structure changes from high energy to low energy step by step as follows: the quark structure, the nuclear structure, the atomic structure, and the molecular structure.

(3) "Hierarchy" characteristics: The object of discussion is contemporary, but it has structural differences. For example, the difference between the atomic structure and the molecular structure. The key is the energy level approach. The "Hierarchy"difference consists of the upper and lower, left and right, and parallel structures, Such as electron levels in atoms and molecules, etc. However, when the upper and lower structures reach a certain “hierarchy” difference, the "stage" structure will be formed. For example, Comparing the molecular, the nuclear with the quark structure, the quark structure have the so-called the problem of quark confinement . The discipline theory of a times has its representation of "times", such as the periodic table of elements for physics, and genetic DNA for biology.

(4) Correlation between "stage" and "hierarchy"
The theory of physics exists not only in "stages" but also in its "hierarchy". If there is a "stages" difference between the high-energy physics and the "classical mechanics" theory of physics, The "classical mechanics" theory of "hierarchy" consists of Newtonian mechanics, statics, dynamics, acoustics, fluid mechanics, continuous medium mechanics, and electromagnetic. At the same time, the "stage" and "hierarchy" of the material structure are also related to the state of the research objects. For the study of general strong and weak electricity, it belongs to the "classical mechanics" level, and the study of "electromagnetic" in the state of high energy physics has a "stage" difference, which is the intersection of "stage" and "hierarchy",and the intersection of material structure and physical theory.

(5) Analysis of the "epochal character", the "Stage" and the "Hierarchy" by energy of Material Structure
In the process of natural transformation, radioactive nuclides decay into non-radioactive nuclides, that is, nuclides, from the boundary state, is transition from the "past world" into the "present world" by natural transition. There is difference of structural energy level in "epochal character" between radionuclides and nonradionuclides nuclides. With "epochal character", the structural energy level is the largest; the "stage" is second; the "hierarchy" has the least difference in energy levels, or the same energy level. There is a difference of energy level between the Atomic energy level and the molecular energy level, which is the energy level difference between different "hierarchies" of the material structure. Due to the existence of difference of energy level , the material structure of essence different between the Atomic energy level and the molecular energy level is formed, and constitutes the operation law and theory with different structures in "hierarchy" .

5.2. The “Stage” Comparing Newtonian Motion Mechanics with Einstein's Special Relativity

Theories of Newton's three laws of kinematics and Einstein's special relativity are belong same times, but their“stage”is different. First of all, the former describes the macroscopic movement rule of the object, and the latter focuses on the running rule of the object at the speed of light or near the speed of light. Second, from the general consideration of the space-time structure, the former is a three-dimensional space, the latter is a four-dimensional space-time, and the latter's theoretical inclusion is greater than the former. The former is an approximation of the latter at a low speed. Newton's kinematics focuses on the macro movement in the "present world"; Einstein's special relativity revealed the relationship between the mass energy of matter: $W = mc^2$, and thus realized mankind's research and application for nuclear energy. Since radionuclides are substances in the intersection of the "past world" and "present world", the theory of nuclear energy released and fission has the "times" characteristics of the "past world"

theory. Therefore, although the two theories are in the same "times", they have obvious the "stage" differences.

5.3. The Release of Material Structure Energy and the Order and Disorder of Material Structure Evolution

It is very important to understand the identity between material structure and the energy of material structure. This is the basis for understanding the evolution of the universe and establishing the identity of the evolution of the universe and the evolution of the material structure. The material structure is from high energy structure into low energy structure [1] by released energy of structure, and Forming the secondary structure and secondary structural energy, which determines the general trend of the evolution of the universe. This is also a process of trend in which material structure and structural energy change from order to disorder. The evolution of material structure and structural energy is composed of the interweaving and alternation with modes at orderly, disorderly, stable and unstable, as well as the transformation of the structure at "stages" , and the energy levels are falling step by step, and completed its trend evolution process. When energy is input to the material structure, its structure will be converted to high energy structure under certain conditions.For example, high-energy particle collisions produce artificial elements of high-energy; laser is a system that is far away from the thermal equilibrium. When the input energy satisfies the inverse condition of the number of particles of the laser material, the system is converted into an ordered structure and the laser is emitted. Although the sun is a nuclear reaction and exports nuclear energy, it is undeniable that the sun is a giant system of ordered nuclear reaction with negative feedback to maintain its stability. Another example, decay of radioactive nuclide, early stage, is orderly, but it is disordered in the state of nuclear fission. After nuclear fission, the stability of the secondary nuclides formed is orderly and stable. The nuclides entered a relatively stable secondary structure with "stage" , and to enter the evolution of the material structure and structural energy in the next round. We should realize that the so-called open system is the absorption system of environmental energy, Such as dissipative structure, self organizing system and artificial system. The energy sustaining the operation of these systems comes from the energy released by the decay of natural material structures. The opening system absorbs environmental energy in order to resist the degradation of the system, to maintain the order and to make the system evolution. However, the energy conversion efficiency provided by environmental energy for opening systems is very low [2].Without the energy release of the original energy [2] in the environmental material structure, there is no existent basis for the orderly operation of opening systems. The decay of the structural energy of the universe and the degradation of material structure are the general trend of the development of the universe. We must have a deep understanding for this. This is the basic point for our scientific research and thinking.

6. Conclusions and Discussions

In physical research, the material structure and structural energy are bases of the the evolution of the universe; it's identical between physical theory and evolution of material structure; corresponding with evolution of material structure "epochal character", "stages" and "hierarchy" has determined for the "epochal character", "stages" and "hierarchy" of physical theory; the research results obtained by the evolution of material structure under "extreme conditions"of "epochal character" have the significance of"epochal character". Different "epochal character" have different physical laws, which are relatively independent, and are connected, transitioned, and transformed at their "epochal character" interface. At the same time, it must be noted that some physical experiments under "extreme conditions" do not necessarily reproduced the past. Because we can not confirm that some kind of physical environment under "extreme conditions" must be existent in history of evolution of material structure. Such as super electric field, super magnetic field environment, its existence in the history of the evolution of the universe is worth discussing. Therefore, the "extreme conditions" set by artificially can not be completely equivalent to the actual existence of the evolutionary history of the universe. Moreover, there are high temperature, high pressure, electric field, magnetic field inside the sun, earth and other celestial bodies , which are also the actual environment that's we are difficult to simulate in the "present world ". In scientific sense, artificial high energy, high pressure, high temperature, super low temperature, strong electric field, strong magnetic field, etc, and creating new species by genetic changes in living things, artificial methods have achieved the supernatural and created nature.

The foundation of the experiment in "extreme conditions" is based on the present, on our environment in which we live. Through scientific and technological methods, through intersecting with the "present world" and " past world", " present world" and " future world", " past world" and " future world", " past world" and " past world", we have realized our understanding of the past, the present and the future, and reproduce the history, and have innovated science and technology. The success of the application of superconducting technology means the success of science and technology across the "epochal character".

The intersection of "epochal character" is the intersection of material structure of different "epochal character", which cannot be formed in natural state. Because, in the natural state, the material structure synchronized with the evolution of the universe belongs to the same times. The identity between same times and natural evolution of the material structure makes it impossible to existed intersect of the material structures of different times in a natural way.

Therefore, the physical theory established on the basis of the "present world" loses its foundation of existence when it lies in the intersection the theory defined by the "past world" and the "future world". The particles produced by the collision of the particles with ultra-high energy are surreal,

therefore, the existent time of the particles produced is very short，and has not basis of existence in"present world". If we take this kind of substance produced by the environment of ultra-high energy is existent substance in reality, it is a misunderstanding at matter and structure in directivity. It is not also right obviously to think this substance of high-energy created by artificial is the dark matter in the general universe environment.

This is the basic understanding for the "epochal character" of material structure. But some substance of supernatural in the supernatural environment may be also existent, such as within the star. to the phenomenon and physical characteristics of dark matter, dark matter should be existent, but why can it not be observed? Therefore, we should consider whether there are some basic theory problems in our understanding of dark matter. the basic theory, the author believes that there are many questions to be questioned, such as Gravity theory[8, 9] electromagnetism, the "tunneling effect" theory of quantum mechanics should be also questioned [13, 14].

It is very important and necessary to understanding the identity between evolution history of the universe and evolution history of material structure and structural energy, and The Construction of the characteristics of “epochal character”in physical Theory.The energy that drives the evolution of the universe exists in the structure of matter [2, 5].The fundamental of the evolution of the universe is the continuous release of the energy in the material structure and the formation of the secondary structure, which continues repeatedly and completes the whole process of the evolution of the universe. This process corresponds to the “epochal character”, "stage" and "hierarchy" at physical theory. The history of the evolution of material structure is discovered from the reproduction of the "past world"; The "future world" of material structure is created by expanding intersection of the “epochal character” at the material structure .

On scientific research, the realization of the intersection from cross-“epochal character”can not only expand the perspective of scientific research in a forward-looking way, but also set up scientific research topics in a broad, pluralistic and open manner, and thus produce many new phenomena and new theories, and realize new discoveries and innovations in science. It also brings achievements in new particles, new structures, new materials, and new technologies. These should be the direction of contemporary physics research.

References

[1] YUAN Li xin. Radioactive decay of the nuclides in the process of gravitational constant decrease. Journal of Yunnan University (NATURAL SCIENCE), 2009, 31 (3): 252-260. Magazine address：kunming,Yunnan Province, China.

[2] YUAN Li xin. The original energy, the original energy system and the evolution. Journal of Anshan Normal University, 2013, 15 (4): 5-10. Magazine address：Anshan, Liaoning Province, China.

[3] National Natural Science committee of China, Chinese Academy of Sciences. Physics China's strategy for scientific development in the next ten years. Beijing: Science Press, 2012.

[4] GUO Jiang, ZHAO Xiao feng, PENG Zhi-xing. Atomic and nuclear physics. Beijing: National Defense Industry Press, 2010. Magazine address：Beijing, China.

[5] Yuan Li-xin. Quark decay and its decay model. Journal of Changchun University, 2014, 24 (6): 774-779. Magazine address：Changchun, Jilin Province, China.

[6] DUAN Wei wen. Acceptable Science: Reflections on the foundation of contemporary science. Beijing: China Science and Technology Press, 2014.

[7] LI Chuan jun,REN Zhong ming.Progress in the research of phage transformations in high magneticfield. Journal of Shang hai university,2011,17(1),21-34. Magazine address：Shang hai, China.

[8] YUAN Li xin. Establishing the vortex gravitational field and the unity of the operating mechanism for the Mercury precession and the earth precession. Journal of Yunnan University (NATURAL SCIENCE EDITION) 2012.34 (S1): 24-32. Magazine address：Kunming, Yunnan Province, China.

[9] Yuan Li xin. Foucault pendulum precession, atmospheric cyclone and oceanic circulation under the gravitation of vortex. Journal of Jilin Teachers institute of engineering and Technology, 2014, 30 (8): 90-96. Magazine address：Changchun, Jilin Province, China.

[10] YAN Yan, WANG Li li. Ab initio calculatins of monatomic metallic hydrogen. Journal of Jilin Normal University (natural science edition), 2012, Fourth: 32-35. Magazine address：Siping, Jilin Province, China.

[11] SHI Ni-cheng, LI Guo-wu, MA Zhe-sheng, XIONG Ming. High pressure phase transition crystal chemistry: I. changes of ionic radius and migration behave in Sio_2 phase under high pressure. Journal of mineral, 2010, 30 (3): 355-360. Magazine address：Beijing, China.

[12] XU Hua. Research on the reversibility of phase transition in solid material under high pressure. Journal of Changshu college, 2000, 14 (4): 45-48. Magazine address：Changshu, Jiangsu Province, China.

[13] Yuan Li xin. A Study on current transmitted in conductors as displacement current. Journal of Jilin Teacher institute of engineering and technology, 2015,31 (8): 91-96. Magazine address：Changchun, Jilin Province, China.

[14] Yuan Li xin. A study on fundamental theories of “tunnel effect”. Journal of Jilin Teacher institute of engineering and technology, 2016,32 (2): 83-86. Magazine address：Changchun, Jilin Province, China.