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First-Particle Created In the Big Bang Explosion

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ABSTRACT :*In this study, a mathematical model was developed for the "first-particle" formed just after the Big-Bang explosion. The variables of the model were determined as energy, binding energy, speed, mass and frequency, and the functional relationships between the variables were also defined. This equation is then generalized to any particle. While the masses are accelerating, the volume decreases and the number of particles decreases, while the masses slow down, the volume expands and the number of particles increases. Thus, the structure of matter and the number of particles also change depending on the speed.*

Two types of energies emerged from the Big-Bang explosion. The first is heat, heat or hot energy, and the other is cold or cold energy. There are at least 21 different types of matter and energy in total, at least 10 from the hot energy, at least 10 from the cold energy, and at least 1 from the transition zone in the middle of these two regions. The formation, atomic structure, number of particles and energies at each stage are also different from the others. The structure of matter in the universe, its atomic structure and the number of particles in this structure are never constant and the same. The number of particles in the energy of matter decreases or increases depending on the conditions. All kinds of visible, invisible, measured and unmeasurable energy, power and force are special forms of the first-particle.

KEYWORDS *First-particle, particle, astrophysics, energy, atom, universe*

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I. INTRODUCTION

There are many different views and theorems regarding the formation of the universe. The most widely accepted among these is the Big-Bang theorem. It is also known that this theorem does not offer a solution for some cases. However, this theorem is more widely accepted than the others.

There are many different theorems in physics today regarding the atomic structure of matter. Among them, the more accepted standard model and quantum model. Although these two models are accepted as current, it is stated in open sources that they do not respond to some situations. The biggest reason for the acceptance of the quantum model is a series of new technology areas where the technology of the future will consist of quantum computers, quantum networks, quantum encryption, quantum electronics, quantum sensors and quantum chips. For this reason, intensive research studies and experiments are carried out in this field.

It is accepted that there are different structures of matter in the universe. A few known examples of these structures are dark matter, dark energy, black holes and white holes. However, no real experimental observation results regarding their structure and existence have been obtained so far [1-13]. However, more theoretical views and ideas have been formed regarding their existence. As we find traces in the universe that we think are remnants of the past, the past events will also be enlightened [14-18]. It is given on NASA's Web page that ancient remnants have been observed to support a warm cosmic microwave background and a cold cosmic microwave background. If there is only one real situation known today, the idea that the universe is complex and that the structures can be very different is dominant. The main reason for this is that we do not have a chance to conduct a universe experiment in the laboratory. We only collect and evaluate information from the universe through different technological systems, then interpret, decide and produce theorems. We don't know yet if all of these decisions are correct.

Various ideas, opinions, interpretations and theories about the structure, formation and expansion of the universe are given as reference [19-36]. Different views on the Big-Bang explosion are also given on NASA's Web page [32-34]. These are all just opinions, thoughts, ideas, and just brainstorming about the formation of the

universe. None of these are absolutely true. Because we do not have a chance to do the universe experiment and repeat it.

Although there are different opinions that the velocity at the time of the big bang is between $10^{30}\,Km/s$-$10^{99}\,Km/s$and the temperature between $10^{12}\,K - 10^{45}\,K$ in open sources, $10^{12}\,K - 10^{32}\,K$ is more accepted [21]. It is emphasized that the laws of physics are invalid at the moment of the big bang, and the rules of astrophysics are valid. The big bang is an astrophysical event, and therefore the nature of the event is very different. It is claimed that extraordinary information has been obtained regarding the formation of galaxies. Images of NASA (cosmology history, WMAP image) indicate that there are small particles early in time.

According to the Hubble expansion constant, the expansion of the universe is claimed to be between $70 - 500\,Mpc$. If the universe is expanding at this rate, its equivalent is $2{,}11\times10^{21}\,Km/s - 1{,}5\times10^{23}\,Km/s$. We think that the formation and shaping of matter occurs at very high speeds. The formation and structure of the particles of matter occurred at a much higher speed than this speed, and this speed is now the stable speed of the system. For this reason, the formation of the universe and the formation of matter occurred under previous conditions. If conditions greater than the previous initial conditions occur, a new formation in the basic units of matter should be expected.

The Standard model in physics consists of a mathematical approach in accord with observed phenomena [36]. A universal rule in particle physics states that when particles increasingly collide with each other, the effect of the collision is determined by the smallest structures in space-time. For this reason, the protoparticle of matter combines to form the new structure. In this case, it is the smallest pro-particle that shapes matter. Studies on the first-particle (elementary particle) and the structure of light, the bending of light [37-40], the existence of masses moving faster than light (tachyons), and the speed of light can be infinite are given in the sources [41-43]. For this reason, it may not be appropriate to accept the speed of light as the reference speed in the structuring of matter.

The first particle is present in the formation of all particles. A larger super particle was formed from the merger of multiple first particle, and a new larger super particle was formed from the merger of these super particles. Stabilizing this formation of matter, galaxies or stars has reached its final structure on the server. In other words, the substances or general structures that we see and measure in our world, in our universe, are atomic and molecular structures in a stable state under present-day conditions. It may be possible to find the same structures everywhere in the universe where the same conditions exist. However, the first particle cannot be measured with today's technological measuring instruments under normal conditions, they emerge in the very deep structure of matter when large structures are broken down. In today's conditions, it is not possible to obtain the first particle. Because it will never be possible to reach the energy, pressure, speed and temperature in the initial conditions in today's world technological conditions.

II. FIRST-PARTICLE CREATED IN THE BIG-BANG EXPLOSION

Physical and chemical events in our near universe and on our Earth are happening in the atomic dimension of matter. Although we know very few particles that make up the atom, we do not yet know the number of unknown and unmeasurable particles. A lot of different theoretical information is produced to describe these particles that we do not know and cannot measure. The most obvious example of this is in the results of the experiments conducted at CERN, many unknown and unidentified particles are encountered. It has been explained that definite results can be reached after years of studies with the data obtained in the experiments carried out at CERN. The results obtained here were obtained only under these experimental conditions. However, the events in the big bang took place at the "first particle" level of matter. In later events, this particle combined to form larger particles, and newly formed particles combined to form larger particles. This upper particle formation continued as a chain in the process over time. Ultimately, the atomic structure of the matter we know or think we know today was formed. This structure is the stable structure of matter at rest.

The first particle was formed immediately after the Big-Bang explosion. This particle has been called the "first massive particle" or the fundamental particle. The calculated sizes of this particle, the mass corresponds to $1{,}5\times10^{12}\,K \rightarrow 5{,}600119035\times10^{-80}\,gr$ and $1{,}5\times10^{32}\,K \rightarrow 8{,}40185525\times10^{-98}\,gr$ temperatures, the energy is calculated as $1{,}2\times10^{80}\,eV$ and the size as $8{,}401785525\times10^{-66}\,cm$ [44]. In addition, at least two types of heat emerged under the initial conditions. These are cold or cold energy which is given as $-10^{42}\boldsymbol{K}$ and hot or hot energy which is given $10^{42}\boldsymbol{K}$ [44]. Regardless of this temperature level, the opposite cold state must be present in order for the universe to cool, for matter to pass into the solid phase and for the system to be balanced. The remnant of this temperature and coldness difference was found in the universe as much as the microwave residual temperature. In this case, it still seems possible that there are still very hot and very cold regions or cold galaxies in the universe. We think that our Galaxy and Earth are made up of the atomic structure

of matter, which consists only of heat. However, there is no theoretical obstacle to the formation of mass particles of cold and cold energy. We do not yet know how the reactions occur with only cold energy, and the particle structures and reaction types of the substances formed due to this cold energy.

The numerical values of temperature and velocity formed in the initial conditions are calculated with many assumptions. If there is anything real, the experimental result of numerical values related to space is not obtained and neither are absolute correct numerical results. Another fact is that the creation of initial conditions is not possible with science and technology in today's world. Of course, these situations are very special conditions. These conditions are given by considering theoretical astrophysics only. This velocity is also a theoretical special case of particles. There is no space left in the structure of matter and the density has reached the highest possible value. As the masses accelerate, their volumes decrease, and in cases where the velocity is close to the initial velocity, their volume decreases until the initial particle sizes, and their density increases. These trapped particles then begin to swell as the particle velocity begins to slow down. If the speed is low enough, the particles swell to become atomic and molecular structures. Particles never completely turn into energy and do not disappear. We consider all kinds of energy as a special form of these particles. In today's conditions, many types of energy are considered to have no mass since we can't just measure them. The most obvious example of this is light. Sometimes it is considered to have mass, sometimes it is considered to have no mass. Another example is gravity. As it is understood from this situation, everything is evaluated according to environmental conditions and the scientific and technological level of human beings. As science and technology develop, many new unknowns will emerge and the answers to the previous unknowns will be found.

III. IMPROVED MATHEMATICS MODEL

As a result of the Big-Bang explosion, two opposing energies emerged simultaneously. The first of these is heat or hot energy, and the other is coldness or cold heat or cold energy. Immediately after the explosion, these two physical features diverged. Heat formed the present-day building blocks or the first particle of our universe and matter, visible from heat or hot energy. Heat formed the basic units of our present day and the first particle of matter and our universe, which can be seen as heat or hot energy. These substances are the energy and matter consisting of atomic structures that make up our visible universe and our world. The other is cold or cold energy, particles consisting of cold particles that are not seen today, and atomic structures and substances formed.The other is cold or cold energy, which consists of cold particles, atomic structures and matter that are not seen today. For this reason, we think that it is necessary to classify the universe according to energy types.

The energy equation $\pm E$ *developed for the "first-particle" model of the Big-Bang explosion is defined as:*

$$\pm E = M \times V^2 \times e \times F_1 \times F_2 \times F_3 \tag{1}$$

and improved state of absolute energy equation [44]. In this equation, $(\times)$ represents simple arithmetic multiplication, (+) represents temperature, heat or hot energy, and (-) represents cold or cold energy. We think that the matter, which consists of hot energy, formed by the atomic structure, and the particles in the atomic structure, which consists of cold energy, are symmetrical. Therefore, the same energy equation must be used. It can be stated that there are particles produced from hot or cold energy with only the difference in sign in the equation. The variables in this equation are; M: particle mass, F1, F2 and F3: the highest three-dimensional operating frequency of the particle in the X, Y and Z axes at any instant, e: the mass binding energy of the particle, V: the absolute velocity of the particle, this velocity is defined as a velocity close to the initial velocity. The sizes associated with this particle are the largest possible reference values. For systems at rest, the particles can never reach reference values. In other words, they are theoretically the highest possible values.

The general solution form of the energy equation is,

$$\frac{dE'}{dt} = K_1 \frac{dM'}{dt} + K_2 \frac{dv}{dt} + K_3 \frac{de'}{dt} + K_4 \frac{df_1}{dt} + K_5 \frac{df_2}{dt} + K_6 \frac{df_3}{dt} \tag{2}$$

Mass,

$$\frac{dM'}{dt} = \frac{1}{K_1}\left[\frac{dE'}{dt} - A\right] \tag{3}$$

Speed,

$$\frac{dv}{dt}=\frac{1}{K_2}\left[\frac{dE'}{dt}-B\right] \tag{4}$$

Binding energy,

$$\frac{de'}{dt}=\frac{1}{K_3}\left[\frac{dE'}{dt}-C\right] \tag{5}$$

Frequencies,

$$\frac{df_1}{dt}=\frac{1}{K_4}\left[\frac{dE'}{dt}-D\right] \tag{6}$$

$$\frac{df_2}{dt}=\frac{1}{K_5}\left[\frac{dE'}{dt}-G\right] \tag{7}$$

$$\frac{df_3}{dt}=\frac{1}{K_6}\left[\frac{dE'}{dt}-H\right] \tag{8}$$

are defined. The constant terms are,

$$A=K_2\frac{dv}{dt}+K_3\frac{de'}{dt}+K_4\frac{df_1}{dt}+K_5\frac{df_2}{dt}+K_6\frac{df_3}{dt} \tag{9}$$

$$B=K_1\frac{dM'}{dt}+K_3\frac{de'}{dt}+K_4\frac{df_1}{dt}+K_5\frac{df_2}{dt}+K_6\frac{df_3}{dt} \tag{10}$$

$$C=K_1\frac{dM'}{dt}+K_2\frac{dv}{dt}+K_4\frac{df_1}{dt}+K_5\frac{df_2}{dt}+K_6\frac{df_3}{dt} \tag{11}$$

$$D=K_1\frac{dM'}{dt}+K_2\frac{dv}{dt}+K_3\frac{de'}{dt}+K_4\frac{df_2}{dt}+K_6\frac{df_3}{dt} \tag{12}$$

$$G=K_1\frac{dM'}{dt}+K_2\frac{dv}{dt}+K_3\frac{de'}{dt}+K_4\frac{df_1}{dt}+K_5\frac{df_3}{dt} \tag{13}$$

$$H=K_1\frac{dM'}{dt}+K_2\frac{dv}{dt}+K_3\frac{de'}{dt}+K_4\frac{df_1}{dt}+K_5\frac{df_2}{dt} \tag{14}$$

$$K_1=V^2\times e\times F_1\times F_2\times F_3 \tag{15}$$

$$K_2=2\times V\times M\times e\times F_1\times F_2\times F_3 \tag{16}$$

$$K_3=M\times V^2\times F_1\times F_2\times F_3 \tag{17}$$

$$K_4=M\times V^2\times e\times F_2\times F_3 \tag{18}$$

$$K_5=M\times V^2\times e\times F_1\times F_3 \tag{19}$$

$$K_6 = M \times V^2 \times e \times F_1 \times F_2 \tag{20}$$

defined as the general form. The F_1, F_2, F_3 frequencies in the expressions are defined as the nominal highest theoretical frequency. In other words, it is defined as the free state frequency of the first mass formed after the big bang. In the stages after the formation of the first mass particle, f_1, f_2, f_3 represents the instantaneous functional frequencies in the volume according to the X, Y and Z axis at any moment. In other words, the particles do not move in a plane, they move in a volume, and they show periodic frequency characteristics in steady state. If the particle does not have a rest and steady state, it has instability and the system tries to balance itself in a different way.

The three-dimensional, functional axial nominal frequency movements of the particle have been defined as:

$$\frac{df_1}{dt} = \iiint F_1(t)dx_1\,dy_1\,dz_1\,dt \tag{21}$$

$$\frac{df_2}{dt} = \iiint F_2(t)dx_1\,dy_1\,dz_1\,dt \tag{22}$$

$$\frac{df_3}{dt} = \iiint F_3(t)dx_1\,dy_1\,dz_1\,dt \tag{23}$$

If the vectorial nominal instantaneous resonant frequency value of the particle in this state is

$$\frac{df_0}{dt} = \sqrt{\left(\frac{df_1}{dt}\right)^2 + \left(\frac{df_2}{dt}\right)^2 + \left(\frac{df_3}{dt}\right)^2} \tag{24}$$

However, the axial rated frequency actual values,

$$\frac{df_1}{dt} = \iiint F_1(t)dx_1\,dy_1\,dz_1\,dt + \frac{1}{K_4}\left[\frac{dE'}{dt} - D\right] \tag{25}$$

$$\frac{df_2}{dt} = \iiint F_2(t)dx_1\,dy_1\,dz_1\,dt + \frac{1}{K_5}\left[\frac{dE'}{dt} - G\right] \tag{26}$$

$$\frac{df_3}{dt} = \iiint F_3(t)dx_1\,dy_1\,dz_1\,dt + \frac{1}{K_6}\left[\frac{dE'}{dt} - H\right] \tag{27}$$

it is recognized by associating it with other variables and the vector nominal instantaneous resonance frequency is defined as:

$$\frac{df_0}{dt} = \sqrt{\left(\frac{df_1}{dt}\right)^2 + \left(\frac{df_2}{dt}\right)^2 + \left(\frac{df_3}{dt}\right)^2} \tag{28}$$

The axial frequency of the particle is $df_{l_{123}} \Big/ dt$ according to the path it has taken in the x, y and z axis,

$$R_1 = \frac{df_{l1}}{dt} = \iiint F_1(t)dxl_{i=0,1,2,3}\,dyl_{i=0,1,2,3}\,dzl_{i=0,1,2,3}\,dt \tag{29}$$

$$R_2 = \frac{df_{l2}}{dt} = \iiint F_2(t) dxl_{i=0,1,2,3} dyl_{i=0,1,2,3} dzl_{i=0,1,2,3} dt \tag{30}$$

$$R_3 = \frac{df_{l3}}{dt} = \iiint F_3(t) dxl_{i=0,1,2,3} dyl_{i=0,1,2,3} dzl_{i=0,1,2,3} dt \tag{31}$$

defined in a simple way. For detailed calculation, other variables should also be taken into account. In this case, the vector nominal instantaneous resonant frequency with respect to the path is defined as:

$$\frac{dfl_0}{dt} = \sqrt{\begin{matrix}\left(\iiint F_1(t) dxl_{i=0,1,2,3} dyl_{i=0,1,2,3} dzl_{i=0,1,2,3} dt\right)^2 + \left(\iiint F_2(t) dxl_{i=0,1,2,3} dyl_{i=0,1,2,3} dzl_{i=0,1,2,3} dt\right)^2 \\ + \left(\iiint F_3(t) dx_{i=0,1,2,3} dy_{i=0,1,2,3} dz_{i=0,1,2,3} dt\right)^2\end{matrix}} \tag{32}$$

or

$$\frac{dfl_0}{dt} = \sqrt{\left(R_1\right)^2 + \left(R_2\right)^2 + \left(R_3\right)^2} \tag{33}$$

That is, the relative frequency of the particle changes depending on the x, y and z axis. Particles do not have fixed frequencies and they are constantly changing depending on the axis. In this case, it seems extremely difficult to bring the particle to resonance or to catch the resonance frequency or to obtain it. If the particle's vector nominal instantaneous resonance is defined as:

$$\left[\frac{df_{l_{i=1,2,3.}}}{dt}\right]' = \sqrt{\left[\left(\frac{df_{l1}}{dt}\right)^2\right]' + \left[\left(\frac{df_{l2}}{dt}\right)^2\right]' + \left[\left(\frac{df_{l3}}{dt}\right)^2\right]'} \tag{34}$$

For generalized multidimensional vector media cases form is obtained as:

$$\left[\frac{dfl_{i=0,1,2,3...n}}{dt}\right]' = \sqrt{\begin{matrix}\left[\left(\iiint F_1(t) dxl_{i=0,1,2,3} dyl_{i=0,1,2,3} dzl_{i=0,1,2,3} dt\right)^2\right]' + \left[\left(\iiint F_2(t) dxl_{i=0,1,2,3} dyl_{i=0,1,2,3} dzl_{i=0,1,2,3} dt\right)^2\right]' + \\ \left[\left(\iiint F_3(t) dxl_{i=0,1,2,3} dyl_{i=0,1,2,3} dzl_{i=0,1,2,3} dt\right)^2\right]' + ... \left[\left(\iiint F_n(t) dxl_{i=0,1,2,3...n} dyl_{i=0,1,2,3...n} dzl_{i=0,1,2,3...n} dt\right)^2\right]'\end{matrix}} \tag{35}$$

In general, the multidimensional vector resonance frequency at any state is defined as:

$$\left[\frac{dfl_{i=0,1,2,3...n}}{dt}\right]' = \sqrt{\left[\left(\frac{df_{l1}}{dt}\right)^2\right]' + \left[\left(\frac{df_{l2}}{dt}\right)^2\right]' + \left[\left(\frac{df_{l3}}{dt}\right)^2\right]' + ... \left[\left(\frac{df_{ln}}{dt}\right)^2\right]'} \tag{36}$$

Special cases in the basic energy equation;

1. If the $F_1 = F_2 = F_3 = M = 1$ special state occurs, the energy $E = V^2$ state occurs. That is, due to the velocity of the particle, the frequency $F_1 = F_2 = F_3 \approx 0$ approaches zero, and the mass reaches the greatest density while reaching the smallest volume, and the binding energy approaches the $E \approx e$ state. The special condition is that the particle does not vibrate in its own space. While the particle reaches its highest velocity, it reaches its greatest density in the mass. Conversely, as the velocity slows down, the volume swells at the same rate, and the frequency of the particle increases. In other words, as the masses accelerate, their volume decreases, their density increases and their frequency decreases.
2. $M \approx e \approx 1$ for $V = 1$, in which case $F_1 \neq F_2 \neq F_3 \neq$ is the highest frequency state and matter is at rest. The physical environment, the particle frequency values are at their maximum value, and the velocity is

now the steady state that provides the environment for the formation of atomic and molecular structure. Now the mass velocity is stable, the mass is in the largest possible structure and volume. In this case, the atomic and molecular system has been formed and the matter now has a stable system.

3. In the case of $V/v=1,\ V=v$, the substance volume is in unit value and is in the binding energy state. In this case, the mass has taken its most dense form, the binding energy is at the highest level, and the frequency values are very close to zero.

4. Variables M, e, f_1, f_2, f_3 represent the physical properties of matter.

While examining the universe, we think that it would be the right approach to divide it into two parts. First, large masses of matter and energy, or the visible universe, similar to the structure on our Earth. The other is galaxies or universes that do not resemble the matter and energy structure of our world, or are like large masses of masses that cannot be seen, measured, and whose characteristics are unknown with the existing technology in the world. We do not know, see or perceive these masses according to our science and technology. However, we only think theoretically that it can or should be theoretically.

IV. PARTICLE AND VOLUME CHANGE DEPENDING ON ENVIRONMENTAL CONDITIONS

We consider environmental conditions as speed, hot, cold, pressure, vacuum, space and its derivatives. The volume change depending on the speed is defined as the $\Delta H = v/V$ ratio. In other words, the volume increases or decreases as the ratio of the relative speed to the reference speed. The proportional shrinkage and growth of the volume is defined by the $\Delta H = \left(R/V\right)\times 100$ equation. The variables in this equation are calculated as the absolute highest velocity in the V: Big-Bang explosion, v: Relative velocity, R: the rate constant of our universe and. The volume change, growth and contraction of our universe is defined as $H' = H \pm \Delta H$. In the equation, H corresponds to volume, H' : volume change, (+) corresponds to expansion and (-) corresponds to contraction. In general, shrinking in volume means that the particle is accelerating in the universe, while the universe is expanding and growing means that the speed of the particle or the universe is slowing down. It is thought that this growth and contraction will be effective after certain speeds are exceeded.

According to open sources, the Hadron velocity is $1\times10^{24}\,m/s$ according to the MKS unit system, the expansion rate of the universe is calculated between $1,2\times10^{24}\,m/s$ and $2,1\times10^{25}\,m/s$, while the average speed of the earth around the sun is $3\times10^{4}\,m/s$. If these expressions are generalized,

$$R = v_1 \times v_2 \times v_3 \times \ldots \times v_n \tag{37}$$

defined as equality. Variables in the equation: R: relative velocity, v_1 : expansion rate of the universe, v_2 :velocity of the highest particle, v_3 :velocity of the celestial body (the speed of the Earth) and v_n :other possible speeds in space. $7,56\times10^{52}\,m/s$ value is obtained from the product of these velocities. The known electron diameter was found to be 2,817x10^{-15}m or 2,817x10^{-13} cm [1,2,15,16]. The proportional relationship between the first particle calculated earlier is

$$\Delta R = \frac{Diameter\ of\ the electron}{Diameter\ of\ first\ particle} = \frac{2,817\times10^{-13}}{8,401\times10^{-66}} = 3,3517224\times10^{52} \tag{38}$$

$3,35317224\times10^{52}$ ratio is obtained. This means that as a result of the big bang, the masses expanded in volume by the $3,35317224\times10^{52}$ ratio compared to the initial value. This ratio corresponds to the relative velocity. With another approach, a change in volume takes place in proportion to an exponential change in velocity. Or, it grows or shrinks proportionally in volume, directly depending on the speed. If the number of particles in the substance is to be determined or to reach the final structure, retarders, which are the opposite of the accelerators made today, must be made. When this process takes place, the volume of the atomic structure

will expand proportionally. In this case, the volumes of all particles in the structure will increase at the same rate. Thus, small sub-particles that are not technologically visible will become visible. Larger volumes of particles may technically be easier to observe, study and follow their behavior.

Even in today's technological conditions, simple results can be obtained by simple analysis of Planck's equations. If we assume the Planck equation $E = \hbar \times c$ or $E = \hbar \times f$, E=1 unit energy, the frequency corresponds to approximately $1x10^{34}$Hz. On the other hand, according to NIST unit conversions, there is no theoretical problem in the existence of a particle with temperature: $4,799x10^{23}$K, energy:6,626J and electron volts: $4,135x10^{19}$eV and atomic mass unit: $4,439x10^{10}$u and mass: $7,372x10^{-17}$kg [44] . Even with this simple arithmetic operation, it is seen that the working frequencies of the items can be $1x10^{34}$Hz. Or it means that there may be a particle in the material with a value of $1x10^{34}$Hz. However, today's technological development has not yet produced a semiconductor material that will operate at these frequencies or that will perform the same function. This seems theoretically possible. According to today's scientific and technological conditions, this may not be possible. However, there is no theoretical obstacle to the presence of a piece of matter that corresponds to $1x10^{34}$Hz, or MKS unit equivalent to $1x10^{34}$m/s. Sub-particles in the structure of matter can be revealed indirectly. For example, photons and other particles appear in a semiconductor LASER diode or LASER LED. If we use sub-atomic parts like this, it could greatly contribute to solving many technological problems. In this case, there may be wide usage areas that we cannot even predict in communication and other application areas of technology.

It is given in the source that the lifetimes of hadrons, which are claimed to exist in the structure of matter, are up to $1\times10^{-24} s$ [38,45]. In this case the particle MKS corresponds to BBB $1\times10^{24} m/s$ and $1\times10^{24} Hz$ in the unit system. With the simple velocity approximation between the hadron and the electron,

$$\Delta R = \frac{Speed\ of\ the\ hadron}{Speed\ of\ the\ electron} = \frac{1\times10^{24}\ m/s}{3\times10^{8}\ m/s} = 3,33\times10^{15} \tag{39}$$

rate is obtained. The velocity ratio between the hadron and the electron velocity is approximately equivalent to the electron diameter value of the electron according to the MKS unit system. This numerical ratio, the error amount of the electron diameter is only 17.1%. If the smallness of the numerical values is taken into account, it corresponds proportionally to the electron diameter. Using simple proportional values, we consider the Hadron particle diameter to be $HR = 3,33\times10^{-15}\times2,8179\times10^{-15} = 9,382608\times10^{-30}\ cm$. These evaluations are estimated from simple velocity variation only. From NIST unit cycle, for Hadron's action time, frequency for MKS unit cycle is $1x10^{24}$Hz; $4,79910^{13}$K corresponds to $4,135x10^{9}$ev, 4,439u, $7,272x10^{-27}$Kg, and $6,626x10^{-10}$J and $3,335x10^{15}$ m^{-1} [46]. In the statements made by CERN, there are verbal statements that the number of sub-particles in the substance can be up to 4 million. The real situation is that the exact number of particles is not known.

All the particles in the structure of matter were formed at certain stages of the spread of the particles to the environment and the decrease in speed with the high temperature and pressure resulting from the Big-Bang explosion. If the conversion values of the particle or mass in Bing-Bang theory are made for $1x10^{94}$Hz; It corresponds to unit conversions J:$6,626x10^{60}$J, Kg:$7,373x10^{43}$Kg, K:$4,799x10^{83}$K, eV: $4.135x10^{79}$eV, and u: $4.439x10^{70}$u [46]. The structure of matter in the universe we see now and in our world was realized under these special conditions. Therefore, it is not possible for us to return to these special conditions or to meet these special conditions technologically. The reality is the current situation, most of the matter in our world and the visible universe is stable within itself as a system.

With another approach, the volume change takes place in proportion to the change in speed. Increases or decreases proportionally in volume depending on the speed. If it is desired to determine the number of particles in the material or to reach the final particle number and structure, the opposite of the accelerators should be made instead of today's accelerators. If the particles are slowed down, their volume will increase and all the particles in its structure may emerge. In this case, the volumes of all particles in the structure expand and grow at the same rate. So small invisible sub particles can become visible. Larger volumes of particles may technically be easier to observe, study and follow their behaviour. If the invisible and unknown particles are made visible and usable today, many technological and material science problems are solved. The number of particles in the matter,

$$a+ar+ar^2+ar^3+\cdots+ar^{n-1}=\sum_{k=0}^{n-1}ar^k=a\frac{1-r^n}{1-r},\ r\neq 1 \quad (40)$$

increases or decreases depending on the speed in series. In the equation, a: number of particles, r: exponential coefficient of velocity. In other words, as the speed increases, the number of particles decreases, and as the speed slows, the number of particles increases.

As a result of the experiments carried out at CERN, the number of particles exceeded 15000. This number of particles is valid for today. One thing is for sure, the number of particles will increase as science and technology develops. Let's take 15000 as an example of the number of particles, in this case the number of particles for different speeds is $(15000)^4$=5.062500x10^{12} for $R=1\times10^{60}Km/s$, $R=1\times10^{50}Km/s$ for speed $(15000)^5$=7.593750x10^{15} and for speed $R=1\times10^{40}Km/s$, $(15000)^6$=1.139063x10^{19} must be different particles. These particles expand and increase in number as the speed slows down, and when the speed increases, they get smaller and combine to form particles in a new form. Thus, the atomic structure of matter also changes. As a result, in the initial conditions, it becomes a single particle.

V. MATERIAL STRUCTURE AND ENERGY DIVERSITY IN THE UNIVERSE

We see only one type of matter structure in the visible universe. This is the universe structure, which is similar to our Earth in its material structure. We only know about 5% of the visible universe by sight. There are very different opinions about the other 95%. If there is a real situation, there is no definite experimental result.

In Table.1, Big-Bang explosion velocity was accepted as $10^{100}Km/s$ *and* $10^{10}Km/S$ and was obtained by dividing velocity parts. The values of the initial velocity state of the Big-Bang explosion and the number of particles in the deceleration state are given. If the speed is maximum and there is only one particle in the Big-Bang event, the number of particles is not known yet as a result of the slowing down of the speed. Table.1, 11 stages and the marked region represents the current speed state of our universe in which we live. This universe exists in our galaxy and the world we live in. In case of an increase or decrease in this speed, it means an increase or decrease in the number of particles and energy diversity.

Table.1. The relationship between velocity and particle number.

The number of particles is increasing → ?										
$(A^0\times10^{10})$	$(B^1\times10^9)$	$(C^2\times10^8)$	$(D^3\times10^7)$	$(E^4\times10^6)$	$(F^5\times10^5)$	$(G^6\times10^4)$	$(H^7 10^3)$	$(I^8 10^2)$	$(K^9\times10^1)$	$(L^{10}\times10^0)$
1 ← The number of particles is decreasing										

It means that Table.1 has at least 10 different basic structures different from atomic structure and energy in today's world. Many of these structures may seem constructive to us, but that doesn't mean they don't exist. Another important situation is that there are at least 11 different types of energy for each state stage. We accept all matter-energy types in our world as the only matter and energy type belonging to this layer. Apart from these, we are talking about the existence of 10 new types of energy and matter. Within these new structures, there are 11 different kinds of different types such as dark matter, dark energy, white matter, white energy, cold matter, cold energy, cold dark matter, cold dark energy, cold white energy, cold white matter and invisible matter, invisible energy. Matter structure and each stage must have its own energy. These regions can even be a light source with a very different structure from sunlight. Each system creates its own matter structure, its own phase and energy. What we know is only the Earth we live in and the universe we see, and the structure, phase and energy type of the matter in our World only corresponds to the $F^5\times10^5$ section. This part corresponds to the middle part of the formation of the table. All the matter phases and energy types that we can see and measure are here. In the other 10 sections, it consists of 10 different substances and 10 different types of energy. This is why we can theoretically see only a very small part of the universe.

Table.2. Regions in the universe

+	Transition Zone	-

In Table.2, the regions in the universe are given. These; hot, heat and hot energy are represented by (+) and cold and cold energy by (-). Between these regions is the transition zone. In this transition region, it is the region where both the heat and the particles and energy properties consisting of cold or cold energy are located. In this case, on the basis of our universe, it is divided into three regions and it is possible to encounter three different structures and energy types.

One of the basic concepts of physics is balance and stability. Everything in the universe consists of symmetry. If there is hot, there is also cold symmetry. In the middle of these is a transition zone. For this reason, there must be a total of 23 different fundamental particle structures and energy types with the structure in the transition region in our universe. This corresponds to the ratio of 4,347% of the relative universe, and this ratio fully coincides with the known numerical ratio values. In many open sources, with today's technology, only 4-5% of the universe is visible, 21-27% dark matter and 68-75% dark energy. The known fact with today's technology is that we cannot see about 95% of the universe. If there must be at least 21 types of structures other than extreme values. In this case, it corresponds to approximately 4,761% of the visible universe.

VI. CONCLUSION

The energy mathematical model of the "first particle" formed after the Big-Bang explosion was made and the model was then given a general equation for all particles. Two opposite situations occurred as a result of the Big Bang. The first is heat, heat and hot energy, and the other is cold and cold energy. These two contrasting situations diverged immediately at the beginning of the explosion. Both energies have formed their own structure over time. Thus, three regions or three different structures were formed in the universe. First, the hot energy universe, the transition zone universe and the cold energy universe were formed. In these conditions, there are three different structures of the universe.

According to the evaluation in Tables 1 and 2, there are at least 21 different states from hot, cold and transition states. The structure of matter, the number of particles and their energies in the three regions are also different. The number of particles in the structure of matter in the universe is never constant. The number of particles decreases or increases depending on the conditions, and as a result, the structure changes. While the speed slows down, swelling occurs, the number of particles increases, and when the speed increases, compression occurs, the number of particles decreases and the structure changes. There is no standard structure of matter and energy in the universe. Everything changes depending on physical conditions. All kinds of visible, invisible, measurable and unmeasurable energy, power, and force are a special case of the "first particle" formed under initial conditions. Everything in the universe has mass. Everything is one when you are small, it changes as you get older.

The first particle was formed in the initial conditions of our universe. Whenever conditions greater than the initial conditions occur, its structure can change only in the first particle. Other than that, the structure of this particle never changes. All forms of force, power and energy, visible, invisible, measured or unmeasured, are also different forms of this first particle.

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