THE GENERAL THEORY FOR THE UNIVERSE

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Abstract.

With the new concept of the radiations in the material space and basing on the Law of the radiations disposition and the Law of velocities relationship the theory of the interactive forces in the material space has been established. With only notion that, the unique difference between the material elements is their spin property, the theory has successfully solved the problems as the follows:

- The nature of the interaction forces such as gravitation field strength, electric field strength, magnetic field strength, atomic nucleus force and the electromagnetic phenomena.
- The cause of the structure of the atomic nucleus
- The nature of the inertia of the mass.
- Thermal phenomena.
- The structure and the boundary of the universe.

The law of velocities relationship, the law of radiation disposition and new concept of the radiation space. The spin theory and the interaction forces in the universe.

With the general theory of relativity, how to find the truth of the universe, what is the universe made of, what is the structure and shape of universe, what is smallest or biggest things in the universe, and what is coldest and hottest temperatures in the universe [1].

1-New conceptions of the radiations in space.

The straight line is the line, whose direction parallel to the axis of the gyroscope. In an isolated frame of reference the initial direction of the axis of the gyroscope is preservation or independent from the movement states and the trajectory of the frame of reference [2, 3]. So that, in any case we always can recognize the frame of reference is moving on the curved or straight trajectory by referring the variable angel between the initial direction of the axis of the gyroscope and present direction of the velocity of the frame of reference. This physical definition of the straight line confirms that, the reality space of the Universe is Euclidean geometry but not any others mathematical geometries [4]. In others words, we can only used Euclidean geometry in the science research [4]. The densities of the mass radiation in the radiation environment near by the big matters such as the Sun, the Star, etc so high that these radiation environments gain such properties as the material environments, when the light go through the different environments the light refracted as similar as the light refracted by the lens. In this case we should consider the light has reach us from secondary source (the lens) so that the ray is the straight line but not be bend as a curved line as we have known so far.

Decomposing vector $\vec{v}$ into vector $\vec{v}_x$ and vector $\vec{v}_y$ along the coordinate axes. According to Pitago [5], we have:

$$v_y = \sqrt{v^2 - v_x{}^2}$$

Dividing the two sides of the equation by v :

$$v_y = v.\sqrt{1 - \frac{{v_x}^2}{v^2}}$$

Thus

$$v = \frac{v_y}{\sqrt{1 - \frac{{v_x}^2}{v^2}}}$$

To make it's simple, we choose the angles between vector $\vec{v}$ and the coordinate axes are 45^0, then $v_x = v_y = V$, replacing v_x, v_y by V we obtain:

$$v = \frac{V}{\sqrt{1 - \frac{V^2}{v^2}}}$$

Dividing the two sides of the equation by s and denoting $t = \frac{s}{v}$, $t' = \frac{s}{V}$ (t, t' which regarded as the intervals for the velocities v and V to cover the distance s) taking this expression into account, we obtain the formula as required:

$$t = \frac{t'}{\sqrt{1 - \frac{V^2}{v^2}}}$$

Especially, when $v = c$,we have:

$$t = \frac{t'}{\sqrt{1 - \frac{V^2}{c^2}}}$$

So that t, t' are the intervals for the velocities v and c to cover the distance s. But is not the time for two frames of reference moving at the different velocities.

Generally, when decomposing a velocity $\vec{v}$ into the component velocities $\vec{v}_n$ (n positive whole number), whose the same magnitude mutually perpendicular directions, due to the difference in the directions so the component velocities $\vec{v}_n$ are different from another. However the component velocities $\vec{v}_n$ regard the resultant velocity $\vec{v}$ as the constant velocity in accordance with the following formula:

$$\frac{\vec{v}_1}{\vec{v}} = \frac{\vec{v}_2}{\vec{v}} = \frac{\vec{v}_3}{\vec{v}} \ldots = \frac{\vec{v}_n}{\vec{v}} \ (\vec{v}_1 \neq \vec{v}_2 \ldots \neq \vec{v}_n \text{ n positive whole number})$$

When we do consider the light velocity is constant and has the finite value c= const by comparison with any frames of reference as the Axiom, from the point of view of relativity principle strictly, we must come to conclusion that, every velocity by comparison with the light velocity could be expressed as the above formula, i.e. the Axiom means $\frac{\vec{v}_1}{c} = \frac{\vec{v}_2}{c} = \frac{\vec{v}_3}{c} \ldots = \frac{\vec{v}_n}{c}$ ($\vec{v}_1 \neq \vec{v}_2 \ldots \neq \vec{v}_n$ n positive whole number). It's clearly that, the constancy mentioned above is the constancy in mathematics, but is not in physics. Besides, the Spin theory has confirmed that's it was true in fact, the nuclear force $F = \frac{M.C^2}{R}$ (M the mass, C the light's velocity, R the radius) is the cause of all processes in the Universe including the growth up of our body. When M moving at the velocity V, it will radiate the mass magnetic radiation $B = \frac{M.V}{R}$ such radiation medium forming the inertial force $F(inertial) = \frac{M.V^2}{R}$ to against the nuclear force:

$F(resultant) = F - F(inertial) = \frac{M.(C^2 - V^2)}{R}$

Consequence of slowing down all processes. Let's to refer $(C^2 - V^2)$ in the above equation we have $C.\sqrt{1 - \frac{V^2}{C^2}}$ and denoting $= \frac{S}{C}, t' = \frac{S}{\sqrt{C^2 - V^2}}$, t, t', which regarded as the intervals for the velocities C and $\sqrt{C^2 - V^2}$ to cover the distance S, taking this expression into account, we obtain the formula as required:

$$t = \frac{t'}{\sqrt{1 - \frac{V^2}{C^2}}}$$

So we would come to the conclusion as following:

- The space and the time are two mathematical notions of the mentality.

When comparing the velocities of two referent frames, which are regarded as an isolated system. Naturally, we assume that, one of the two referent frames must be stand still regardless all of it's motions, that mean the injections of the velocity vectors of the frame of reference regarded as the fixed frame onto the direction of the relative velocity vector between the two referent frames are equal to zero, i.e. these relative velocity vectors are equal mutual perpendicular. In other words, at an instant the moving referent frame circles around the fixed frame of reference at the angular velocity caused by the relative velocity as the tangent velocity. So that, we could consider the resultant vector of the equal mutual perpendicular relative velocity vectors is the relative velocity vector between the two frames of reference.

To recognize the motions in normal kinematics environment without the radiation environment (the light for instance), the surveyed referent frames must contact directly to another. For example, we choose the experimentation room as the fixed frame of reference (the origin of the coordinate axes coincides with the Earth's centre), then every point in the space belong to the fixed frame of reference, the coordinate parameters(x,y,z) represent for the existence of the fixed frame of reference at the surveyed point, i.e. the moving referent frames always contact to the fixed frame of reference directly.

Suppose, when two referent frames (A,B) contact to each other directly, the relative velocity between A and B is $\vec{v}_{AB}$ for the sake of the equality, the simultaneousness and the relativity of motion, the two referent frames (A,B) moving simultaneously at the speeds as $\vec{v}_A, \vec{v}_B$, which are satisfied the requires:

$$(a)\vec{v}_A = -\vec{v}_B$$

$$(b)v_A = v_B = \frac{v_{AB}}{2} = v \rightarrow \frac{v}{v_{AB}} = \frac{v}{v_{td}} = \frac{1}{2}$$

$$(c)\vec{v}_A - \vec{v}_B = \vec{v}_{AB}; \vec{v}_B - \vec{v}_A = \vec{v}_{BA}$$

On the other hand, from the relative velocity in radiation environment's point of view, we have:

$$(d)\vec{v}_x = -\vec{v}_y$$

$$(e)v_x = v_y = v_{x,y} = \frac{v_{AB}}{\sqrt{2}} = \frac{v_{td}}{\sqrt{2}} \rightarrow \frac{v_{x,y}}{v_{td}} = \frac{1}{\sqrt{2}}$$

$$(g)\vec{v}_x - \vec{v}_y = \vec{v}_{AB}; \vec{v}_y - \vec{v}_x = \vec{v}_{BA}$$

From the conditions (b), (e) we have $v_{x,y} = v\sqrt{2}$, combining with the conditions from (a) to (g), we have the Velocities relationship Law as following:

Velocities relationship Law:

Relative velocity between two referent frames in radiation environment represented by the difference vector $\vec{v}_{re}$ of the component velocities vectors $\vec{v}$, whose magnitude defined by following formula:

$$v_{re} = v\sqrt{2} \rightarrow \frac{v}{v_{re}} = \frac{1}{\sqrt{2}} \qquad (1\text{-}2)$$

According to formula (1-2), the ratio of the relative velocity in variable space (moving frame of reference) to the relative velocity in invariable space (fixed frame of reference) is constant.

The velocity of body is the variable rate of the body's coordinate parameters (x,y,z) in the invariable space over the interval of time, while the relative velocity is the variable rate of the body's coordinate parameters (x,y,z) in the variable space over the interval of time. From what has been mentioned above, we could reconsider that, ours conception about the relative velocity and the velocity so far has been inconsistent, since we have described the phenomenon taking place in the different spaces as if in the same space.

The velocities relationship Law allowing us to have consistent conception about the relative velocities by unifying the variable space and invariable space as the united space as the material space. We shall demonstrate the constancy of the light's velocity by comparing to an arbitrary referent frame later. In fact, the constancy of light is no concern of the matter of the motions so that, at present we could regard the light as a radiation environment or the environment of the uniform rectilinear motions at velocity as $c = const$. That mean, we have chosen the light as the frame of reference in variable space, it's similar to what we have done so far for the frame of reference in the invariable space.

When we define the light as the frame of reference in variable space, therefore, the velocity $\vec{c} = const$ must be regarded as the relative velocity of the arbitrary referent frame by comparing with frame of reference (the light). It's similarly, when we define $\vec{v}$ as the relative velocity of the arbitrary referent frame by comparing with frame of reference in invariable space ($v_{fixed} = 0$). We might define an arbitrary frame as the frame of reference in invariable space ($v_{fixed} = 0$), but there are so many arbitrary frames with different speeds exist in the Universe, so such definition is not objective. If we define the light as the frame of reference we could remedy the situation, since, the light's velocity is constancy. For example, if the relative velocity between us and the light is c, since there are only two referent frames, either us or the light, so we could only rely on the formula (1-2) to define ours velocity, i.e. $\frac{v}{c} = \frac{1}{\sqrt{2}} = const$. If $c = const$, it's no matter how we could move at relative velocities by comparing with the others referent frames, but according to the theory the relative velocity between us and the variable frame of reference or radiation space always equal to $v = \frac{c}{\sqrt{2}}$.

The frame of reference in radiation space is the isosceles right triangle, whose hypotenuse is the velocity vector $\vec{c} = const$ representing for the measurement of the relative velocity in invariable space, the two sides of the isosceles right triangle are the relative velocity vectors $\vec{v}$,whose magnitude is

$v = \frac{c}{\sqrt{2}}$ representing for the measurement of the relative velocity in radiation space. It follows from what has been said above that the component vectors $\vec{v}_x, \vec{v}_y$ of the resultant vector $\vec{v}_{AB}$ are the relative velocities of referent frames in radiation space. So that, vectors $\vec{v}_x, \vec{v}_y$ are the same magnitude and together heading toward the right angle or heading toward the hypotenuse (the velocity vector $\vec{v}_{AB}$) in accordance with the direction of vector $\vec{v}_{AB}$ and the determination of reference frame.

The isosceles right triangles are congruent triangles, therefore, vector $\vec{v}_{AB}$ parallel to vector $\vec{c} = const$, so its magnitude is the measurement of relative velocity in invariable space, vectors $\vec{v}_x, \vec{v}_y$ parallel to respective sides of the isosceles right triangle, thus, theirs magnitude is the measurement of relative velocity in radiation space. Taking these measurements into account as the parameters of relative velocities, we can define the relative velocity relationships of the reference frames in survey easily. From now on, instead of saying "invariable space and variable space or radiation space", we only say "material space". The material space is the environment of the uniform rectilinear motions at velocity as $c = const$, of course, the frame of reference in the material space is the isosceles right triangle, whose hypotenuse is the velocity vector $\vec{c} = const$.

Suppose that, there are a set of vectors:

$\vec{v}_1(\vec{v}_{x_1}, \vec{v}_{y_1}), \vec{v}_2(\vec{v}_{x_2}, \vec{v}_{y_2}), \vec{v}_3(\vec{v}_{x_3}, \vec{v}_{y_3})..\vec{v}_n(\vec{v}_{x_n}, \vec{v}_{y_n})$ are the relative velocities of n different reference frames by comparing respectively with the frame of reference chosen among them.

These are the set of isosceles right triangles. Vectors $\vec{v}_1, \vec{v}_2, \vec{v}_3 ... \vec{v}_n$ parallel to light, so theirs directions coincide with the directions of the distances between the reference frames respectively. Vectors $(\vec{v}_{x_1}, \vec{v}_{y_1}), (\vec{v}_{x_2}, \vec{v}_{y_2}), (\vec{v}_{x_3}, \vec{v}_{y_3}) ... (\vec{v}_{x_n}, \vec{v}_{y_n})$ are defined by vectors $\vec{v}_1, \vec{v}_2, \vec{v}_3 ... \vec{v}_n$ respectively in accordance with the Law of velocities relationship.

As we have known that, the especial propagation of the electromagnetic waves in space or the light causing the value of the relative velocity of the reflected ray equal to the value of the relative velocity of the incident ray by comparison with an arbitrary frame of reference. Which has been known as the constancy of light and not complied with Galilei principle of addition of relative velocities of the different reference frames. That also means, whether there have been a problems in our notions about the incident rays and reflected rays so far or light always stand still. We must accept this paradox, for Galilei principle of addition of relative velocities of the different reference frames is the mathematics, which shall not be violated. Let us to carry out the very simple experiments as the follows:

Putting a light source within two mirrors, which's face to face with each other.

Due to the two mirrors are face to face with each other, so the light from the source hit this mirror, then rebounds to the other mirror, then the reflected ray returns to the first mirror, then rebounds to the second, again and again, i.e. the incident rays and the reflected rays shuttling within the two mirror forever. With such argument, when we have taken the light source out, the light would have been still remained in the two mirror as long as the light source had lighted. But in fact, it's not as we have thought, the light in the two mirrors disappeared simultaneously at the same instant, when the light source was turned off. According to the law of matter conservation, the disappearance of the light has been emitted by the light source at the same instant, when the light source was turned off, proving that light is not matter but a form of the energy transition.

The results of the experiment above make us to reconsider our notions of the light, which has been known so far, that:

The phenomena of light and the radiations in space are not the displacement of the material elements in space, but a form of the kinetic energy transition at the velocity of the transition as c=const.

If the incident rays and the reflected rays disappear simultaneously at the same instant, then would these rays occur simultaneously at the same instant? The body and its images in the mirror are always symmetry through the surface of the mirror. So that, when the incident rays from the body reach the surface of the mirror, the reflected rays from the body's images in the mirror also reach the surface of the mirror at the same moment, i.e. these two rays occur simultaneously. The distance from the body's images in the mirror to the surface of the mirror is equal to zero, so the reflected rays are stand still, i.e.

the reflected rays are instant. Consequently, when the incident rays from the body reach the surface of the mirror, the reflected rays from the surface of the mirror reach the body at the same moment. Such the processes do not violate the causal principle, for the body's images is not matter. Besides, the body's images in the mirror seem to be far from the body at the distance as equal to the returned journey of light from the body to the surface of the mirror. While in fact, the body's images are just in the distance as a half of the returned journey of light from the body to the surface of the mirror. So that, although reaching the body at once, but the body's images are always in the distance as equal to the distance between the body and the surface of the mirror, i.e. the reflected rays do not move. These are the processes that take place in the same interval of time, in other words, the reflected ray and the incident ray occur simultaneously. Thus, the light source and its reflected image in the mirror always acting simultaneously, i.e. our reflected images in the mirror do as we do simultaneously.Similarly, the world of matter, which we are observing, their images always in the reality distance. Generally, we could com to the conclusion as the following:

- Once, when light from a light source has reached us, then the images of the light source at the present reach us instantly. In other words, the images of the light source reach us at once and disappear at the same instant, when the source is turned off. The occurrence and disappearance of the images of the bodies are independent of the distances from the source to the bodies.

The conclusion confirms that, we are observing the images of the Universe at its present states. The occurrence and disappearance of the incident rays and the reflected rays simultaneously at the same instant can be easily explained by the velocities relationship Law as following: At the moment, when the incident ray reaches the mirror's surface, the reflected ray occurs simultaneously. Due to the relative velocity between incident ray and reflected ray is $\vec{c}$, according to the velocities relationship Law the incident ray and the reflected ray moving simultaneously in opposite directions at the speed as relative velocity $\vec{v} = \frac{\vec{c}}{\sqrt{2}}$ in material space.

It follows from what were mentioned before, light is not matter, i.e. it has no mass nor inertia neither. The only way to explain for the instant reflection of light that, the light source transits the kinetic energy (incident ray) to the material body, while the material body transits a part of the reception energy (reflected ray) into space as the same method as the light source and both kinetic energy transitions take place at the same instant continuously without interruption. We might take the method of the kinetic energy transitions of light as spinning a silk cord, which connects us regarded as the light source to a material body. It takes an interval of time for the algebraic sum of the moments of the forces acting on two ends of the silk cord about the rotational axis to be zero, thus the silk cord is in equilibrium. The instant, when the silk cord is in equilibrium, the moments of the forces made by us applying to another end of the silk cord at the same instant simultaneously as if the light source and a material body including the silk cord were an united body. Basing on what we have experienced with the mirrors so far, which let us come to the conclusion that. Once the light from us has reached the mirror, i.e. the imagination silk cord in equilibrium has been established between us and the mirror, and then it takes no interval of time for the reflected images from the mirror to rebound to us regardless the distance from us to the mirror. So that, after one year our images in the mirror, which is in the distance of one year light from us still always acting simultaneously with us. Besides, we could notice also that, in case of the light source had turned off, but the light from the light source hasn't reached us yet, i.e. the imagination silk cord hasn't been established, so we wouldn't see such the light source. The space takes part as the material space to deliver the radiations, due to the elements of the material space have no mass nor inertia neither, so when the forces stop acting on them, they stop delivering the radiations at once and sticking into the causes of the forces. So that to transmit the radiations to a distance far away in the material space, the sources must apply forces on the elements of the material space continuously without interruption. From what have been mentioned above, we shall deduce to formulate the following significant statement:

At moment, a material body and the radiations emitted by the material body are united as the undetachable physical body developing in the material space at the velocity of the radiations transmission.

If the light source, which is turned on then turned off repeatedly as a frequency, but in the lighted half of one cycle of the frequency the light from the source has failed to reach us, we would be unable to see the light source. This notice could give us a solution to explain the notion of the dark matter, which has been spread through out the World nowadays.

Supposing there is a remote colossal star gains the mass as ten times bigger than the mass of the Sun. Along the direction of the light from the star to the Earth there are several planets or stars circling around frequently to shade the light as similar as the total solar eclipse in the distances so far away that, during the uncovered period the light from such the distances has not enough time to reach the Earth. So we shall never see such the star, although we do perceive the effect of the colossal mass of the star. Besides, with the well-known notion of light so far, it is impossible for us to answer such the questions as the follows:

- What is the cause to make a photon particle to move freely at the very high velocity, while its no mass nor inertia neither?

- How could the light regain its velocity as the very beginning velocity after having penetrated through the different medias?

To answer these questions and to explain what have been taken into consideration above, we must find out the nature of the constancy of the radiation velocity.

2- The Law of radiations disposition in space.

Suppose, there is a limited area (D) at a point in space covered by the light field. It is very easy for us to notice that, the variable of the distance from the source of light to the surveyed point in space is proportional to the variable of the quantity of the incident rays going through the limited area (D) at the surveyed point. That similar to the variable rate of the force lines of a magnet bar going through a limited area when we move this area closer or farther to the magnet bar. Hence, the expression can be written as following:

$$\Delta s = A\Delta n$$

Where: s is the distance between the source and the area D as surveyed point; n is the quantity of the force lines going through the area D; A is coefficient of proportion.

Differentiating and dividing the two sides of the equation by dt:

$$\frac{ds}{dt} = A\frac{dn}{dt}$$

$\frac{ds}{dt} = v$ (Definition of velocity)

So that: $$v = A\frac{dn}{dt} \qquad (2\text{-}1)$$

Assuming N as the total number of the incident rays emitted by a source of light, which is regarded as a source point. Such notion of a source of light also applied to the point that reflects the light, then the total number of the refleted rays N at the reflecting point as a light source equal to the density n of the incident rays at this point. The general conception of the light source points above allows us to disregard whether the nature of light is the particle, according to the Newton corpuscular theory or the waves, according to the Huygens waves theory. At an arbitrary point in space we always define the spherical surface with the centre at the source of light and the radius R =ct (c is the velocity of light, t is the interval of time for light going from centre to the surveyed point). The area S of the spherical surface with the radius R=ct as the following:

$$S = 4\pi(ct)^2$$

As a closed surface, so that the total number of the incident rays going through S equal to N.

Regarding n as the total number of the incident rays going through an area unit, thus:

$$n_c = \frac{N}{S} = \frac{N}{4\pi(ct)^2}$$

Hence

$$\frac{dn_c}{dt} = -\frac{N}{2.\pi.c^2.t^3} \qquad (2\text{-}2)$$

Multiplying and dividing the right side of (2-2) by 2c:

$$\frac{dn_c}{dt} = -\frac{2N.c}{4\pi.c^3.t^3} = -2\frac{N.c}{4.\pi.R^2.R} = -\frac{2n.c}{R}$$

The number 2 represents the symmetry of the incident rays in homogeneous medium (the equal directions space), so we can ignore it.

$$\frac{dn_c}{dt} = -\frac{n.c}{R} \qquad (2\text{-}3)$$

The meaning of the formula (2-3) that, the variable rate of the density n over the time at a point in space, where the light field cover is in accordance to the density n and the distance R respectively. Assuming that there is a frame of reference at the same point and moving at the velocity as **v** along the direction of the velocity **c**, the variable rate of the density n over the time caused by **v**:

$$c \to \frac{dn_c}{dt} = -\frac{n.c}{R}$$

$$v \to \frac{dn_v}{dt}$$

$$\frac{dn_v}{dt} = -\frac{n.c.v}{.R.c} = -\frac{n.v}{R}$$

So the variable rate of density n over the time at the surveyed point caused by velocity **c** and velocity **v** :

$$\frac{dn}{dt} = \frac{dn_c}{dt} + \frac{dn_v}{dt} \qquad (2\text{-}4)$$

When moving in the same direction of velocity **c**, the relative velocity between **c** and **v** is $(c - v)$.

According to the formula (2-1),(2-3) and (2-4) we have:

$$(c - v) = A(\frac{dn_c}{dt} + \frac{dn_v}{dt}) = -A\frac{n}{R}(c + v) \qquad (a)$$

When moving in the opposite direction of velocity **c**, the relative velocity between **c** and **v** is $(c+v)$.

According to the formula (2-1),(2-3) and (2-4) we have:

$$(c+v) = A(\frac{dn_c}{dt} - \frac{dn_v}{dt}) = -A\frac{n}{R}(c-v) \qquad \text{(b)}$$

Dividing (a) by (b) we have:

$$\frac{c-v}{c+v} = \frac{c+v}{c-v} \rightarrow c+v = c-v$$

In case of $v > c$. If **v** and **c** are in the same direction we have:

$$(v-c) = A(\frac{dn_c}{dt} + \frac{dn_v}{dt}) = -A\frac{n}{R}(c+v) \qquad \text{(c)}$$

If **v** and **c** are in the opposite directions we have:

$$(c+v) = A(\frac{dn_v}{dt} - \frac{dn_c}{dt}) = A\frac{n}{R}(v-c) \qquad \text{(d)}$$

Dividing (c) by (d) :

$$\frac{v-c}{c+v} = -\frac{c+v}{v-c} \rightarrow v-c = -(c+v) \rightarrow c+v = c-v$$

The results are the same so that in any condition we always have:

$$c+v = c-v \qquad \text{(2-5)}$$

The formula (2-5) seems to contradict Galileo’s rule of the relative velocities. If we moved toward the source of light at the speed as V, then the relative speed between us and the incident ray of light would be $c+V$ and the reflected ray would be $c-V$. As we have known, in fact the velocity of the incident ray always equal to the velocity of the reflected ray regardless how we should move by comparison with the source of light. So that,

$$c+V = c-V$$

If we move far away from the source of light, reasoning as similar we have:

$$c-V = c+V$$

This only illustrate that the light's velocity is maximum, therefore, in any case we can only recognize the incident rays and totally can not recognize the reflected rays. This constancy is no concern of Galileo's rule. For an isolated frame of reference, there is only notion of incident ray but no reflected ray although the existence of reflected ray is a self-evident truth, since; we never keep pace with reflected ray, when it is leaving far away from us.

The variable rate of the density of the incident rays at the surveyed point in space is directly proportional to the relative velocities between the surveyed point and the source regardless the directions of the velocities. That mean, every velocity by comparison with the variable rate of the density of the incident rays over the time at an arbitrary point in space is constant, here it is the coefficient of proportion A in the formula (2-1).

At the given moment, every velocity of every material point on the spherical surface relative to the centre (the source of light) could be decomposed into two components, the tangent velocity ($\vec{v}_t$) and the normal velocity ($\vec{v}_n$) to the spherical surface. The tangent velocity represents the moving of a material point on the spherical surface, the radius is not varied, so n=const. Thus, we could ignore the tangent velocity when comparing the velocity of a material point on the spherical surface relative to the centre of the spherical surface with the variable rate of the density of the incident rays over the time. So the velocities have been mentioned above are the velocities in general notion. The density of the incident rays at a point and the variable rate of the density of the incident rays over the time represent for the actions of a light field in space applying on the surveyed frame of reference at that point. The equation (2-5) shows that, the velocities of the surveyed points have no effect to the variable rate of the density of the incident rays over the time at the surveyed point, so we could formulate the Law as the following:

Law of the radiations disposition:

The variable rate of the density of the incident rays over the time at an arbitrary point in space, where the radiation field cover is independence from the velocities of the surveyed point and defined as the following formula:

$$\frac{dn}{dt} = -\frac{n.c}{R} \qquad (2\text{-}6)$$

Where c: the velocity of light, n: the density of the incident rays at the point in the distance R from the light source.

Suppose there are 2 source points of light, which emit different velocities of light $(c_1 \neq c_2)$, for the sake of unprejudiced judgment, although this violates the Law of radiations disposition. We only mention about the velocity, so we could regard the surveyed sources have the same total of the incident rays as N. At the middle point of the straight line connecting the two surveyed sources, which is in the distance R from the sources, due to the velocity of light are always in the opposite directions, supposing $(c_1 > c_2)$ so according to (2-1) and (2-3) we have:

$$(c_1 + c_2) = A\left(\frac{dn_{c1}}{dt} - \frac{dn_{c2}}{dt}\right) = -A\frac{n}{R}(c_1 - c_2) \quad (c)$$

$$(c_1 + c_2) = A\left(\frac{dn_{c1}}{dt} - \frac{dn_{c2}}{dt}\right) = A\frac{n}{R}(c_1 - c_2) \quad (d)$$

Dividing (c) by (d) we shall arrive at:

$$\frac{c_1 - c_2}{c_1 - c_2} = -1 \rightarrow c_1 = c_2$$

If we consider these are two different frames of reference, due to the velocity of the incident ray always equal to the velocity of the reflected ray in any frames of reference, so that according to (2-5) we have:

$$c_1 + c_2 = c_1 - c_2$$
$$c_1 + c_2 = c_2 - c_1$$

Dividing two equations by each other we get the same result. We have the corollary of the Law of the radiations disposition as the following:

Corollary of the Law of the radiation disposition:

Velocity of the radiations in space is the unique finite constant and not depended on the relative velocities between the sources of the radiations and the frames of reference.

$c = const$

According to the Corollary of the Law of the radiations disposition that. The notion of the relative velocity is impossible applied in such the variable space as the force lines space. According to the formula (2-1), $v = A\frac{dn}{dt}$ or $\frac{ds}{dt} = A\frac{dn}{dt}$ if $\frac{ds}{dt} = \frac{dn}{dt}$ then the coefficient of proportion A must be equal to 1, viz $s = n$, that means the stand still space and the incident rays space are identity. Consequently, the incident rays to become the straight lines parallel to the distance line. According to hypothesis, we have:

$$\frac{dn}{dt} = c \text{, thus } \frac{ds}{dt} = \frac{dn}{dt} = c \rightarrow v = c \qquad (2\text{-}7)$$

The formula (2-7) shows that, if a material body moving at the speed as the speed of radiations transmission, then the material bodies must be exist in the form as the form of the radiations.

3- The notion of spin and the nature of momentum transition in material space.

At the first looking, it seems as if there was a contradiction in the first conclusion (section 1), for it is impossible for transition of kinetic energy without motion of the material bodies. In order to solve this contradiction, we should mention about the rotational motion of the material elements. Motion is the property of a material element, at the given instant any motion of a material element can be decomposed into two basic movement components the linear motion and the rotational motion. The linear motion leading to infinity dimensions while the dimensions of the material elements are finite limited. Furthermore, the linear motion can not make the interaction of the material elements in infinity period of time continuously without interruption. When we mention about the material elements with so very tiny dimensions that they has no mass nor inertia neither, so the motions of the material elements caused by the forces applying on them stop at the same instant, when the forces have applied on them disappeared. The rotational movement can remedy the above defects of the linear motion, further more, the rotation could transit the kinetic energy in all directions simultaneously. Let us to consider only the motion, which can not be decomposed into any other component of velocity except the angular velocities, which are regarded as a natural property of the surveyed element, such the property called "Spin", the notion of spin is defined as following:

Spin is a property of material elements and material space, whose unit is the same as unit of angular velocity.

It follows the formula (2-4) we have:

$$\frac{dn}{dt} = \frac{dn_c}{dt} + \frac{dn_v}{dt} \rightarrow \frac{dn}{dt} = \frac{n\vec{c}}{R} + \frac{n\vec{v}}{R} = n\vec{\omega}_c + n\vec{\omega}_v$$

Where: $$\vec{\omega}_c = \frac{\vec{c}}{R}, \ \vec{\omega}_v = \frac{\vec{v}}{R} \qquad (3\text{-}1)$$

Assuming material space transmits radiation spins by method of direct contact. According to the formula (3-1) the variable rate of the density of the force lines over an interval of time at surveyed point in distance R from the source is equal to the density of spins $\vec{\omega}_c$ and $\vec{\omega}_v$. On the other hand, according to the formula (2-4) at the surveyed point there are n elements simultaneously take part in the displacements at relative velocities as $\vec{c}$ and $\vec{v}$. Basing on the velocities relationship Law, we can define the relative velocities of n elements by comparison with the source as $\vec{v}_c = \frac{\vec{c}}{\sqrt{2}}$ and $\vec{v}_v = \frac{\vec{v}}{\sqrt{2}}$, thus the displacements of n elements around the source at the angular velocities as :

$$\vec{\omega}_{\vec{v}_c} = \frac{\frac{\vec{c}}{\sqrt{2}}}{\frac{R}{\sqrt{2}}} = \frac{\vec{c}}{R} \rightarrow \vec{\omega}_{\vec{v}_c} = \vec{\omega}_c \ ; \ \vec{\omega}_{\vec{v}_v} = \frac{\frac{\vec{v}}{\sqrt{2}}}{\frac{R}{\sqrt{2}}} = \frac{\vec{v}}{R} \rightarrow \vec{\omega}_{\vec{v}_v} = \vec{\omega}_v \qquad (3\text{-}2)$$

The formulas (3-1), (3-2) show that, each force line contains a pair of spins $\vec{\omega}_c$, $\vec{\omega}_v$, which causing the changing rate of the density of force lines over the interval of time. Since, $\vec{c}$ is the velocity of radiation transmission, so we can regard $n\vec{\omega}_c$ as the displacements of n elements at velocity as $\vec{c}$ in all directions on the spherical surface, whose radius is R. But $\vec{v}$ is the displacements of reference frame, so we can regard $n\vec{\omega}_v$ as the displacements of n elements at velocity as $\vec{v}$ in the same direction on the spherical surface, whose radius is R. These remarks are fully in accordance with the Law of radiations disposition that, the variable rate of the density of the spins at the surveyed point over an interval of time is dependent only upon $\vec{\omega}_c$. Hence, we have the significant remarks on the nature of radiation transmission in the material space as the follows:

- The radiations in material space are the radiation spins contact directly and exchange kinetic energy continuously to each others.
- At an instant, the source and the radiation spins of the source are united as an undetachable physical body developing in the material space at the velocity of the radiation transmission.

From what has been mentioned above, we can regard a material element as the density of the pairs of spins at the surveyed point in material space. In other words, the material elements radiate the radiations in material space as the radiation spins.

If there are k bodies exist at different points in material space, the respective relative velocities of the bodies by comparison with an arbitrary body chosen among them as the source of radiation spins are $\vec{v}_1, \vec{v}_2, \vec{v}_3 ... \vec{v}_k$, according to the formula (2-4) and the formula (3-1) we have:

$$\frac{dn}{dt} = \frac{dn_c}{dt} + \frac{dn_{v_1}}{dt} \rightarrow \frac{dn}{dt} = \frac{n\vec{c}}{R_1} + \frac{n\vec{v}_1}{R_1} = n\vec{\omega}_c + n\vec{\omega}_{v_1}$$

$$\frac{dn}{dt} = \frac{dn_c}{dt} + \frac{dn_{v_2}}{dt} \rightarrow \frac{dn}{dt} = \frac{n\vec{c}}{R_2} + \frac{n\vec{v}_2}{R_2} = n\vec{\omega}_c + n\vec{\omega}_{v_2}$$

$$\frac{dn}{dt} = \frac{dn_c}{dt} + \frac{dn_{v_3}}{dt} \rightarrow \frac{dn}{dt} = \frac{n\vec{c}}{R_3} + \frac{n\vec{v}_3}{R_3} = n\vec{\omega}_c + n\vec{\omega}_{v_3}$$

. . . .

$$\frac{dn}{dt}=\frac{dn_c}{dt}+\frac{dn_{v_k}}{dt}\rightarrow\frac{dn}{dt}=-\frac{n\vec{c}}{R_k}-\frac{n\vec{v}_k}{R_k}=-n\vec{\omega}_c-n\vec{\omega}_{v_k} \qquad (3\text{-}3)$$

Where: R_k are distances from the source to the surveyed body respectively, n are the amount of pairs of spins ($\vec{\omega}_c$, $\vec{\omega}_{v_k}$) of the source.

The formula (3-3) help us from now on considering the material elements composed of different spins in the radiation spins space radiated by them as our model of research. Since, at an instant the material elements and radiation spins space radiated by them are united as an undetachable physical body, so there is no relative motion between them. Besides, when regarding the material space as the reference frame we only have the notion of spins instead of the notion of relative motions, therefore, the momentum p of $n\vec{\omega}_v$ is $p=n.\vec{v}$

4-The Axiom and the notions of spins.

To generalize and for the sake of equality of the material elements, we only have the notion of spins, i.e. the only difference between the material elements in the Universe is their spins. Besides, since an isolated system is only effected by incident rays, so all material elements in the Universe are assumed to be sunk in material space composed of the spins caused by the tangent velocity $\vec{c}$.

The Axiom:

- The elements of material body and material space are composed of the spins caused by the tangent velocity $\vec{c}$. The spins of material body are slower than the spins of material space.
- There is no relative motion between the elements of material space.

The notion of spins:

Assuming material body plays role in material space as a density of radiation spins, i.e. the density n of the spins of a material body as its number of the force lines n .

In the formula (2-6), replacing $t = \frac{R}{c}$ on $\frac{dn}{dt}$ we have $\frac{dn}{dt} = \frac{d(nc)}{dR}$

Denoting: $p = n.c$, p is the momentum of n velocities $\vec{c}$.

The formula (2-6) written as equivalent formula as following:

$$\frac{dn}{dt} = \frac{d\vec{p}}{d\vec{R}} = -n.\vec{\omega} \rightarrow \vec{\omega} = -\frac{d\vec{p}}{n.d\vec{R}} = -\frac{d\vec{p}}{n.c.dt} = -\frac{\vec{F}}{n.c}, \text{ with } (\vec{F} = \frac{d\vec{p}}{dt}).$$

$$\vec{\omega} = -\frac{\vec{F}}{n.c} \rightarrow \vec{F} = -n.c.\vec{\omega} \qquad (4\text{-}1)$$

$\vec{F}$ is the interaction force of material space applying on the material body composed of n spins $\vec{\omega}$. The minus sign in formula (4-1) indicates that, the directions of the interaction forces of material space applying on the material body are in the opposite directions of radiation spins transmission, i.e. The material space always tends to push the radiation spins $n\vec{\omega}_c$ shrank. We are not astonished by the formula (4-1), for the notion of force line used in mathematic to present the quantities changing theirs intensity over the relative distances between them and the source.

We define the scalar spin as follows:

- The spin caused by the tangent velocity, whose magnitude is equivalent to the magnitude of the velocity of radiation spins transmission ($c = const$) called “scalar spin”.

The value of scalar spin is determined by the definition ($\vec{w}_c = \frac{\vec{c}}{R}$) or by the formula (3-2), the interaction force of the radiation spins space applying on the material body is determined by the formula (4-1).

According to the Axiom and the Law of radiations disposition that, the material quantities are the scalar spins play role as a source of radiation spins or as a density of radiation spins at the point of theirs existence in radiation spins space. So we can regard a scalar spin as an element of radiation spins space, whose velocity is equal to $c = const$ in all direction (a light point).

We only mention about the tiny infinity material elements, further more a scalar spin is as a light point, so the difference between scalar spins is theirs value of spin, say, ω_1, ω_2 with $\omega_1 \neq \omega_2$. The composition of these two spins ω_1, ω_2 produce the resultant spin ω_{12}. According to the Law of momentum conservation the value of the resultant spin ω_{12} determined as:

$$\omega_{12} = \frac{\omega_1 + \omega_2}{2}$$

Generally, the resultant spin ω of n component spins ω_k (n, k are positive whole numbers) as following:

$$\omega = \frac{\sum_{k=1}^{n} \omega_k}{n} \qquad (4\text{-}2)$$

The scalar spin of material space has no dimension, thus its value is equal to the constant c, according to the formula (4-1) the interactive force of the spins of material space is:

$$F = -c^2 \qquad (4\text{-}3)$$

We define the direction spin as the follows:

- The spin caused by the tangent velocity $\vec{v}$, whose magnitude is smaller than the magnitude of the velocity of radiation spins transmission ($v < c = const$) called "direction spin".

$$\vec{w}_v = \frac{\vec{v}}{R} \qquad (4\text{-}4)$$

Where: $\vec{v}$ is the relative velocity between the two points in the distance R from each other.

Two direction spins caused by different tangent velocities, either there is interaction of them or composition of them as a planetary model. Denoting $\vec{w}_{pl}$ is the planetary spin of spin $\vec{w}_{v_1}$ circling around spin $\vec{w}_{v_2}$, the relation of the spins represented by the equation as the following:

$$\vec{\omega}_{v_2} = \vec{\omega}_{v_1} + \vec{\omega}_{pl} \qquad (4\text{-}5)$$

It follows from the Axiom that, there is only relative motion between the material elements, furthermore, at an instant the material elements and the radiation spins radiated by them are united as an undetachable physical body. So when making the mentions about the relative velocity between two material elements we have complied that these two material elements were as the unique material element. Whose the dimension determined by the distance R between them and theirs direction spin determined by the formula (4-4). In other words, for the radiation spins space, the dimensions of the material elements are infinitive. Therefore, with such conception of dimension, at an instant a set of material elements could be regarded as the unique body contains the different direction spins. Basing on the formula (3-3), the set of relative velocities $\vec{v}_1(\vec{v}_{x_1}, \vec{v}_{y_1}), \vec{v}_2(\vec{v}_{x_2}, \vec{v}_{y_2}), \vec{v}_3(\vec{v}_{x_3}, \vec{v}_{y_3}) .. \vec{v}_k(\vec{v}_{x_k}, \vec{v}_{y_k})$ of k material elements by comparing with one chosen element among them are respectively equivalent to the set of the isosceles right triangles, whose hypotenuses are the relative velocity vectors $\vec{v}_k$ representing for the measurement of the relative velocity in invariable space, the two sides of the isosceles right triangles are the relative velocity vectors $\vec{v}_{x_k}, \vec{v}_{y_k}$ representing for the measurement of the relative velocity in variable space or radiation spins space. From now on, our conceptions of the material elements and the radiation spins space radiated by them are as follows:

- Every material element composed of scalar spins and direction spins.
- The quantity of spins of the material element is equivalent to the density of the radiation spins at the point, where the material element exists in the radiation spins space.

In case of the radiation spins source composed of several material elements moving at the relative velocity as $\vec{v}_{re}$ by comparing with a point in the distance R , then the source of radiation spins to be regarded as unique direction spin determined by the formula $\vec{\omega}_{re} = \frac{\vec{v}_{re}}{R}$, the direction spin $\vec{\omega}_{re}$ is called the Magnetic spin.

Besides, for an isolated reference frame there is only the notion of incident ray, so we have the notion of propulsive force only.

5- Universal gravity force.

The mass: The mass is the amount of the scalar spins of the material element

Denoting M is the amount of the scalar spins of the material element, then the resultant spin $\vec{m}$ of M component spins $\vec{m}_k$ determined by the formula (4-2) as following:

$$\vec{m} = \frac{\sum_{k=1}^{M} \vec{m}_k}{M} \quad \text{(k is positive and whole)} \qquad (5\text{-}1)$$

Where: M is the mass, the resultant spin $\vec{m}$ is the mass spin.

The mass M of the material element also is the density of the mass spins $\vec{m}$ of the material element at its existence point in radiation spins space. Therefore, according to the formula (3-3) the variable rate of the mass M over an interval of time as $\frac{dM}{dt} = - M\vec{m}$. This means, at an instant the mass M radiates M radiation mass spins $\vec{m}$ into its radiation mass spins space.

In the radiation spins space composed of the spins $\vec{\delta}$ (or radiation spin $\vec{\delta}$ space for short), the radiation spin of the mass spin $\vec{m}$ is $\vec{\delta}_m$, whose value is determined in accordance with the Axiom ($m < \delta$) as the following:

$$\delta_m = \delta - m$$

Supposing that, there are two mass spins $\vec{m}_1, \vec{m}_2$ in the radiation spins $\vec{\delta}$ space, the radiation spins radiated by these two mass spins respectively are determined as follows:

$$\delta_{m_1} = \delta - m_1 \ , \ \delta_{m_2} = \delta - m_2$$

Where: $\vec{\delta}_{m_1}$ is the radiation spin of the spin $\vec{m}_1$, $\vec{\delta}_{m_2}$ is the radiation spin of the spin $\vec{m}_2$

The resultant spin $\vec{d}_{12}$ of the component radiation spins $\vec{\delta}_{m_1}, \vec{\delta}_{m_2}$ according to the formula (4-2) is:

$$\delta_{1.2} = \frac{\delta_{m_1} + \delta_{m_2}}{2} = \frac{\delta - m_1 + \delta - m_2}{2} = \frac{2\delta - (m_1 + m_2)}{2} = \delta - \frac{m_1 + m_2}{2} \qquad (5\text{-}2)$$

The equation (5-2) shows that, the resultant spin $\vec{\delta}_{12}$ of the component radiation spins $\vec{\delta}_{m_1}, \vec{\delta}_{m_2}$ is equivalent to the radiation spin radiated by the mass of two material elements composed of the mass spins $\vec{m}_1, \vec{m}_2$ respectively. In the equation (5-2), if the resultant spin of radiation $\vec{\delta}_{12}$ is equal to zero (the system is in equilibrium), the spins $\vec{m}_1, \vec{m}_2$ must be equal to the spin $\vec{\delta}$ of the radiation spins space in accordance with the Axiom ($m < \delta$), consequently $m_1 = m_2 = \delta$. Similarly, for the number M of material elements as the following:

$$m = \frac{\sum_{k=1}^{M} m_k}{M} \rightarrow \delta_m = \delta - m \qquad (5\text{-}3)$$

Where: M is the number of the material elements, $\vec{m}_k$ is the mass spin of the material element respectively, $\vec{m}$ is the resultant spin of the component mass spins.

$$\text{when } \delta_m = 0 \text{ , consequently } m = \frac{\sum_{k=1}^{M} m_k}{M} = \delta \qquad (5\text{-}4)$$

It follows from the equation (5-4) that, when the system in equilibrium the mass spin $\vec{m}$ of a material element is equal to the spin $\vec{\delta}$ of radiation spins space. Similarly, for the number M of all material elements in the Universe, we have the conclusion as the following:

- The scalar spin of the radiation spins space in the Universe is equal to the mass spin of a material element.

If $\delta = o$:

$$\delta = c - m = 0 \rightarrow m = c \qquad (5\text{-}5)$$

The equation (5-5) confirms that, when the spin of the radiation spins space is exterminated the mass M must be decomposed into the spin c of the material space to become the energy $E = M.c^2$ in accordance with the formula (4-1) as the following expressions:

Replacing M and $\vec{m}$ into formula (4-1), we have:

$$\vec{m} = -\frac{\vec{F}}{M.c} \rightarrow \vec{F} = -\vec{m}.M.c \qquad (5\text{-}6)$$

It follows the define that, $\vec{m}$ is a scalar spin, so its value determined by the formula $m = \frac{c}{R}$.

Substituting this expression into formula (5-6), we get the energy E of the mass M:

$$E = \vec{F}.\vec{R} = M.c^2$$

According to the formula (5-6) the mass spin $\vec{m}$ applies on the radiation spins space the interactive force as $\vec{F}_m = m.\vec{c}$.

The density n of the radiation of the mass spins $\vec{m}$ of the mass M at the point in the distance R is:

$$n = \frac{M}{4\pi R^2}$$

Taking this relation into account, we can write the formula (2-6) as follows:

$$\frac{dn}{dt} = -\frac{M}{4pR^2}\vec{m}$$

The radiation spins space applies on the density of radiation spins the interactive force $\vec{G}$, which is called “ gravitation field intensity of the mass M at the distance R” and to be determined by the formula (5-6) as the following :

$$\vec{G} = -\frac{M.c.\vec{m}}{4\rho R^2} \tag{5-7}$$

The mass M and its density of radiation spins $\vec{m}$ in the distance R are the united body, so the minus sign in the formula (5-7) indicates that, the gravitation field intensity $\vec{G}$ tends to apply on the density $n = \frac{M}{4\pi R^2}$ the propulsive force along the opposite direction of the radiation spins transmission toward the mass M, simultaneously, the density $n = \frac{M}{4\pi R^2}$ applying on the radiation spins space the same force in the opposite direction.

Let us now consider the two masses M_1, M_2 in the distance R from each other in the radiation spins space, suppose there is no relative motion between them. Therefore, the two masses M_1, M_2 and the radiation magnetic spins $M_1\vec{w}_v, M_2\vec{w}_v$ spaces radiated by them having the same tangent velocity $\vec{v}$, i.e. the rolling without slides. Thus, there is no interaction between them, so we can ignore these radiation magnetic spins $M_1\vec{w}_v, M_2\vec{w}_v$. It follows what has been mentioned above, according to the formula (5-7) the gravitation field intensity of the mass M_1 reduces the interaction force of the radiation spins space applying on the mass M_2 by the force $\vec{F}_1$ along the direction of radiation spins transmission toward M_1, whose the magnitude determined as following:

$$\vec{F}_1 = M_2\vec{G}_{M_1} = -\frac{M_1 M_2.c.\vec{m}}{4\rho R^2} \tag{5-8}$$

Similarly, the gravitation field intensity of the mass M_2 reduces the interaction force of the radiation spins space applying on the mass M_1 by the force $\vec{F}_2$ along the direction of radiation spins transmission toward M_2, who's the magnitude determined as following:

$$\vec{F}_2 = M_1\vec{G}_{M_2} = -\frac{M_1M_2.c.\vec{m}}{4pR^2} \qquad (5\text{-}9)$$

Comparing the formulas (5-8), (5-9), the two masses M_1, M_2 are pushed close together by the propulsive force $\vec{F}_{gra}$ called gravity force determined as following:

$$\vec{F}_{gra} = \vec{G}.M = \frac{M_1M_2.c.\vec{m}}{4\pi R^2} \qquad (5\text{-}10)$$

Denoting $K = \frac{4p}{c.m}$, then substituting this factor into the formula (5-10) we obtain the familiar experimental formula of gravity force:

$$\vec{F}_{gra} = -K\frac{M_1M_2}{R^2}$$

The gravitation field intensity $\vec{G}$ also is the free- fall acceleration of the mass M_2 falling into M_1 and vice versa in accordance with Newton's second Law .

If the mass M moving at the relative velocity $\vec{v}$, then the mass M radiates the radiation direction spin $\vec{B}_M = M\vec{\omega}_v$, since, according to the formula (3-3) we have:

$$\frac{dM}{dt} = M.\vec{w}_v \ ; \ \vec{\omega}_v = \frac{\vec{v}}{R} \rightarrow \vec{B}_M = M\vec{\omega}_v = M\frac{\vec{v}}{R} \qquad (5\text{-}11)$$

The direction spin $\vec{B}_M = M\vec{\omega}_v$ is the magnetic spin of the mass M.

When applying the force $\vec{F}$ on the mass M, each element of the mass M is acted on by the force as $\vec{a} = \frac{\vec{F}}{M}$, according to Newton's second Law, the force $\vec{a}$ is also the acceleration of the mass M, thus, the mass M radiates the radiation magnetic spin $\vec{B}_M$ caused by the relative velocity $\vec{v} = \vec{v}_0 + \vec{a}$ as the tangent velocity ($\vec{v}_0$ is the initial velocity of the mass M), substituting this expression into the formula (5-11) we have:

$$\vec{B}_M = M\,\vec{w}_v = M\,\frac{\vec{v}_0 + \vec{a}}{R} = M\,\frac{\vec{v}_0}{R} + M\,\frac{\vec{a}}{R} = M\,\vec{w}_{v_0} + \frac{\vec{F}}{R} \qquad (5\text{-}12)$$

The mass M and its radiation magnetic spins $M\,\vec{w}_{v_0}$ space are the united body, so there is no interaction between them (their tangent velocity is the same as $\vec{v}_0$). Therefore, the mass M plays role as a magnetic spin $M\,\vec{w}_{v_0}$ of its radiation magnetic spins $M\,\vec{w}_{v_0}$ space. The force $\vec{F}$ acting on the mass M imparts to it the acceleration $\vec{a}$, according to the formula (5-12) the difference of the radiation magnetic spins $M\,\vec{w}_v$ space and the radiation magnetic spins $M\,\vec{w}_{v_0}$ space is the moment of the force $\vec{F}$ (the $\frac{\vec{F}}{R}$) whence , the interaction of the moment of force between the radiation magnetic spins $M\,\vec{w}_v$ space and the radiation magnetic spins $M\,\vec{w}_{v_0}$ space is ($\frac{\vec{F}_{ine}}{R} = -\frac{\vec{F}}{R}$):

$$\frac{\vec{F}_{ine}}{R} = -\frac{\vec{F}}{R} \rightarrow \vec{F}_{ine} = -\vec{F} = -M\,.\vec{a} \qquad (5\text{-}13)$$

According to the formula (5-13) the radiation magnetic spin $M\,\vec{w}_{v_0}$ space applies on the mass M the force of inertia $\vec{F}_{ine}$ in opposite direction of the force $\vec{F}$, $\vec{F}_{ine} = -\vec{F}$.

Generally, every variable of the motion state of the mass M causing the interaction between the mass M and its radiation magnetic spins $M\,\vec{w}_v$ space. According to the formula (5-13) that, the variable of the radiation magnetic spins $M\,\vec{w}_v$ space tends to against the variable of the motion state of the mass M, this phenomenon is called “The inertia of the mass”.

Every material element always moving continuously without stopping, therefore, at any instant the mass M always radiates the radiations of the mass spin and the radiations of magnetic spin. The radiations of the mass spins $M\vec{m}$ with the vector $\vec{G}$ representing for the gravity force, the radiations of the magnetic spin $M\,\vec{w}_v$ representing for the inertia of the mass M or the force of inertia $\vec{F}_{ine}$. At an arbitrary point in the radiation spins space there are always existence of two vectors, the vector $\vec{G} = -\frac{M.c.\vec{m}}{4pR^2}$ and the vector $\vec{B}_M = M\vec{\omega}_v$ representing for the gravitation field of the mass M or its radiation spins space. The rotation of the Earth around its axis radiates the radiation magnetic spins space determined by the formula (5-11), which has been known so far as the Earth's magnetic field.

Supposing, the mass M_2 is falling freely into the mass M_1 by the acting of the gravitation field intensity $\vec{G}$ of the mass M_1 applies on it, each element of the mass M_2 acted on by the force $\vec{a} = \vec{G}$,thus, the mass M_2 falling at free-fall acceleration $\vec{a} = \vec{G}$. Assuming $M_2\vec{w}_{v_0}$ is the initial radiation magnetic spins of the mass M_2, when M_2 is falling it radiates the radiation magnetic spins:

$$M_2\vec{w}_v = M_2\vec{w}_{v_0} + M_2\frac{\vec{G}}{R} = M_2\vec{w}_{v_0} + \frac{\vec{F}_{ine}}{R}.$$

Similarly as the inertia of the mass has been mentioned above, the radiation magnetic spins $\vec{B}_M = M\vec{\omega}_v$ space apply on the M_2 the force of inertia:

$$\vec{F}_{ine} = -\vec{G}.M_2$$

Consequently, the total forces applying on the M_2:

$$\vec{F}_{gra} + \vec{F}_{ine} = -GM_2 + GM_2 = 0$$

6- The electronic-magnetic forces.

The material element contains the set of n direction spins $\vec{w}_{v_1}, \vec{w}_{v_2}, ...\vec{w}_{v_{n-1}}, ...\vec{w}_{v_n}$, with $\vec{w}_{v_n} = \frac{v_n}{R_n}$ (n is whole, positive), such these direction spins changing continuously theirs values in accordance with the parameters $\vec{v}_n, R_n$ during an interval of time. In general, the direction spins of a material element are very different from others, but when the dimension of the material element is so small that, we can regard the tangent velocity vectors of the direction spins of the material element are the same magnitude and leading to all directions in the radiation spins space as a point radiating the same radiation direction spins. Thus, the properties of a point radiating the same radiation direction spins are similar to the properties of a scalar spin. Therefore, according to the formula (4-2) the resultant direction spin $\vec{\omega}_v$ of the component direction spins $\vec{\omega}_{v_n}$ to be determined as the following:

$$\vec{\omega}_v = \frac{\sum_{n=1}^{n} \vec{\omega}_{v_n}}{n}$$

To distinguish the material elements play role as a point radiating the same radiation direction spins from others material elements, we call such the material element is "a Particle". Since, the tangent velocity of a direction spin is the relative velocity, so every particle has it own opposite particle.

According to the formula (4-1) the interaction force of the radiation spins space apply on the direction spins $\vec{W}_v$ of a particle determined as the following:

$$\vec{W}_v = -\frac{\vec{F}}{n.v} \rightarrow \vec{F} = -n.v.\vec{W}_v \qquad (6\text{-}1)$$

It's different from the case of the scalar spins that, the minus sign in the formula (6-1) indicates the direction of the interaction force of the radiation spins space apply on the direction spins $\vec{W}_v$ of a particle is in the opposite direction of the tangent velocity $\vec{v}$ of the direction spin $\vec{W}_v$.

It follows from what has been mentioned above, we can regard an Atom as the density of the particles, so an Atom is as a point radiating the radiation direction spins space. According to the formula (6-1), among the particles in the radiation direction spins space of an Atom, whose the direction spin ($\vec{W}_v$) or the size (n) is the bigger the stronger interaction force of the radiation direction spins space applying on. The interaction of the radiation direction spins space of the Atom applying on the particles in it are in the same directions of radiation direction spins transmission of the Atom. This phenomenon is one of the main causes of the Atom's structures of the chemical elements in the Universe. The Law of the velocities relationship and the notion of reference frame in the radiation spins space let us to describe the particles inside an Atom as a set of the similar isosceles right triangles in accordance with the formula (3-3). Therefore, we can take this expression into account to describe the pairs of the positive direction spin elements and the negative direction spin elements respectively as the follows:

Denoting $\vec{q}$ is the radiation direction spin of the positive element and $-\vec{q}$ is the radiation direction spins of the negative element of a pair of the opposite spin elements respectively. This is only the particular mathematical sign for a pair of the opposite direction spin elements in survey, when they taking place simultaneously at the surveyed instant. Hence, a pair of the opposite direction spin elements do not radiate the radiation spins space. When the same sign direction spin elements exist freely as an isolated system of independent spins $\vec{q}$ or $-\vec{q}$ for the radiation spins space that, the both opposite direction spin elements are as the same as the independent spins $\vec{q}$ and to obey the formula (6-1). The tangent velocity of the radiation direction spins space of the Atom is either in the same direction of the tangent velocity of the positive element or in the same direction of the tangent velocity of the negative element. We agree with the decision that, the tangent velocity of the radiation direction spins space of the Atom is in the same direction of the tangent velocity of the direction spin of positive element. In consequence of this agreement, the interaction force of the radiation direction spins space of the Atom applies on a negative element is stronger than on a positive element, so the pairs of the opposite spins in an Atom dispose relatively to the centre of the Atom in the order the positive elements are inside the negative elements are outside respectively. The electron particles are always in the external margin of an Atom, while the proton particles are always in the centre of an Atom, so according to the formula (6-1) among the particles in an Atom the direction spins $\vec{q}$ of electron and proton is the biggest direction spin. We call such the biggest direction spin as the spin $\vec{q}$ of the pair of the opposite direction spins of the electron and proton is the Electric spin.

The charge of an element:

The charge of an element is the amount Q of the independent electric spins $\vec{q}$ in the element.

$$Q = \sum \vec{q} \qquad (6\text{-}2)$$

The charge composed of Q negative electric spins $\vec{e} = -\vec{q}$ is called the Negative charge ($-Q$), the charge composed of Q positive electric spins $\vec{p} = \vec{q}$ is called the positive charge ($+Q$). Naturally, the notion of the negative charge and the positive charge has the signification when the two opposite charges ($-Q, +Q$) are present simultaneously at the surveyed places.

Taking the define of the charge into account, we can write the formula (6-1) as the following:

$$\vec{q} = -\frac{\vec{F}}{Q.v_q} \rightarrow \vec{F} = -Q.v_q.\vec{q} \qquad (6\text{-}3)$$

Replacing $\vec{q} = \frac{\vec{v}_q}{R}$ into the formula (6-3) we have the energy E of the charge Q:

$$E = \vec{F}.\vec{R} = Q.v_q^2$$

According to the formula (6-3) the interaction force ($\vec{F}_q$) of the electric spin $\vec{q}$ applies on the radiation direction spins space is $\vec{F}_q = q.\vec{v}_q$

The density of the radiation electric spins $\vec{q}$ of the charge Q at the point in the distance R is:

$$n = \frac{Q}{4\pi R^2}$$

According to the formula (2-6), we have:

$$\frac{dn}{dt} = -\frac{Q}{4\pi R^2}\vec{q}$$

The interaction force ($\vec{E}$) of the radiation direction spins space applies on the density of the radiation electric spins (n) of the charge Q determined by the formula (6-3) as following:

$$\vec{E} = -\frac{Q.v_q}{4\rho R^2}\vec{q} \qquad (6\text{-}4)$$

The force $\vec{E}$ is called the Electric field intensity.

The density of the radiation electric spins $\vec{q}$ of the charge Q at the point in the distance R and the charge Q are as the united body, so the force $\vec{E}$ tend to push the density of the radiation electric spins $n = \frac{Q}{4\pi R^2}$ along the opposite direction of the radiation electric spins transmission toward the charge Q, simultaneously the density of the radiation electric spins $n = \frac{Q}{4\pi R^2}$ also apply on the radiation direction spins space the force as the same magnitude E in the opposite direction of the force $\vec{E}$.

Let us now consider the two charges Q_1, Q_2 in the distance R from each other in the radiation direction spins space, suppose there is no relative motion between them. Therefore, the two charges Q_1, Q_2 and the radiation magnetic spins $Q_1\vec{W}_v, Q_2\vec{W}_v$ spaces radiated by them having the same tangent velocity $\vec{v}$, i.e. the rolling without slides. Thus, there is no interaction between them, so we can ignore these radiation magnetic spins $Q_1\vec{W}_v, Q_2\vec{W}_v$.

If the sign of the charge Q_2 is the same sign of the charge Q_1, then the electric field intensity $\vec{E}_{Q_1}$ of the charge Q_1 takes the positive sign. Since, the charges Q_1, Q_2 composed of the same electric spins $\vec{q}$ but the directions of radiation electric spins transmission of the charges Q_1, Q_2 are in opposite directions, so the direction of the tangent velocity $\vec{v}_q$ of the electric field intensity $\vec{E}_{Q_1}$ of the charge Q_1 and the direction of the tangent velocity $\vec{v}_q$ of the charge Q_2 are in opposite directions. Consequently, the electric field intensity of the charge Q_1 increases the interaction force of the radiation direction spins space applying on the charge Q_2 the force $\vec{F}_1$ along the direction of the radiation electric spins transmission forward the charge Q_2 , the magnitude of the force $\vec{F}_1$ determined as follows:

$$\vec{F}_1 = Q_2 \vec{E}_{Q_1} = \frac{Q_2 Q_1 . v_q . \vec{q}}{4 \rho R^2}$$

In other words, the radiation electric spins space applies on the charge Q_2 the propulsive force $\vec{F}$ along the direction of the distance R forward far away from the charge Q_1 :

$$\vec{F} = \frac{Q_2 Q_1 . v_q . \vec{q}}{4 \rho R^2} \qquad (6\text{-}5)$$

If the sign of the charge Q_2 is opposite to the sign of Q_1, then the electric field intensity $\vec{E}_{Q_1}$ of the charge Q_1 takes the negative sign. Since, the charges Q_1, Q_2 composed of the opposite electric spins $\vec{q}$ and $-\vec{q}$ respectively, but the directions of radiation electric spins transmission of the charges Q_1, Q_2 are in opposite directions, so the direction of the tangent velocity $\vec{v}_q$ of the electric field intensity $\vec{E}_{Q_1}$ of the charge Q_1 and the direction of the tangent velocity $\vec{v}_q$ of the charge Q_2 are in the same direction. Consequently, the electric field intensity of the charge Q_1 reduces the interaction force of the radiation direction spins space applying on the charge Q_2 the force $\vec{F}_2$ along the direction of the radiation electric spins transmission toward the charge Q_1, the magnitude of the force $\vec{F}_2$ determined as follows:

$$\vec{F}_2 = -Q_2 \vec{E}_1 = -\frac{Q_2 Q_1 . v_q . \vec{q}}{4 \pi R^2}$$

In other words, the radiation electric spins space applies on the charge Q_2 the propulsive force $\vec{F}$ along the direction of the distance R toward the charge Q_1 :

$$\vec{F} = \frac{Q_2 Q_1 . v_q . \vec{q}}{4\pi R^2}$$

Denoting $C = \frac{4p}{v_q . q}$, then substituting this factor into the formula (6-5) we obtain the familiar experimental formula of the Coulomb's Law:

$$\vec{F}_c = \pm \vec{C} \frac{Q_2 Q_1}{R^2} \qquad (6\text{-}6)$$

If the charge Q moving at the relative velocity $\vec{v}$, the charge Q radiates the radiation magnetic spin $\vec{B}_Q = Q\vec{\omega}_v$, since, according to the formula (3-3) we have:

$$\frac{dQ}{dt} = Q.\vec{w}_v \ ; \ \vec{\omega}_v = \frac{\vec{v}}{R} \rightarrow \vec{B}_Q = Q\vec{\omega}_v = Q\frac{\vec{v}}{R} \qquad (6\text{-}7)$$

When the force $\vec{F}_c$ applying on the charge Q , each element of the charge Q is acted on by the force as $\vec{a} = \frac{\vec{F}_c}{Q}$, according to Newton's second Law, the force $\vec{a}$ is also the acceleration of the charge Q , thus, the charge Q radiates the magnetic spin $\vec{B}_Q$ caused by the relative velocity $\vec{v} = \vec{v}_0 + \vec{a}$ as the tangent velocity ($\vec{v}_0$ is the initial velocity of the charge Q), substituting this expression into the formula (6-7) we have:

$$\vec{B}_Q = Q\vec{w}_v = Q\frac{\vec{v}_0}{R} + Q\frac{\vec{a}}{R} = Q\vec{w}_{v_0} + \frac{\vec{F}_c}{R} \qquad (6\text{-}8)$$

The charge Q and its magnetic spins ($Q\vec{w}_{v_0}$) space are the united body, so there is no interaction between them (their tangent velocities are the same as $\vec{v}_0$). Therefore, the mass Q plays role as a spin ($Q\vec{w}_{v_0}$) of its magnetic spins space. The force $\vec{F}_c$ acting on the charge Q imparts to it the acceleration $\vec{a}$, according to the formula (6-8) the difference of the magnetic spins ($Q\vec{w}_v$) space and the magnetic spins ($Q\vec{W}_{v_0}$) space is the moment of the force $\vec{F}_c$ (the $\frac{\vec{F}_c}{R}$) whence , the interaction of the moment of force between the magnetic spins ($Q\vec{W}_v$) space and the magnetic spins ($Q\vec{W}_{v_0}$) space is ($\frac{\vec{F}_{ine}}{R} = - \frac{\vec{F}_c}{R}$):

$$\frac{\vec{F}_{ine}}{R} = -\frac{\vec{F}_c}{R} \rightarrow \vec{F}_{ine} = -\vec{F}_c = -Q.\vec{a} \qquad (6\text{-}9)$$

According to the formula (6-9) the magnetic spin $Q\vec{W}_{v_0}$ space applies on the charge Q the force of inertia $\vec{F}_{ine}$ in opposite direction of the force $\vec{F}_c$, $\vec{F}_{ine} = - \vec{F}_c$. The formula (6-9) also shows that, the magnetic force and the electric force are the same nature.

Generally, every variable of the motion state of the charge Q causing the interaction between the charge Q and its magnetic spins ($Q\vec{W}_v$) space. According to the formula (6-9) that, the variable of the magnetic spins ($Q\vec{W}_v$) space tends to against the variable of the motion state of the charge Q and vice versa, this phenomenon is called "The inertia of the charge".

Every material element always moving continuously without stopping, therefore, at any instant the charge Q always radiates the radiation of the electric spins $Q.\vec{q}$ and the magnetic spins $Q\vec{W}_v$ .The radiation of the electric spins of the charge $Q.\vec{q}$ with the vector $\vec{E}_Q$ representing for the electric force, the magnetic spins $\vec{B}_Q = M\,\vec{W}_v$ representing for the inertia of the charge Q or the force of inertia $\vec{F}_{ine}$.

At an arbitrary point in the radiation spins space there are always existence of two vectors, the vector $\vec{E}_Q = - \frac{Q.v_q}{4pR^2}\vec{q}$ and the vector $\vec{B}_Q = Q\vec{\omega}_v = Q\frac{\vec{v}}{R}$ representing for the electro-magnetic field of the charge Q.

Supposing, the charge Q_2 is falling freely into the charge Q_1 by the acting of the electric field intensity $\vec{E}_{Q_1}$ of the charge Q_1 applies on it, each element of the charge Q_2 acted on by the force $\vec{a} = \vec{E}_{Q_1}$, thus, the charge Q_2 falling at free-fall acceleration $\vec{a} = \vec{E}_{Q_1}$. Assuming $Q_2\vec{w}_{v_0}$ is the initial magnetic spins of the charge Q_2, when Q_2 is falling it radiates the magnetic spins $\vec{B}_Q = Q_2\vec{w}_v$:

$$Q_2\vec{\omega}_v = Q_2\omega_{v_0} + Q_2\frac{\vec{E}}{R} = Q_2\vec{\omega}_{v_0} + \frac{\vec{F}_{ine}}{R}$$

Similarly as the inertia of the mass has been mentioned above, the magnetic spins $\vec{B}_Q = Q_2\vec{w}_v$ space apply on the charge Q_2 the force of inertia:

$$\vec{F}_{ine} = -\vec{E}_{Q_1}.Q_2$$

Consequently, the total forces applying on the charge Q_2:

$$\vec{F}_c + \vec{F}_{ine} = \vec{E}_{Q_1}Q_2 - \vec{E}_{Q_1}Q_2 = 0$$

The inertia of the charge is similar to the inertia of the mass, so like the mass, the charge maintains the interaction of force has applied on it after the force disappeared. The inertia of the mass creates the mechanical oscillation such as the mechanical waves, the sonic waves, etc. Similarly, the inertia of the charge creates the electric oscillation such as the electromagnetic waves and the light is the combination of the mechanical waves and the electromagnetic waves also.

7- Structure of the Atom.

According to the formula (5-6) that, among the material elements in an Atom, whose the mass is the bigger the stronger the propulsive force applying on it toward the centre of the material body. As the result of that, the dispositions of the material elements in an Atom are as the spherical forms with the smaller elements circling around the bigger elements at the centre of the spheres in the order the bigger the element the closer to the centre of the spheres.

It follows from what has been mentioned above that, within an Atom the interaction force of the radiation direction spins space apply on the negative element stronger than on the positive element, so for the sets of the opposite radiation spins, the positive radiation spins are inside the negative radiation spins are outside. Therefore, we can regard the set of positive elements and the set of negative elements as an independent system of direction spins or a particle, so according to the formula (4-2) we have:

$$\vec{p} = \frac{\sum_{k=1}^{n} \vec{q}_k}{n}, \ \vec{e} = \frac{\sum_{k=1}^{n} \vec{q}_k}{n}$$

Where: $\vec{p}$ is the electric spin of proton particle $\vec{e}$ is the electric spin of electron particle, $\vec{p}_k$ are the component direction spins.

Since, the proton particles and the electron particles composed of the pairs of the opposite direction spins, so the amount of the proton particles is equal to the amount of the electron particles.

Being acted on by the electric force and the magnetic force in accordance with the formulas (6-5), (6-9), the electron particles either falling into the proton particles at the centre of the Atom, thus the pairs of opposite radiation spins turning into scalar spins ($\frac{e+p}{2} = m \rightarrow e = p = m$), or circling around the proton particles at the centre of the Atom on the planetary trajectories at the planetary spin $\vec{w}_{pl_n}$ determined as the follows:

$$\vec{w}_{pl_1} = \vec{p} - \vec{e} = \vec{q} - (-\vec{q}) = 2\vec{q}$$

$$\vec{w}_{pl_2} = \vec{w}_{pl_1} - 2\vec{e} = 2\vec{q} - (-2\vec{q}) = 4\vec{q}$$

$$\vec{w}_{pl_3} = \vec{w}_{pl_2} - 4\vec{e} = 4\vec{q} - (-4\vec{q}) = 8\vec{q}$$

.....

$$\vec{w}_{pl_n} = 2\vec{w}_{pl_{(n-1)}}$$

When the interactions of the particles are in equilibrium the Atom is formed.

8-The Atomic force.

According to the formula (5-6), the propulsive force of the radiation spins space apply on the mass M is $\vec{F} = -\vec{m}.M.c$, consequently the elements of the mass M apply on the elements at the centre of the mass M the resultant propulsive force as:

$$\vec{F} = -\vec{m}.M.c$$

Denoting M is the mass of an Atom, whose radius is r, the force $\vec{F}_{Atom}$ of the radiation spins space apply on the Atom determined as the following:

$$\vec{F}_{Atom} = -\vec{m}.M.c \rightarrow F_{Atom} = -\frac{c}{r}.M.c = -M\frac{c^2}{r} \qquad (8\text{-}1)$$

Assuming an Atom as the unique body, then the formula (8-1) indicates that, the radiation spins space apply on the Atom the propulsive force as:

$$F_{Atom} = M.\frac{c^2}{r} \qquad (8\ \text{-}2)$$

Where F_{Atom} is the magnitude of the Atomic force

9- Temperature, Heat and Thermal phenomena.

Since, the velocity of radiation spins transmission (c) is the maximum velocity in the Universe, so according to the Law of the velocities relationship that, the maximum relative velocity between the material elements must be as:

$$v_{\max} = \frac{c}{\sqrt{2}}.$$

The relative motions of the material elements are very diversified and discontinued, so the radiation direction spins ($\vec{W}_v$) radiated by them are also very diversified and discontinued too, we call such direction spins and radiation direction spins as mentioned above are the Thermal spins and the Thermal radiation spins . When the tangent velocity of the thermal spins ($\vec{W}_v$) reaches to the value $v = v_{\max}$, then the thermal spin $\vec{W}_v$ radiate the light.

Generally, the thermal spins in a material element are the different direction spins, so there are interactions between them to establish the system in equilibrium. One of the conditions for the system of different radiation spins are in equilibrium that, the tangent velocities of the direction spins are the same value, say, the tangent velocity $\vec{v}$ of the thermal spin $\vec{W}_v$.

Denoting $\vec{v}_t$ is the tangent velocity of the thermal spin $\vec{W}_t$ of the material element in thermal equilibrium , T is the ratio of $\vec{W}_t$ to $\vec{W}_{v_{\max}}$, $T = \frac{\vec{W}_t}{\vec{W}_{v_{\max}}}$, we have the definitions of the temperature and the heat of a material element as follows:

The temperature of an material element.

The temperature T of the material element is the ratio of the thermal radiation spins of the material element to the light radiation spin.

$$T = \frac{\vec{W}_t}{\vec{W}_{v_{\max}}} = \frac{\frac{\vec{v}_t}{r}}{\frac{\vec{v}_{\max}}{r}} = \frac{v_t}{v_{\max}} = \frac{\sqrt{2}.v_t}{c} \qquad (9\text{-}1)$$

When $\vec{v}_t = \vec{v}_{\max} \rightarrow T = 1$, the temperature of the light is equal to one.

When $\vec{v}_t = 0 \rightarrow T = 0$, the material element doesn't radiate thermal radiation spin or in other words, the temperature of the Black body is equal to zero.

The formula (9-1) indicates that, the temperature of the material elements in the Universe are from zero to one:

$$0 \leq T \leq 1$$

The heat of a material element.

The heat K of a material element is the amount of the thermal radiation spins of the material element.

$$K = \sum_{n=1}^{K} \vec{w}_{t_n} \quad (n, K \text{ whole, positive number}) \qquad (9\text{-}2)$$

Where: $\vec{w}_{t_n}$ is the thermal radiation spin of each element in the material element respectively.

It follows from the definition of the heat that, the heat K composed of many thermal radiation spins such as ($\vec{w}_{t_1}, \vec{w}_{t_2}, .. \vec{w}_{t_n}$). According to the formula (9-1), when the material element is in thermal equilibrium, although in difference of the values but the tangent velocities $\vec{v}_t$ of theirs thermal radiation spins $\vec{w}_{t_n}$ are in the same value. We call such velocity as $\vec{v}_t$ mentioned above is the thermal velocity of the heat for short. The thermal velocities of the different heats are different from others, so when the heats in contact there are interaction between them to make the system of the heats to be in thermal equilibrium with the temperature T determined as following:

Suppose that, there are the system of the heats $K_1v_1, K_2v_2, ...K_nv_n$ (K_nv_n means the thermal velocity v_n of the heat K_n) contact directly to each others, K_nv_n is also the momentum of the heat. According to the Law of momentum conservation, we have:

$$v_t = \frac{K_1v_1 + K_2v_2 + ... + K_nv_n}{K_1 + K_2 + ... + K_n}$$

Where: v_t is the thermal velocity of the system when the system is in thermal equilibrium.

According to the formula (9-1), we have:

$$T.\frac{c}{\sqrt{2}} = \frac{K_1.T_1\frac{c}{\sqrt{2}} + K_2.T_2\frac{c}{\sqrt{2}} + ... + K_n.T_n\frac{c}{\sqrt{2}}}{K_1 + K_2 + ... + K_n} = \frac{c}{\sqrt{2}}.\frac{\sum_{n=1}^{n} K_n.T_n}{\sum_{n=1}^{n} K_n}$$

$$T = \frac{\sum_{n=1}^{n} K_n.T_n}{\sum_{n=1}^{n} K_n} \qquad (9\text{-}3)$$

The temperature transmission by the contact directly between the material elements determined by the formula (9-3).

The density n of the heat K_1 at a point in the distance R from the source is:

$$n = \frac{K_1}{4\pi R^2} \rightarrow n.v_1 = \frac{K_1}{4\pi R^2}v_1 = \frac{K_1}{4\pi R^2}.\frac{T_1.c}{\sqrt{2}} \qquad (9\text{-}4)$$

According to the formulas (9-4) and (9-1) that, the heat K of the thermal radiation spins are dependent upon the distance from the source, while the temperature T of the thermal radiation spins remain unchanged regardless of the distance from the source. For instance, the temperature of the rays of light from the Sun at the Earth is equal to the temperature of the rays of light at the Sun, while the heats of the rays of light are dependent on the distance from the Earth to the Sun.

Suppose that, there is a heat $K_2.T_2$ at a point in the distance R from the heat $K_1.T_1$, According to the formulas (9-3), (9-4), we have:

$$T = \frac{\frac{K_1}{4\pi R^2}.T_1 + K_2.T_2}{\frac{K_1}{4\pi R^2} + K_2} \qquad (9\text{-}5)$$

The temperature transmission by thermal radiation spins of the material elements determined by the formula (9-5).

10. The foundation and the boundary of the Universe.

It follows from what has been mentioned above, we shall express the foundation and the boundary of the Universe as the follows:

The material elements and the material space are composed of the tiny infinity scalar spins, the interaction of the spins between the material elements and the material space creating the radiation mass spins space. The radiation mass spins space applying on the material elements in it such propulsive forces as the gravitation force and the Atom force. The relative motions of the material elements radiating the radiation direction spins space, which cause the interaction forces of the elements in this space such as the electric force and the magnetic force. The material elements and theirs radiation spins space are as the united bodies, therefore the Universe is formed from the material elements and the material space by the indefinite circle:

The material elements-The radiation spins spaces-The material elements

It is impossible for us to tell whether the Universe might start with the material elements or with the radiation spins spaces. However, for the sake of reality we shall start with the actual states of the Universe.

The dimension of the Universe is limited, so we can regard the Universe as an isolated system, thus the momentum of the Universe is preserved in accordance with the Law of momentum conservation. Under the governance of the momentum conservation Law, the dispositions of elements in the Universe must be in the order that. The material elements and theirs radiation spins spaces are in the areas nearby the centre of the Universe with the density of the radiation spins gradually reducing the value from the centre to the external margin of the Universe until the material space is only in the external margin of the Universe. The Axiom and the isotropy of the geometrical space let us to consider the Universe as following:

The Universe is the sphere contains the material elements, whose the density of material gradually reducing the value from the centre to the external margin of the Universe until the material space is only in the external margin of the Universe.

Outside the Universe is the absolute emptiness, there is nothing could be able to escape from the Universe into the absolute emptiness. As we have known so far that, without the material space without the radiation spins space, so when the radiation spins as the incident rays reach the spherical surface of the material space as the external margin of the Universe, it's very here the final destination of the incident rays' journey. The inertia motions of the material elements might help them to escape from the Universe into the absolute emptiness, but before entering the external margin of the Universe, they had to be in the material space, according to the formula (5-5) the great interaction force of the material space had turned them into the light that was the first Big-Bang. If the material elements still exist after the first Big-Bang to enter the absolute emptiness, then neither radiation spins spaces nor interaction force such as the gravitation force, the electric force, the magnetic force, the Atom force, etc, consequently the material elements are discomposed into the scalar spins of the material space, that was the second Big-Bang.

No one can figure out the huge colossality of the Universe, but we can figure out the structure of the Universe generally. In the areas about several thousands of million year light nearby the centre of the Universe, where the material elements and theirs radiation spins space take places. These areas are the most busy activity areas of the Universe, owing to the radiation space of the mass spin $\vec{m}$ protect every material element in these areas against the great propulsive force of the material space. The time passing by, under the governance of the gravitation force the material elements gather a crowd round to form a huge mass body over the time. According to the formula (8-2) the bigger the mass of the body the stronger the force applying on the material elements at the centre of the body. The interaction force between the radiation spins space and the body increasing gradually in accordance with the development of the mass of the body from time to time, so the direction spins of the elements at the centre of the body also. Consequently, the relative motions of the opposite direction spins elements at the centre of the huge mass body are restricted more and more, thus there are the collisions of the positive direction spins elements and the negative direction spins elements, that turning them into the light. At first from the centre, then spread around to the surface of the body until the huge mass body radiate such the radiation thermal spins space as the light, consequently, the huge mass body becomes the Sun or a star. The restrictions of the relative motions of the elements of the body are ceased when the mass spin $\vec{m}$ and the direction spins $\vec{w}_v$ of the elements inside the body are equivalent to the mass spin $\vec{m}$ of the radiation spins space, i.e. $\vec{w}_v = 0$. According to the formulas (5-3), (5-4) the mass spin of the body and the mass spin of the radiation space are the same as the mass spin $\vec{m}$. Hence, the system of the body and radiation spins space is in equilibrium, the body turns into a Black body, since its no radiation spins space except the magnetic radiations. The Black bodies develop gradually bigger and bigger until they all stop radiating the magnetic radiations to become the unique absolute Black body as a material point in the material space. According to the formula (5-5), the great interaction forces of the material space apply on the material point make it to be turned into the radiation spins space that is the Big-Bang. Thereby, the indefinite circle (The material elements-The radiation spins spaces-The material elements) has been completed.

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