ISSN No:-2456-2165

The End of our Universe by a Sudden Phase Transition at its Present State According to the Created-Built Model

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Abstract:- In this paper, the consequences of accelerated expansion of our universe is studied according to a model based on al-amr theory(Created-Built Model), as the study predicted the fate of our universe at the end of its space-time limit. Based on this model, it has been shown that our universe will not continue to expand indefinitely, but will soon reach an end in its current state, after which a sudden phase transition in its present state takes place after the entire universe turns to another corresponding space-time by rotating around an isthmus "non-spacetime gap" between them, and shows our universe at that space-time, in contrast to its first form.

Keywords:- *Accelerated Expansion of Universe, Al-Amr Theory, The Universe End, Forces Unification, Space-Time Structure, Fundamental Universal Constants.*

I. INTRODUCTION

More than two decades ago, astronomers discovered that the expansion of our universe is accelerating, and they are still studying the consequences of this phenomenon[1,2]. This accelerated expansion will push galaxies apart at such a high speed , so they escape beyond the event horizon, and then the reference points for measuring this expansion are canceled, and thus all traces of the so called "Big Bang" are removed, and the universe in the distant future will appear to be a small gathering of stars in an endless and unchanging space [3].

There is no field of research that has undergone more changes than the changes that occurred in cosmology and the way we look at our universe [3], so we are not bound by its hypothesis that “all parts of the universe had begun to expand at the same moment” [4] but if we want to avoid these obstacles, we replace it with the “continuous creation hypothesis”, So we assume that “parts of the universe are created little by little in successive, continuous moments until our present time”, and we abandon the idea of the existence of a cosmic singularity “at zero point” that includes the current mass of the universe, because the idea of the singularity is behind infinites those do not originally exist within our universe. Einstein did not avoid it in his theory of relativity, as it stemmed mainly from the legacies of the classical physics on which it was based, where Newton conceived of the elementary particle as “a solid, impenetrable point thing,” unlike al-amr theory(Ibrahim's theory of quantum gravity) [5], which believes that the elementary particle is "Something hollow, not steadfast", and thus the infinities disappear from our calculations.

Physicists and cosmologists believe that at the beginning of time, general relativity (Einstein's theory of gravitation) needs to include the foundations and principles of quantum theory within it to complete its construction, as quantum effects then become very important, that is, we need to build a "quantum theory of gravity". We now have such a theory, and it is known as al-amr theory (means :"the command theory") [5], and it is based on a principle that combines principles of general relativity and quantum theory, and unifies the geometric structure of space-time for the two theories within the framework of the concept of space duality (continuity - discontinuity of space). This principle is called: al-amr principle(Ibrahim's principle), and it is written in the form: $v.\ r = C$, which states that: "The permanent position of a particle r by its momentum per unit mass v at that position is equal to a constant C". C is called: al-amr constant (or, Ibrahim's constant). The principle of al-amr is a basic rule in nature that combines quantum theory and general relativity, in a unified framework based on space-time duality.

In this paper, a new model of our universe is developed based on al-amr theory(Created-Built Model), where it describes how the end of our universe is based on it, and based on the recent astronomical observations results that show that our universe continues to expand rapidly. Thus, we reached the conclusion that our universe will soon end ,but that cannot be determined according to this description, which differs from the current description based on the theory of the Big Bang, which states that our universe will end after “trillions” of years, when human life in it would have ended long before that. Without that "end" being followed by any other event.

II. QUANTUM GRAVITY, AL-AMR THEORY

General relativity describes the macroscopic universe in which gravitational force prevails, and quantum theory describes the microscopic universe in which other fundamental forces dominate. In order to achieve the ultimate unification of all forces and combine them into a "unified force", we must reconcile the two theories, in order to include gravitation in a unified framework with those forces. There is a fundamental contradiction between the

two theories [3], although both of them are correct. In general relativity, spatial positions are seamlessly continuous, while in quantum theory they are discrete and discontinuous.

This difference in the properties of space between the two theories stands as a major obstacle for physicists in the way of bringing them together.

When the conflict between the wave and particle images appeared in the processes that describe interactions between radiation and atom, De Broglie came up with a decisive idea to solve this problem, as he put forward the hypothesis of wave-particle duality [6]. This hypothesis has become a major tenet of quantum theory. It was possible to combine the opposing properties of space in general relativity and quantum theory on the same approach taken by De Broglie, where the two properties were taken together to establish a unified geometric framework for the two theories. It assumed the duality of the space, that is, the continuity- discontinuity of the space. The relationship that governs this duality was formulated, and this hypothesis resulted in a general principle that brings the two theories together into one comprehensive theory called al-amr theory. The principle of al-amr (Ibrahim's principle) includes an important fundamental constant in nature (al-amr constant, or Ibrahim's constant) that takes the following magnitude[5]

$$C = 4.48 \times 10^{-23} cm^2/s \quad (1)$$

Based on this principle, the range of the unified force r_c is calculated as follows[5]:

$$r_c = \frac{C}{c} = 1.6 \times 10^{-33} cm \quad (2)$$

The time of unified process is also calculated as follows[5]:

$$t_c = \frac{C}{c^2} = 5.4 \times 10^{-44} s \quad (3)$$

According to this principle, the mass of the particle carrying the unified force is[5]:

$$m_c = \frac{\hbar}{C} = 2.2 \times 10^{-5} g \quad (4)$$

These values represent the radius of our universe r_c , and its mass m_c, at the beginning of time t_c.

It is also discovered that there is an important number in nature(Ibrahim's number) which represents the cosmic quantum number, or a maximal universal number ,equal to[5] $N = 10^{61}$ (5)

Ibrahim's number N converts the radius of the universe at the beginning of time r_c, into the radius of the universe at present R, and converts the age of the universe at the beginning of its creation t_c, into the age of the universe at present T, and converts the mass of the universe at the beginning of time m_c, into the mass of the universe at present M, as follows:

$$M = N \ m_c \ , \ T = N \ t_c \ , \ R = N \ r_c \ (6)$$

In al-amr theory[5], the fundamental unit of mass, length and time, are written as follows

$$m_c = 2.2 \times 10^{-5} g = 1 \ amr \quad (7)$$

$$r_c = 1.6 \times 10^{-33} cm = 1 \ adnaa \quad (8)$$

$$t_c = 5.4 \times 10^{-44} s = 1 \ aqrab \quad (9)$$

The units (amr,adnaa,aqrab) , or (AAA) stands for the units of fundamental unified theory(al-amr theory).

The beginning of time for our macroscopic universe was not at zero, but near it, as "it is believed - according to the Big Bang theory - that the beginning of time and space is at zero point" [7]

- *The fundamental units - for al-amr theory - are shown in the following table [5]:*

Table 1 Fundamental Physical Units

Unit	Value (CGS)	Value(AAA)	Dimensions
mass unit (m_c)	$2.2 \times 10^{-5} g$	1 amr	M
length unit (r_c)	$1.6 \times 10^{-33} cm$	1 $adnaa$	L
time unit (t_c)	$5.4 \times 10^{-44} s$	1 $aqrab$	T

The physical constants included in the following table are derived from the fundamental physical units [5]:

Table 2 Physical Universal Constants

Constant	Definition	Value(AAA)	Dimensions
Hubble const.	$H = \frac{1}{t_c}$	$1aq^{-1}$	T^{-1}
The cosmological const.	$\Lambda = \frac{1}{r_c^2}$	$1ad^{-2}$	L^{-2}
Moment of inertia/length	$D = m_c.r_c$	$1am\ .ad$	ML
Rate of matter creation	$\kappa = \frac{m_c}{t_c}$	$1am\ .aq^{-1}$	MT^{-1}
Critical surface density	$\sigma_c = \frac{m_c}{r_c^2}$	$1am\ .ad^{-2}$	ML^{-2}
length density	$\lambda = \frac{m_c}{r_c}$	$1am\ .ad^{-1}$	ML^{-1}
Speed of light	$c = \frac{r_c}{t_c}$	$1ad.aq^{-1}$	LT^{-1}
Critical curvature	$R_c = \frac{r_c}{t_c^2}$	$1ad\ .aq^{-2}$	LT^{-2}
Ibrahim's const.	$C = \frac{r_c^2}{t_c}$	$1ad^2.aq^{-1}$	L^2T^{-1}
Planck's const.	$\hbar = \frac{m_c r_c^2}{t_c}$	$1am\ .ad^2.aq^{-1}$	ML^2T^{-1}
Critical charge(sq)	$q_c^2 = \frac{e^2}{\alpha} = \frac{m_c r_c^3}{t_c^2}$	$1am\ .ad^3.aq^{-2}$	ML^3T^{-2}
Newton's const.	$G = \frac{r_c^3}{m_c t_c^2}$	$1am^{-1}.ad^3.aq^{-2}$	$M^{-1}L^3T^{-2}$

The fundamental physical constants are related to Ibrahim's constant according to relations shown in the following table [5]:

Table 3 Relations with Ibrahim's Constant

Fundamental const.	Relation with C
maximal universal acc.	$a_c = c^3C^{-1}$
Cosmological const.	$\Lambda = c^2C^{-2}$
Hubble's const.	$H = \Lambda C$
the unified energy	$E_c = \kappa C$
Planck's const.	$\hbar = m_c C$
Newton's const.	$G = cm^{-1}C$
Critical charge(sq.)	$q^2 = cm_c C$
Ibrahim's magneton	$\mu_c = q_c C$

The table shows the importance of Ibrahim's constant C, and its functional task in formulating the main relations of physics and cosmology.

Thus, the values of the physical constants are interpretated in terms of the fundamental units of al-amr theory.

If [5] $:r, t = 0$, then $\hbar, c$ and the other "similar" constants become undefined values, i.e., "break" then the laws of nature. This condition does not belong to our universe but is outside and separate from it[5]. It is unique, and it is the highest position in existence (absolute Height), And this space-time is not befitting except with the Creator of the universe, his Lord and the One in charge of it, Allah -Glory be to Him -.

III. THE "CREATED – BUILT" UNIVERSE MODEL

Any proposed cosmic model is not complete until it is based in its description on a "convincing theory of quantum gravity" [8]. A correct conception of the beginning, development and end of the universe can only be built within the framework of a model based on a theory of quantum gravity. A "created-built" universe model is suggested, based on al-amr theory, which is a theory of quantum gravity.

Our universe is described according to this model, a description that includes two complementary stages:

The first stage (the microscopic universe), which is a stage prior to our macroscopic universe, i.e. before the beginning of time for its existence, where time flows in it in a direction opposite to its flow in our macroscopic universe, and we call this stage "the stage of creation and appreciation", and it begins with the size of the current universe and an infinitesimal mass. This stage includes all possible events that can arise in reality voluntarily in our macroscopic universe, and this universe shrinks -at the end- to a size (r_c, t_c) and reaches the mass m_c .

As for the second stage (the macroscopic universe), it is separate from the microscopic universe, and begins at a corresponding point (m_c, r_c, t_c), of the size (r_c, t_c) and mass m_c , we call this stage " the imaging and built" stage, in which selected events emerge from among the potential possibilities. In the folds of the microscopic universe, in

which the mass of our macroscopic universe reaches the current mass M with the expansion of space-time to reach its current radius R in a period of time equal to its current age T, i.e. there is a continuous creation of matter at a constant rate κ. Although the microscopic and the macroscopic universe are complementary in space-time, there is an isthmus or a non-spacetime gap that separates them. The laws of nature of the two universe coincide, and the forces are unifying at a corresponding point in them (m_c, r_c, t_c).
We can write:

$$r = \frac{D}{m} exp\left(1 - \frac{m}{m_{a_n}}\right); n = 1,2,3,\dots,N \quad (10)$$

D, is a constant; $N^{-1} m_c \leq m \leq m_c$

$m_c = 2.2 \times 10^{-5} g$

The radius r decreases with an increase in m in relation (10), so the space shrinking or contraction with increasing mass by accelerating it.
For the macro universe, we write the function r(m) as

$$r = \frac{m}{\lambda} exp\left(\frac{m}{m_{a_n}} - 1\right); n = 1,2,3,\dots,N \quad (11)$$

That is, r increases with an increase in m, so the space expands with increasing mass m. Ibrahim's number N is equal to 10^{61}, where the mass of the universe M at present time is equal to : $N = Nm_c$.

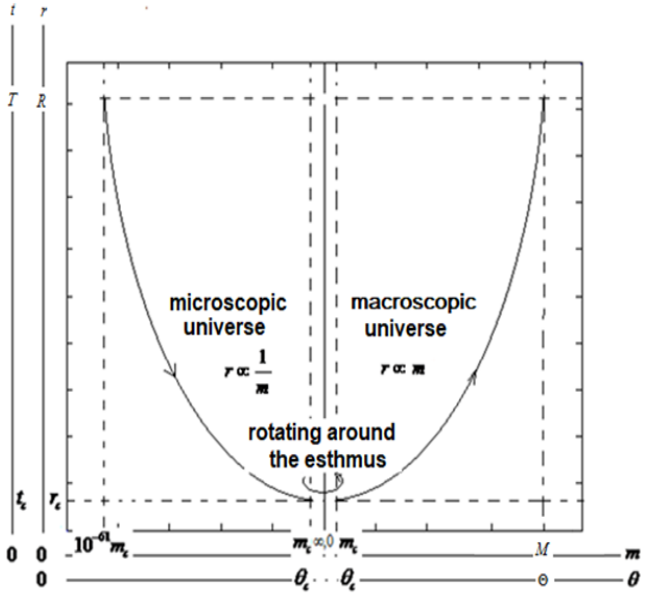

Fig 1 The function $r = r(m)$, which describes our universe in its two integrated stages

By taking the selected values: $m = m_{a_n}$ in relation (10), then $r = r_{a_n}$, that is, the "statistical" exponential function in the continuous space is then reduced to selected functions in the discrete space as:

$$r_{a_n} = \frac{D}{m_{a_n}}; n = 1,2,3,\dots,N \quad (12)$$

When: $n = 1$, then : $m_{a_1} = m_c$, and $m_{a_1} = m_c$, so we write:

$$D = m_c . r_c \quad (13)$$

Whereas :

$r_c = 1.6 \times 10^{-33} cm$ the fundamental unit of lengths, D: the fundamental unit of the moment of inertia of a particle per its permanent rest position, or radius r_{a_n}.

Also, if we get the selected functions: $r = r_{a_n}$ by taking the selected values $m = m_{a_n}$, then relation(11) is written as follows:

$$r_{a_n} = \frac{m_{a_n}}{\lambda}; n = 1,2,3,\dots,N \quad 14)$$

When: $n = 1$, then : $m_{a_1} = m_c$, and $r_{a_1} = r_c$, so we write:

$$r_{c} = \frac{m_{c}}{\lambda} \quad 15)$$

where λ is the length density of our macroscopic universe[5]

The transition of particles with critical masses m_c from the microscopic universe to the macroscopic universe by rotating around the isthmus or a non-spacetime gap, as they are "hollow" [5] and have intrinsic angular momentum m_c C that enables them to do so - see figure (1) - and the angular motion in this state is quantized. By this action the particle acquires constant quantum properties such as the magnetic moment q_c C, and then it moves towards the opposite direction when it is transformed, i.e. the mass of the particle m decreases, so r increases in order to achieve relation(10) in its inverse form.

Thus, particles with critical masses continue emitting from the microscopic universe to the macroscopic universe at a rate of creation equal to $\kappa = m_c / t_c$, as they head towards the opposite direction during this transitions, so they are woven in space-time, and our microscopic universe and the various possible events that it contains are depicted in it. They are destinied in the microscopic universe, and others are erased and reduced to it, and our macroscopic universe expands to reach its radius $R = Nr_c$, its mass increases to reach $M = Nm_c$ in a time of $T = Nt_c$.

We go back to relation (15) and multiply it by relation (13), so we get:

$$r_c^2 = \frac{D}{\lambda} \quad (16a)$$

or we write

$$r_c = \left(\frac{D}{\lambda}\right)^{\frac{1}{2}} \qquad (16b)$$

On the other hand, we have:

$$r_c = \frac{C}{c} \qquad (17)$$

From the two relations (16b) and (17), we find:

$$\left(\frac{c^2 D}{\lambda}\right)^{\frac{1}{2}} = C \qquad (18)$$

Where $C = 4.84 \times 10^{-23} cm^2.s^{-1}$: Ibrahim's constan

We can write [3]:

$$\frac{1}{\lambda} = \frac{G}{c^2} \; ; \; D = \frac{\hbar}{c} \qquad (19)$$

That is, D is related to quantum theory, and $1/\lambda$ is related to general relativity.

from(18) and (19)we find:

$$\left(\frac{G\hbar}{c}\right)^{\frac{1}{2}} = C \qquad (20)$$

Thus, Ibrahim's principle is a basic rule in nature that combines quantum theory and general relativity.

The sudden phase transition of our universe The end of our universe occurs while it is in its current state, so the change that will occur in its current state is just its sudden end. There are no reference points that represent a limit to our universe outside its boundary, according to which the remainder of its life is determined. So it is not possible at all to answer the question: When will the end of our universe be? But it is close - according to our cosmic model - and it happens suddenly while people are doing their usual daily works. When the command is given, the events of the end of the universe take place in all positions of it immediately at the same time "simultaneously", then people watch them at the moments of their occurrence through non-spacetime and “doors” that open in the heaven through which light enters simultaneously, after which it reaches the earth from a nearby positions.

When things move from the first space-time to the other space-time opposite to it by rotating across the isthmus separating them, the information - which is issued from the first and returned to the other - embodied by those things remains preserved and recorded, that is, the records of our universe are never lost when its various contents cross the non-spacetime gap between the two universes. This great rotation makes the whole universe shake with " a dreadful shaking" , so the stars wrap around themselves and rotate around the isthmus, scattered and slipping into the other space-time. The earth also changes as it disintegrates and crosses the isthmus or the non-spacetime gap, then it decays and vanishes from this universe and its disintegrated components and parts all settle in that other space-time where they are there changed in other than their first form.

At the end, our first universe settles in the other space-time, changed to another form than its first form, as the space-time geometry is changed from closed spherical curvature to open hyperbolic curvature, then our other universe expands to infinity.

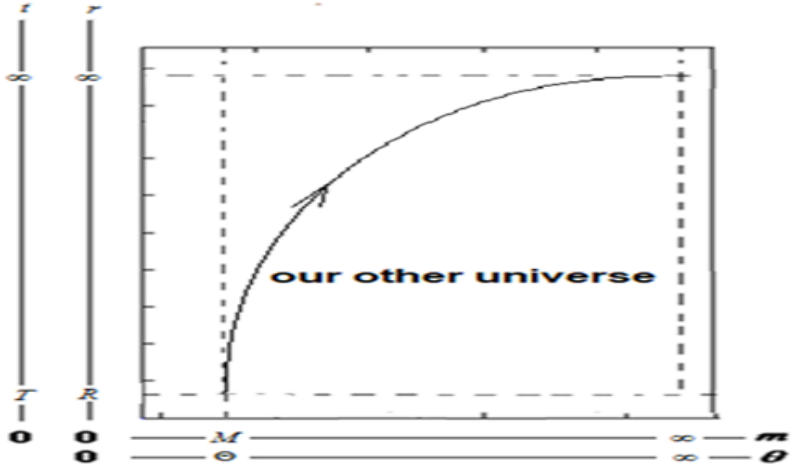

Fig 2 Our other universe, its geometry is changed from closed spherical curvature to open hyperbolic curvature

Thus, our universe as a whole rotates in a comprehensive way, and its system is disturbed, so its components revolve around themselves and revolve around the isthmus at the same time, then they enter into the other space-time, where they are rearranged and distributed again

ISSN No:-2456-2165

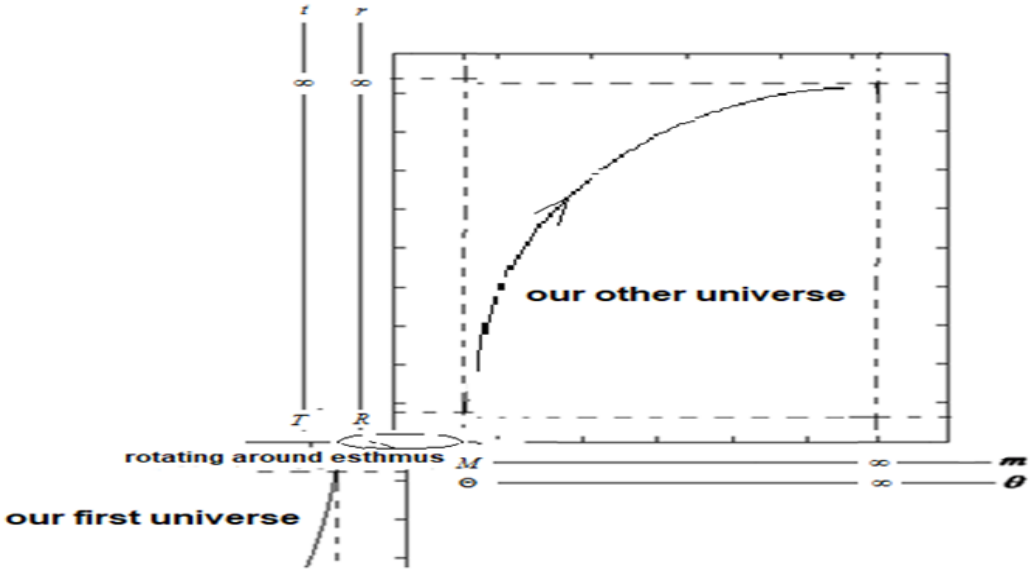

Fig 3 "The great cosmic rotation , or the dreadful shaking of heaven" and the entry of our universe - altered - into another space-time through the isthmus

Referring to Figure (2), we write the function $r = r(m)$for this universe in the form

$$r = \frac{m}{\lambda_c} exp_{\square}(am - 1)_{\square} \qquad (21)$$

a :is an arbitrary constant

The m mass changes as follows:

$$M \leq m < \infty \qquad (22)$$

and r changes as follows:

$$R \leq r < \infty \qquad (23)$$

Where the length density λ remains constant:

$$\lambda = \frac{M}{R} \qquad (24)$$

Referring to relation (21), when: $m = \frac{1}{a}$, then: : $r = \frac{1}{a\ \lambda}$

Now we have the following relation to the microscopic universe

$$D = r_c . m_c \qquad (25)$$

Multiplying both sides by N^2, and we get

Where N is Ibrahim's number

Dividing relation (25) by relation (23), we find

$$\frac{D}{\lambda} = \frac{R^2}{N^2} \qquad (27)$$

Multiplying both sides by c^2 and find the root, we get:

$$\left(\frac{c^2 D}{\lambda}\right)^{1/2} = \frac{c^{\square} R^{\square}}{N^{\square}} = C \qquad (28)$$

, is Ibrahim's constant C

On the other hand, if we take the current description of cosmologists and assume that our universe will continue to expand without limit, then its parts will dissipate and vanish in infinite space, and with that all information and data related to it will be lost, and no trace will remain. Likewise, "if our universe is crushed and collapsed on itself to settle at zero point" [9] according to string theory. As for the end of the universe according to the "created-built" universe model, there is no loss of information in it, because things - with the data they carry - are all transformed by rotation from the first space-time to the other space-time through the non-spacetime gap, without any loss of matter or energy.

The following table shows the history of our universe since its creation, and its fate in the long term according to the current description of cosmologists [10,11]:

Table 4 The History of Our Universe Since Its Creation, and Its Fate in the Long Term

Time (from zero second)	the event
$10^{-30}s$	The cosmic inflation occurs
$10^{2}s$	Deuterium and helium are created
4×10^{5} years	Microwaves background radiation
8 Billions years	The expansion begins to accelerate
13.7 Billions years	Our current time
20 Billions years	The Milky Way collides with the Andromeda Galaxy
100 Billions years	All galaxies become invisible
Trillions years	Isotopes disappear and fade away
100Trillions years	The last stellar goes out

Our universe- with this description - will end in the distant future (100 trillion years). Human life will have ended and vanished long before that, and there will be nothing else that follows that end, which is devoid of any purpose for the existence of the universe and human life.

IV. RESULTS DISCUSSION

According to the current description, “the accelerated expansion of our universe will push galaxies apart at a very high speed, which will make them disappear from the horizon of event and observation, and at that time the reference points for measuring this expansion will be canceled,thus every trace of what is called the "Big Bang" will be removed, and our universe will end in the distant temporal future (100 trillion years).Human life would have ended and perished long before that, there would be nothing else after that end”.

While the "created-built" universe model(Ibrahim's model) decides that "our universe will not continue in this expansion without limit, rather it will soon- while in its current state- reach an end after which a sudden phase transition will occur, then the entire universe will move to another space-time corresponding to it, by revolving around a non-spacetime gap separating them, where our universe settles in that space-time, changing in a way other than its first form, its space-time geometry is changed from the closed spherical curvature to the open hyperbolic curvature, then expands to infinity.

When things move from the first space-time to the other space-time corresponding to it by rotating across the isthmus separating them, the information embodied by those things remains preserved and recorded, meaning that the records of our universe are never lost when its various parts cross the isthmus separating the two spaces. This *"great rotation"* or "*dreadful shrinking*" makes the heaven all rotate , then the order of our universe, which was stable throughout its life, is disturbed, so the stars revolve around themselves and revolve around the isthmus at the same time, then they enter into the other space-time through this non-spacetime gap.

V. CONCLUSION

The end of our universe is near, but this cannot be determined at all, and it will be by the command of Allah - Glory be to Him - the Creator of our universes. We believe that: that day has approached according to our cosmic model, and the time for that specific end that occurs suddenly has approached while people are doing their usual daily works. When the command is given, the events of the end of the universe take place simultaneously in all its positions immediately, and people watch it at the same time of its occurrence through the non-spacetime or doors that open in the heaven through which light enters momentarily, after which it reaches the earth from a nearby positions.

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