



1    **1. Introduction**

2    Einstein demonstrated in his theory that mass and energy are equivalent ([Einstein,1905b](#)). Note  
3    also that mass and gravity are equivalent. Mass has gravity, and as mass increases, gravity  
4    also increases. Clearly, mass and gravity are equivalent. Therefore, gravity and energy are also  
5    equivalent.

6    If gravity and energy are equivalent, energy does not vanish unless gravity vanishes. Thus,  
7    energy is always produced by gravity. Therefore, mass, which is equivalent to energy, always  
8    increases with gravity. If mass increases, then there are no materials other than space that  
9    constitute atoms. The theory which suggests that space changes into mass through gravity or  
10   that space and mass are equivalent shall now be called the “space and mass identity theory.”

11

12   **2. Space and mass identity theory**

13   As evidence of the space and mass identity theory, I will focus on solar wind. If the space and  
14   mass identity theory is valid, the portion of the mass reduced as a result of nuclear fusion now  
15   expands as space and yields solar wind. By recognizing solar wind as “expanding space”, we  
16   can understand the solar system from a theoretical point of view.

17   First, we will discuss solar spots. They appear when large volumes of space are created by  
18   nuclear fusion in deeper parts of the sun. A large volumetric space explodes linearly through the  
19   narrow space created in shallower parts by nuclear fusion and broadens the space in the middle  
20   and surface parts of the sun. If the volume of the space at the surface part increases rapidly, the  
21   temperature lowers and magnetic field lines appear inside the sun. Prominence blasts out after  
22   being caught in a strong space stream which breaks the solar spot. Flare appears when a great  
23   volume of space is created at shallower parts. On the whole, space is uniformly generated by  
24   nuclear fusion, and the high temperature region in the core of the sun spills out of the sun  
25   uniformly. This is the corona.

26   We can attribute the solar expansion following the reduction of nuclear fusion to the lowering of  
27   the space density of the sun. The solar diameter is much greater than the one we observe. The

1 sun as we observe it is located at the central part of space, where the space is compressed into  
2 higher density due to the space created by the sun. Therefore, the sun appears small and  
3 extremely bright. If the nuclear fusion inside the sun was unstable, pulsating variable stars such  
4 as Mira would appear.

5 Planets in the solar system travel in the middle of the space flowing out of the sun. In other  
6 words, the planets are always heading towards the receding sun. Among the astral bodies,  
7 those most strongly affected by the flow of space are comets, which travel down through the  
8 solar system along their specific orbits.

9 During the time needed for a comet to move from perihelion to aphelion, the space newly  
10 created by the sun would increase the distance between the comet and the sun. Therefore, the  
11 comet, after passing its aphelion, needs to find a new perihelion located at a different position  
12 than the previous one. In other words, due to the creation of space by the sun, the orbit of a  
13 comet is elongated and the perihelion changes in cycles. Therefore, both the fact that the orbits  
14 of comets are elliptical and the fact that leap years are needed on Earth are simply the result of  
15 the expansion of the space of the solar system and the receding of the sun. In addition, it is  
16 observed that the rotation speed of stars at the periphery of galactic systems is too high. In  
17 other words, the rate of generation of space is relatively high in the areas with high density of  
18 fixed stars in the central parts of galactic systems. As a result, the stars in the center of a  
19 galactic system must traverse a relatively larger amount of space, which determines the  
20 reduction of their rotation speed.

21 If all fixed stars are creating their own spaces as the sun, it is natural that more distant parts of  
22 the universe recede at greater speeds and we see that the universe expands. Viewed from any  
23 point, the universe is always expanding, and the distant parts of the universe appear younger.

24 Therefore, all the facts described here support the space and mass identity theory which  
25 suggests that space and mass are equivalent. Any other theory would be unable to explain all  
26 the facts. Atoms are created from space by gravity.

27

1    **3. Atomic nucleus contraction**

2    **3.1 Principle**

3    Second, we must clarify the mechanism of creation of atoms on the basis of the space and  
4    mass identity theory. The mechanism shall be called the “atomic nucleus contraction” hereafter.  
5    Atomic nucleus contraction can be compared with the relation between water and a drop of  
6    water. If a drop of water falls onto the water surface, waves are created and spread. If waves  
7    with inverse propagation direction can be created, a drop of water will emerge from the water  
8    surface flying up into the air. Similarly, gravity, as an internal force, creates waves in space and  
9    produces atoms in the form of space dew. This is the basic principle of atomic nucleus  
10   contraction.

11   In atomic nucleus contraction, we regard gravity as a space wave which elongates space. The  
12   fact that gravity elongates space is what we refer to as gravitational lens. Space waves created  
13   by gravity are referred to as gravity waves below. While gravity waves change the space density  
14   in accordance with the wave pattern, I focus on the point where the spatial density accumulates.

15

16   **3.2 Description**    Refer to [\(Fig.1\)](#)

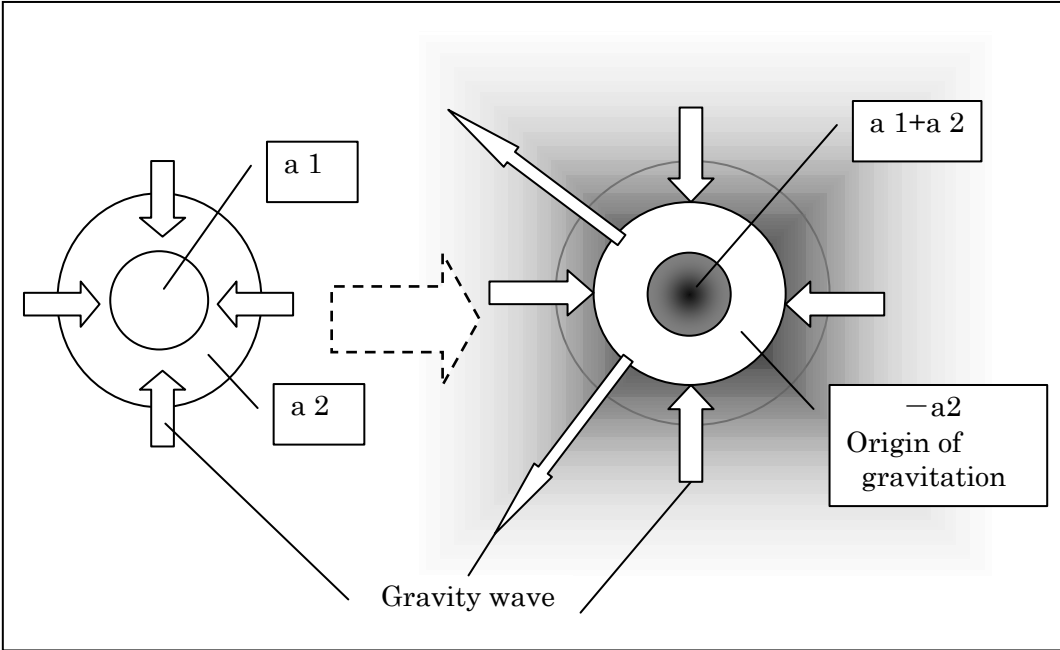
17   First, a high-density space (a1) appears due to the gravity wave.

18   As a strong gravity wave is added, the space (a2) outside the space (a1) overlaps with the  
19   space (a1). Here, a hole (–a2) appears since the space (a2) falls off.

20   The spatial hole (–a2) exerts a strong attraction force pulling the space (a2) back to the original  
21   position. However, since both the spatial hole (–a2) and the space (a2) are spherical, the spatial  
22   hole (–a2) cannot move in any direction (strong interaction). Thus, an atom (space dew)  
23   appears. Since the spatial hole (–a2) attempts to pull the space (a2) back to its position, an  
24   atom can unite with another atom (electromagnetic force). Thus, mass has the properties of  
25   both attractive force and a gravity wave. In other words, the restoring force of a spatial hole  
26   works uniformly over the entire space around the atom. As discussed, mass is a “part of space”  
27   with a volume. The force by which mass attracts mass and atoms attract atoms is derived from

1 the force restoring spatial holes. In atomic nucleus contraction, the space ( $a_1$ ) is a “neutron,” the  
 2 space ( $a_2$ ) is a “proton” and the spatial hole ( $-a_2$ ) is an electron spatial hole. An “electron” is a  
 3 high-density space located outside the electron space and contracted by the electron spatial  
 4 hole.

5 **Fig.1 Atomic nucleus contraction**  
 6 **Mechanism of creation of atoms and gravitations**  
 7



18 **3.3 Discussion**

19 **3.3.1 Time waves**

20 Although space should initially be an “entity with dimensions only”, an atom appears since  
 21 gravity removes part of it and gives it a volume. Further, space created from an atom by nuclear  
 22 fusion is a space with a volume, and is not identical to the initial space which has only  
 23 dimensions. This is the reason why, in our universe, we have solar wind, which is space flow  
 24 caused by the difference of space density. In summary, in a fixed star, the increase in mass due  
 25 to atomic nucleus contraction and the increase in space due to nuclear fusion appear  
 26 simultaneously.

1 It must be emphasized here that an atom created by the atomic nucleus contraction shows  
2 atomic oscillation. Atomic oscillation is the energy possessed by space with contracted  
3 dimensions only, and a state of time flow. Time exists as a wave of space oscillation or as a  
4 space fluctuation. Space waves caused by time shall be referred to as “time waves” below.

5 Due to the discovery of time waves, we can define space with dimensions in atomic nucleus  
6 contraction as “time space” or “four-dimensional space (length x width x height x time)” and our  
7 universe as “five-dimensional space (time space x mass).”

8

### 9 **3.3.2 Beginning of universe**

10 The existence of time waves leads us to the proposition of a tentative physical theory for the  
11 beginning of the universe. The universe at its initial stage is time space without mass, and the  
12 atomic nucleus contraction due to gravity waves does not play a role. In the time space, time  
13 waves, instead of gravity waves, initiate atomic nucleus contraction. Time waves are perhaps  
14 permanent space waves with the minimum and the most accurate waveform in the universe.  
15 However, since it is a space wave, a minimal level of waveform displacement occurs in the time  
16 wave. Just as we cannot identify the circle ratio precisely, a time wave must propagate only in  
17 an approximate way. Thus, with time waves simultaneously propagating along the x-, y- and z-  
18 axes (length, width and height, respectively) in the same space, their spaces veer away from  
19 each other if viewed over a long spatial distance as measured from hundreds of millions to  
20 billions of light years, and yield a deformation in space. Therefore, the overlapped spaces  
21 contract to produce mass, after which atomic nucleus contraction is initiated by the time wave.  
22 Irrespective of four- or five-dimensional spaces, the spatial distortion is dissolved only by the  
23 pro ity  
24 waves is in progress. Therefore, the question of “when did the Universe begin?” does not have  
25 any meaning. However, in the first stage of the universe created by the atomic nucleus  
26 contraction of the time wave, only the created atoms show spatial flow, and groups of atoms  
27 slowly accumulate until a large fixed star universe is created. I assume that such large fixed star  
28 universe would be a quasar. Furthermore, the time wave produces mass, and we now realize

1 that time and mass, or all of space, gravity and energy, are equivalent.

2

### 3 **3.3.3 Space density and time**

4 Based on the discovery of time waves, I point out that the difference in spatial density

5 determines the relative nature of time flow. With the sun is at the center of the nuclear fusion,

6 the spatial density increases, the time wave is compressed, and time passes relatively quickly.

7 As objects travel outside the solar system, time begins to pass relatively slowly. As a result, we

8 have seen the stalling of artificial astral bodies outside the solar system ([John,1988](#)).

9 Furthermore, although it reduces both the strong gravity waves of planets and the spatial

10 density by elongating space, inversely the solar wind flows into that space with increased

11 strength. The high atmospheric pressure of Venus can be explained by this mechanism.

12

### 13 **3.3.4 Evolution of universe**

14 The understanding of atomic nucleus contraction leads us to understand the way our universe is

15 formed. First, it is proven that our sun is a second- or later generation sun since the remains of

16 the first planet of the earlier solar system exists as the asteroid belt. The planets of Jupiter and

17 beyond have ring structures and are called Jupiter-type planets. It is possible that Jupiter was a

18 terrestrial planet during the earlier stage of the sun. When the earlier sun exploded, the first

19 planet of the then solar system was destroyed and the sun receded to its present location. Our

20 earth was then born inside the expanded space. The abundantly created atoms increased the

21 mass of the sun and that of all other planets. The ring of Jupiter must have produced a large

22 number of secondary planets. In the future, while the sun gives way to its many generations of

23 descendents, Jupiter and Saturn will begin to create their own stellar systems based on their

24 masses alone. The fact that most of the fixed stars in the Galaxy have binary star structures

25 ([Boss,2000](#)) is evidence of this mechanism.

26 In a supernova explosion, atoms and planets that do not remain in the solar system would

27 create absorption nebulas in the drift of solar wind, and they would morph into fixed stars. Atoms

1 and planets that do not remain in the Galaxy would develop globular clusters and would create  
2 a derivative Galaxy during the eternal history of the universe. A Galaxy would create derivative  
3 Galaxies, finally resulting in a super galactic structure. The solar wind and galactic wind flowing  
4 during this period are viewed as void. Our universe is neither closed nor open, but is constantly  
5 growing.

6

#### 7 **4. Conclusion**

8 The concept of atomic nucleus contraction leads to the theory that all elements of the universe  
9 are equivalent to each other and the relations are of relative nature, and their values are always  
10 increasing. Our solar system is not an entity. Rather, relatively speaking, all stellar systems are  
11 an entity. A formula to unify the universe is given by:

$$12 \quad 0 = (+\infty) + (-\infty) = \infty$$

13 This would really be the universe unification theory.

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