Thought Force Communication, Space-Matter, Gravity

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Abstract The entire world is in your every thought, and your every thought is in the entire world. To understand this paradox we have to understand how thought works. Experiments prove thought force is an existing force that can leave our heads. Thought force is a new fundamental interaction which is not in our physics books. In order to understand this new fundamental interaction, we need a new theory that describes it. This is the space-matter model. In this model, the space waves caused by matter. The space-matter model allows us to find the common root of space, matter and time. Solely through the use of space waves, we can express spatial distance, time and energy. It is possible to express all these phenomena in eVolt, so meters can be converted into seconds or into kgs and vice versa.

Thought is force that appears as change of the wavelengths of space waves. Gravity works the same way. Thought force and gravity have a common character. Gravity is the difference of wavelengths of space waves. This definition of gravity uncovers a new characteristic of it; gravity is able to accelerate the Universe.

Thought as a space wave is more than just a standalone, lonely act. According to our brains, forces that appear in a given spectrum of wavelengths of space waves are thoughts, regardless of who or what created theses forces: we ourselves, other humans or inanimate (non-living) things. We send and receive thoughts as forces. Thought is a kind of communication.

Keywords: thought force, fundamental interaction, space-matter, wave of time, wave of space, gravity, accelerating Universe, double-slit experiment, gravity

PART A: THOUGHT FORCE AND SPACE-MATTER

1. PARADOXES OF THOUGHT

The entire world is in your every thought, and your every thought is in the entire world. This is not word-play, this is the way we think. To understand this paradox we have to understand how thought works. Although thinking is one of our fundamental activities, most (almost all) scientists refuse to accept this fact: thought is force and it is able to leave the head. Thought is an existing force that brains create. Thought is more than just a standalone, lonely act. Brains are able to send and to sense this force. Regardless of what created this force, other brains or things other than the brain, according to our brains, forces that appear in a given spectrum are thoughts. Saying this, our thoughts are influenced by us and by the forces of the world. The next paradoxes show the complexity of our thinking:

- Your thoughts change even when they do not change.
- If you would like to think today the same thoughts you had yesterday, you must think different thoughts. (If you are thinking today what you thought yesterday, you are already thinking differently.)
- You should run, in order to remain in one place.

These paradoxes highlight the covered part of our thoughts, the communication. How does this communication work? Via a fundamental interaction that is not written in our physics books.

This paper is the second part of my earlier study[1]. In this study I stated that thoughts are a measurable force and this force is a new, unknown fundamental interaction. Unknown in our theories, but not in our life. Our thoughts use this fundamental interaction. Using this fundamental force, thought is able to move real objects, for example a paper wheel. (Videos in Reference [2].) How? I showed two possible explanations that can describe this new interaction. Thought force is either a fast wave (particle) or a modified space wave. Theoretically both options are possible. But the particle model doesn't seem to be adequate. Why?

2. THOUGHT IS A NEW FUNDAMENTAL FORCE - PARTICLE OR SPACE WAVE?

The thought-rotated paper wheel described in Reference 1 gives us two new elevations.

- Thought force as a new fundamental interaction is in some aspects like gravity force. But there is a big difference between them. Gravity is always attracting; thought force can be both pushing and attractive. Still, studying gravity is a good idea to understand how thought force works. (And studying thought force is a good idea to understand how gravity works.)
- Let's say you want to rotate a paper wheel with thought. All you want is to start the rotation, which direction is not important. You haven't chosen a direction, so you don't know in which direction the paper wheel will rotate. And now a very strange phenomenon happens: you will know the direction of rotation *before* the rotating, while the wheel still stands. The standing wheel "sends information" to you on the direction of its rotation that hasn't started yet. How is it possible? Does the paper wheel radiate?

We have experienced this "feedback phenomenon" with different substances (paper, wood, water, plastic, metal etc.) in different experiments. The "feedback phenomenon" was created in every case, independent from the substances. So, there must be a common reason for the feedback signal that is independent from the substance. How and from where does this signal come into being? The known physics theories haven't found an explanation, since this kind of thought force is not electromagnetic force (no photon.)

The feedback phenomenon exists, so there must be something lacking in the theories. This deficiency is no surprise. Detecting the feedback phenomenon is practically impossible in "humanless" experiments. Thus, the paper wheel run by thought seems to be a very important experiment. How is this feedback phenomenon created? The particle model of thought force seems to be insufficient, since there are no feedback possibilities in it. The model of space waves has the feedback option, because everything changes the wave of space. In the following I try to give a physics explanation that describes this feedback phenomenon with space waves.

3. SPACE-TIME CONTINUUM BY EINSTEIN

In modern physics, every frame of reference is equivalent according to Einstein's space-time model of the special and general theory of relativity[3, 4, 5, 6 7, 8, 9]. The special relativity introduced many definitions, like time dilation, length contraction, and mass–energy equivalence expressed as $E=mc^2$, where c is the speed of light in a vacuum, E is the energy and m is the mass. c is a universal speed limit, and (therefore) exists the relativity of simultaneity.

Einstein's general relativity theory gave a more complex system of gravity than Newton's Law of Gravity[10]. The general theory of relativity is a geometric theory of gravity, where gravity is the curvature of space-time generated by mass (energy). The curvature of space-time is an action-reaction phenomenon of energy and space.

Both the velocity of matter and the velocity of non-matter (space) have their speed limit. They cannot be faster than c and the models of relativity themselves don't use a higher speed than c.

Space-time has three spatial dimensions and one time dimension, so space-time is a four-dimensional model according to Einstein. In later theories built on space-time, for example in superstring theories, there are different space-times according to their dimensions. See for example the popular 9+1 model, where space-time can have 9 spatial dimensions and 1 time dimension[11]. The modern models of physics needs space and time that are independent dimensions. But what is space and what is time? Theoretically they aren't matter but "something else"; in our reality both originate in matter. Why? Because of their measuring.

4. SPACE-TIME MODEL VS. SPACE-MATTER MODEL

4.1. Time and space

What is time? Today’s physicists claim that time is what we measure as time.
What does the phrase "what we measure" mean? Just energy and mass are measurable. The physics' concept of measuring time is derived from two "bodies" acting upon each other, where the "bodies" can only be matter – for example, the Earth’s rotation in relation to the Sun, the motion of a spring inside a wall clock, or atomic vibration powering an atomic clock. The essence is always the same. One matter moves in relation to another matter.

One second is defined as a changing character of the caesium 133 atom[12] we can measure. One second has its start and has its end we measure. The main element of time is the change. If there is no change, there is no time. We measure changes of matter measuring time.

Can we measure space? Measuring space, we measure matter. The meter is the length of the path travelled by light in a vacuum during a given time interval[13]. We can measure neither time nor space at all. We measure only matter. Do we measure all matter? No. Heisenberg's Uncertainty Principle gives us a limit we can measure[14]. From now on I refer to matter as 'measurable matter'. I suppose in the following, there is nothing else—just space and measurable matter. This is very likely not true since even Heisenberg's Principle doesn't mean, that there is "nothing" below the measurable limit, it means only that we cannot measure.

4.2. Action-reaction of space and matter

We know from quantum mechanics that particles of matter are in constant vibration. It is a physical impossibility for matter to come into contact with space without its vibrations having an effect. Based on the Casimir Effect[15] and other physical phenomena like gravity waves[16, 17], we can state that space exists in waves and vibrations.

4.3. Viewpoint of space

Einstein's special theory of relativity describes how the mass of an object increases with its velocity relative to the observer. The increasing velocity of mass decreases the spatial distance. When an object is at rest, and both the object and the observer are in the same inertial frame of reference, the object has a 'rest mass' (m_0). The rest mass is the smallest value of mass in the given inertial frame of reference which is connected with the longest spatial distance s_0. The observer is always matter and the object is always matter.

What if the observer is space itself? Can we describe a model of a moving mass from the viewpoint of waving space? Yes, we can[18].

If an observer "made out of space" was able to measure the wavelengths of space wave λ, it would find the shortest wavelengths (λ_0), if the mass is at rest, that is, the mass does not move in space, $v_0 = 0$. From the viewpoint of space, the 'rest mass' is possible, since the vibration of the space wave is much faster than the vibration of mass. See later.

If the mass moves in space $v_1 > v_0$, the wavelength of space wave is longer ($\lambda_1 > \lambda_0$). Knowing λ_0 and λ_1, we know when the mass moves in space. The space waves also show if the mass accelerates. If $\lambda_{i+1} \neq \lambda_i$ and $i = 0, 1, 2...$, then the acceleration of mass $a \neq 0$. i represents time. If $\lambda_{i+2} = \lambda_{i+1}$, then $a = 0$, that is the object continues to move at a constant velocity from the viewpoint of space. Newton's First Law of Motion can be given as $\lambda_{i+1} = \lambda_i$.

Since space is always given, we can use it as a general observer. Space always has a common framework with every mass. Saying this, space is an absolute entity behind the relativity.

It sound like an old aether model, doesn't it? No, it doesn't.

4.4. No aether, but space waves

Aether theories propose the existence of a substantial medium, the so-called aether. Aether is a space-filling substance, and a transmission medium for the propagation of gravity forces (and even the electromagnetic force) according to physicists at the end of the 19th and the beginning of the 20th century. The works of Lorentz[19, 20] represent the theory.

In the aether model, time is a "local time" that connects systems at rest and in motion in the aether.

In my model, there is no aether. The space waves and the changes in wavelengths of space waves represent the re/actions that the re/actions of matter cause. And there is no "local time". The definition of time makes a big difference between the space-time model and the aether model. In my model, there is neither "local time", nor space-time.

In the next chapter I'll show we can use a new aspect holding the results of the space-time model.

The new model is the space-matter model.

5. SPACE-MATTER MODEL: SPATIAL DISTANCES AS SPACE WAVES

5.1. Wavelength and spatial distance

If the mass of the object is at rest relative to the (non-space) observer, then the given spatial distances of the object and of the (non-space) observer can be given as the sums of the wavelengths of space waves: $s_{observer} = \sum_1^n \lambda_{observer}$ and $s_{object} = \sum_1^n \lambda_{object}$,

where

$$s_{observer} = s_{object} = \sum_1^n \lambda_{observer} = \sum_1^n \lambda_{object} . \qquad (1)$$

If the object moves relative to the observer $v_{object} > 0$, then the observer will realize

$$s_{observer} > s_{object} . \qquad (2)$$

Equation (2) shows the values we calculate using the theory of special relativity. But behind the curtain is Eq. (3).

$$\sum_1^n \lambda_{observer} < \sum_1^n \lambda_{object} . \qquad (3)$$

That is,

$$\sum_1^n \lambda_{observer} = \sum_1^p \lambda_{object} , \qquad (4)$$

where n>p. The same *s* spatial distance can be made out of $n \times \lambda_{observer}$ and out of $p \times \lambda_{object}$. The observer's wavelength of space wave doesn't change, but the object's wavelength of space wave does, $\lambda_{observer} < \lambda_{object}$. In other words, the spatial distance $s_{observer}$ is built out of more waves of space than the s_{object}. The object will travel the *s* spatial distance using its own space waves, that is, the spatial distance for the object is really shorter, now *p* pieces long instead of *n*.

The $\lambda_{observer} < \lambda_{object}$ is a real phenomenon, not the viewpoint of the observer. Behind the relativistic length contraction is a real difference of wavelengths of observer and object.

5.2. Calculation of the change of wavelength of space wave

The calculation is based on the Lorentz-transformation of the special theory of relativity. The known formula of the length contraction is this:

$$s' = s(1 - \frac{v^2}{c^2}) , \qquad (5)$$

where *v* is the velocity of the object with mass. So the change of wavelength of every space wave is

$$\lambda' = \frac{\lambda}{1 - \frac{v^2}{c^2}}, \qquad (6)$$

Of course, the model can be more precise using Newton's Law of Gravity that makes different lengths of wavelengths of space waves. The differences of wavelengths of space waves depend on the distance between space wave and mass. In this study I use the two-dimensional cosine model, because it is more simple.

If the wavelengths of space waves are given in a three-dimensional model, where they depend on the distance between mass and space wave, this leads us to a new form of the general theory of relativity, where the metric tensor doesn't describe the curvature of space, but the wavelengths of space waves. This new model is the space-matter model.

6. SPACE-MATTER MODEL: TIME AS SPACE WAVES

The space-matter model is a surprising model, where space has three spatial dimensions and time has no dimension. In the space-matter model, time comes into existence when mass and space meet. Also, whenever mass and space meet, the result is time. Time is the action-reaction phenomenon (or mutual effect) of matter and space, and appears as space waves.

What does this imply? If we have matter and space, we have time. Time is not the fourth dimension. It is a phenomenon. It is a spatial wave, a series of signals with properties.
It has characteristics like speed, frequency and action that can be calculated[21].

On the other hand, space has time, too, since the actions of matter can be used as time impulses in the case of space. The question of time of space is very complex; I shan't go into details here.

6.1. Time as spatial wave

Can time have waves? In some models, time may have waves, cp. references[22, 23, 24].
If time does exist, and it is not just our human production, it must have effects on matter and the matter must have effects on time. Knowing the theory of relativity, this statement is not new. But there is something missing. The theory of relativity doesn't describe the reactions of space caused by actions of the vibration of particles (matter).

If there is matter in space, there is a (set of) waving spatial signals, that cannot be "switched off". Space waves always exist when matter exists. Every wave has its "effect" on matter. The "effect" has its start and end. So, we can produce one second using (a set of) space waves. We can describe time as waves of space caused by matter, where the space wave has its effect on matter. Saying this, space and matter produce time; time is not an independent phenomenon.

According to modern physics, only mass changes the space waves via causing gravity. Accepting this, our time is the action-reaction of mass and space that exists as space waves. This is not the only space wave, that is, not the only time, just our time. In other words, everything creates space waves, that is, everything creates time. We use in our life (and models) the time of mass, but "non-mass" objects may use different space waves as time.

6.2. Time wave and time unit

The matter-space vibrations, from the point of view of matter, can vacillate between strong and weak. It oscillates. The change is periodic, and one period is one unit of time. This unit of time has two parts:

a) the hit, when space acts upon matter most strongly; and
b) the period between hits, when the force of space acts less strongly upon matter.

FIG.1 shows the *naive* model of the hits of space on matter.

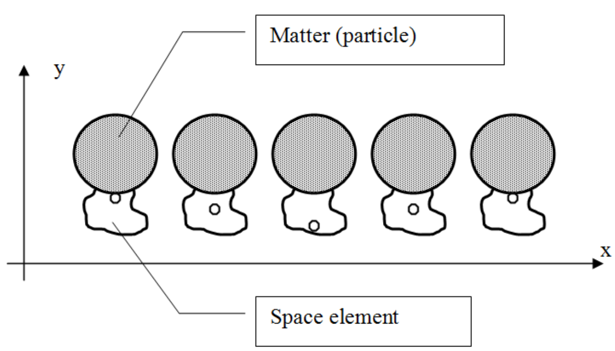

FIG. 1. Time impulses as hits of space on matter. Two-dimensional model, x and y are spatial distances, not proportional. The white shape illustrates an element (a range) of space. The grey circle illustrates a particle of matter. Note the space element is a phenomenon with structure. The elementary particle of matter also has structure.

The FIG.1. illustrates the different states of vibration of one space element (space particle) pictured as a small, white ball. The vibration can be given as a cosine function, where a) equals the positive amplitude of the cosine function. The first and the last space element show this state. Every other value of the function is b). That is, time is created by space and matter. In my cosine-model a pulse of time exists, if $\cos(x) = 1$. The time impulse is followed by a lack of time pulse, when $\cos(x) < 1$.

6.3. Space waves vs. time waves

Every non-space object produces space wave. Light, too. According to modern physics light has no time. This is not possible according to the space-matter model, but now I accept this axiom. A time wave is a wave of space produced by mass and "sensed" by mass. A time wave is the result of a space action followed by matter's reaction and vice versa. Our time wave is a set of space waves, where the set contains one or more waves of space, where the amplitude is given as $\cos(x) = 1$. Every non-space object generates space waves, so there can be many unknown space waves with many different amplitudes. In our lives (and in our models), we use the time of mass, but a "non-mass" object will use different time waves.

6.4. The double-slit experiment proves space waves

Young performed the first two-slit experiment[25] ever. In 1801 he found that light paints an interference pattern on the observing screen.

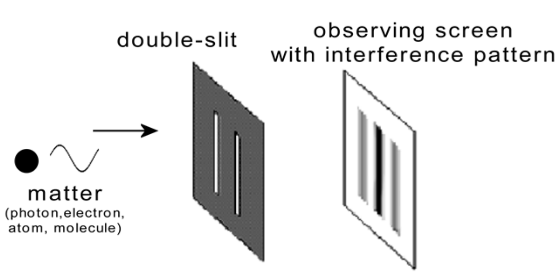

FIG.2. Double-slit experiment, model, not proportional.

Light reaches the screen at discrete points (that is as a particle), but an interference pattern appears on the observing screen using single photons, that is light waves. See FIG.2. Each photon seems to interfere with itself. Jönsonn gave a new meaning to the double-slit experiment; in 1961 he performed the double-spit experiment with electrons[26]. Electrons have masses, that is (small) matter with and without mass produces the interference. In 1974 Merli, Missiroli, and Pozzi[27] [28] in their experiment used single electrons, showing that each electron interferes with itself. There are also molecules that are able to interfere themselves[29].

How can we explain that light (electron, atom, molecule) interferes with itself? There are more known interpretations I won't cite here.

In the space-matter model the interpretation of this phenomenon is the simplest ever: space waves. The waves of space interfere with themselves. The matter is floating on these space waves. The interference doesn't come into being in matter's wave but in the space waves. Saying this, the double-split experiment shows, that mass and photon generates space waves, that is, photon has its own time.

6.5. Lajtner-burgers

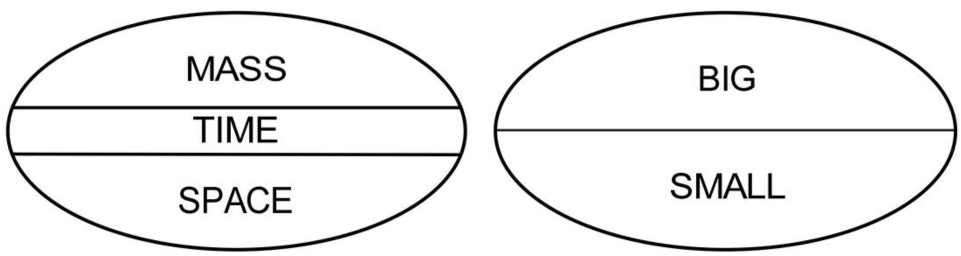

FIG. 3. Space-matter model displayed as Lajtner-burgers.

FIG.3. shows there is no way to put together space and mass without time coming into being. Time is the result of the action-reaction of space and mass. The wavelength of the space wave gives us the spatial distance; the frequency of space waves give us time - if mass is in space. The second illustration of Fig.4. shows the same in a more complex approach. Here space appears as *space and time* for matter (SMALL), and matter appears as *matter and time* for space (BIG).

6.6. Time's new definition

Using BIG and SMALL we can give a new definition of time. Time combines our three spatial dimensions and the three spatial dimensions of space. Are they not the same? Three spatial dimensions are three spatial dimensions, aren't they? In mathematics yes. In physics, no. The *actions* of their buildings elements are at different scales. And the actions cannot change their given dimensions.

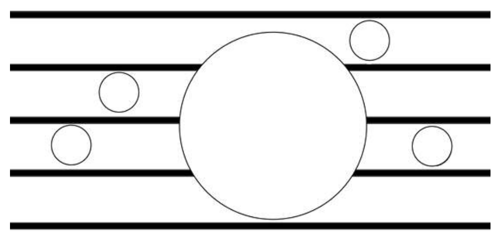

FIG. 4. There are two different three-dimensional spatial dimensions depending on the actions of the objects (model, not proportional).

FIG. 4. shows there is an essential difference in the scale (of actions) of space and matter (SMALL and BIG). Both exist in three-dimensional space, but matter is fundamentally incapable of entering the 3-D world of space. Similarly, space is unable to exploit the opportunities of the matter's 3-D world. The picture above illustrates how space cannot span two bars, while matter cannot fit between them.

From the above statements, a new definition of time emerges. Time is the meeting of "bodies" that exist in two three-dimensional spaces that have different scales. Or in other terms: time comes into being if two different three-dimensional spaces meet.

Our time merges three different things: the three-dimensional spatial world of space, our three-dimensional spatial world of matter, and their actions and reactions. In our normal life we cannot sense the three spatial dimensions of space, therefore we can figure with one time dimension. This *dimension* is *our* action/reaction.

7. PITCH OF SPACE-MATTER MODEL

Matter causes waves in space. Solely through the use of space waves, we can express spatial distance, time and energy. Why? Because space waves have the shortest wavelength, the fastest speed, and the smallest energy expressed in our terms.

- Every spatial distance can be expressed using the wavelength of space waves.
  In our physics terms: This is the shortest unit of distance.
- Every unit of time can be expressed using the periodicity of space wave.
  In our physics terms: This is the shortest unit of time.
- Every amount of action (energy) can be expressed using the value of the action of space wave.
  In our physics terms: This is the smallest unit of energy.

See the calculated values using a simple two-dimensional cosine model as space wave in the next chapter.

8. CALCULATED VALUES IN SPACE-MATTER MODEL

8.1. How can we derive our time units from the space wave?

If we wish to express the time function of space waves in terms of physics' units of time, we may do so. If we take as our unit of time one second, the space waves show us how to divide that unit into the smallest possible parts of time. The time appears as the frequency of the space wave, or in other words, the action of the space wave. One second is as long as the space wave expresses E_{sec} energy. It is calculable according to the model of space-matter.

$$v_{TIME} / \lambda_{TIME} = f_{TIME} . \qquad (7)$$

In Eq. (7) λ_{TIME} is the Planck-length[30] and

$$v_{TIME} = \frac{\mathrm{c}^2{}_{\text{meter}}}{\mathrm{t}_{\text{Planck}}}, \qquad (8)$$

where $\mathrm{t}_{\text{Planck}}$ is the Planck time[31] and $\mathrm{c}^2{}_{\text{meter}} = (2.997 \times 10^8)^2$ meters derived from $E = m \times c^2 = F \times \mathrm{c}^2{}_{\text{meter}}$, where $\mathrm{c}^2{}_{\text{meter}}$ is the distance around the mass, where mass and its modifications of wavelengths of space wave expressed as F are one entity within one time unit, that is, without time. In a closed system, the total momentum is constant according to Newton's

Second Law of Motion. Using this law in a wider context, the mass and the given portion of space build a closed system.

Using the values mentioned above, the speed of time wave (space wave) is $v_{TIME} = 1.667 \times 10^{60}$ meters/sec. The *c* speed limit of the matter is not valid in the case of space and time waves. These waves spread in the texture of space. The measurement of gravitational waves by LIGO doesn't change this statement. See later.

$f_{TIME} = 1.031 \times 10^{95}\ (\sec^{-1})$, using a simple cosine function to calculate the frequency of the time wave. The frequency of the time wave cuts one second into 1.031×10^{95} time-pieces. So, if we stress the *frequency of the space wave*, we are speaking about *time wave*.

h_{TIME} can be calculated supposing a theoretical photon, where $\lambda_{photon} = \lambda_{TIME}$, and using the Planck law[32] as a pattern that light has adopted from the wave of time.

$$f_{photon} \times h = f_{TIME} \times h_{TIME} \tag{9}$$

$$\frac{c}{\lambda_{photon}} \times h = \frac{v_{TIME}}{\lambda_{TIME}} \times h_{TIME} \tag{10}$$

$$h_{TIME} = h \times \frac{c}{v_{TIME}} \tag{11}$$

So, seconds can be expressed as energy. $E_{\sec} = 1.956 \times 10^{9}$ Joules, that is, 1 second represents $E_{\sec}$ energy, according to the cosine model.

Time waves (space waves) are not any kind of matter, but it's "action", it's "energy" can be described with our physics units of matter. We have to be very careful with expressions like "action of time wave", "energy of time wave" etc., because action and energy etc. are the characteristics of matter. (To make the difference clearer, I suggest using *L*action (Low Action), *L*energy (Low Energy) etc. in the cases of time and space waves.)

8.2. How can we derive our spatial distance from the space wave?

If we wish to express our terms of physics' units of distance using the characteristic of space wave made by mass, we may do so. If we take as our unit of spatial distance one meter, the space waves show us how to build that unit from the smallest possible spatial parts. The shortest spatial distance is given by the wavelength of the space wave. $1 \text{ meter} = k_{TIME} \times \lambda_{TIME}$, where *k* is the wave number of space wave (time wave). Using waves that have energy, we can give one meter as energy, too.

8.3. Meter, kg and second expressed in eVolt

Using the action of time waves (space waves), we can express mass, energy, time and spatial distance in the same dimensions, for example in eVolt.

First see the well-known value[33]:

$$1\ kg \text{ represents } 5.61\times 10^{35}\ eV \tag{12}$$

Now let's see the new results using the cosine model:

1 *meter* represents $7.32\cdot 10^{-33}\ eV$, (13

$$1\ second \text{ represents } 1.22\cdot 10^{28}\ eV\ . \tag{14}$$

There is one more surprising conclusion: time, spatial distance and energy can be given in meters and in seconds, too. For example:

$$1\ second \text{ represents } 1.66\times 10^{60}\ meters\ . \tag{15}$$

The values come from the cosine model. If the model is more accurate (for example it is a three-dimensional model accepting the changing values of gravitational force), the above mentioned values will change, but the principle remains the same.

The above written is surprising, but it has old roots. There must be a way to convert – for example – spatial distance into mass and mass into spatial distance, since the special theory of relativity shows the connection of mass and spatial distance using:

$$s'\cdot m' = s\cdot\sqrt{1-\frac{v^2}{c^2}}\cdot m\cdot\frac{1}{\sqrt{1-\frac{v^2}{c^2}}} = s\cdot m = \text{constant}_{\text{s m}} \tag{16}$$

The transformation of kg into meter was meaningless, but we can now express both in eV.

8.4. New constant

If time waves are derived from space waves there arises a strange phenomenon—the time and the distance are the two sides of the same medal from the viewpoint of mass.

$$f_{space\ wave} = f_{time\ wave} \quad \text{and} \quad \lambda_{time\ wave} = \lambda_{space\ wave} \tag{17}$$

If a mass generates growing wavelengths of space, the frequency of the space wave decreases, that is, the time unit for the mass grows in the same portion. Mass always needs the same time expressed as $f_{time\ wave}$ to travel the one $\lambda_{space\ wave}$. Mass can travel never faster, never more slowly in space from its own viewpoint. According to a Hungarian proverb: "It is not possible to jump over its own shadow", that is, "The leopard cannot change his spots". This is displayed in the Eq. (18) by v_{sm} . Accelerating motion appears in a non-space inertia frame of reference according to the mass, but it doesn't appear in the framework of waving space according to the mass.

$$v_{sm} = c \tag{18}$$

Eq. (18) comes from the space-matter model combined with the special theory of relativity. *c* is true, because of Eq. (19).

An observer can realize the acceleration of mass in space, if the observer is able to measure the changing wavelengths of space waves around the mass. The mass itself isn't able, since its time depend on its space waves. Eq. (18) doesn't mean at all that the velocity of an object cannot be higher than *c* according to an observer. Eq. (18) characterizes how objects "can see their shadows" in the waving space.

Eq. (18) also shows that mass particles cannot be motionless in space, that is, particles (matter) must vibrate, and they always have time.

8.5. Different spaces vs. wormholes

In Eq. (18) we can see the same phenomenon in mass-space relation, what we know about the relation between mass and light. The speed of light is independent of the *v* velocity of the mass, it is always *c*, according to the given mass. Mass and light follow the same rule, but their spaces are different. Mass travels in space, light travels on the space wave generated by mass. This highlights the reason of the gravitational red shift of light. Light's frequency level (*FL*) is constant in the case of the given photon:

$$FL = const = f_{light} / f_{time\ wave} \tag{19}$$

Mass and light have different spaces, that is, there *are* different spaces. Objects opt for what is space for them. Mass and light (and other hypothetical or real particles) use different spaces, where the wavelengths of space waves are different. The different wavelengths of space waves result that there are spaces, where $v_{limit}>>c$, where v_{limit} is a velocity measured by mass. These spaces can be seen as wormholes. What is a wormhole in the space-time model? A wormhole[34] or an Einstein–Rosen bridge[35] is a hypothetical "bridge" connecting two sheets of space-time.

There is no wormhole in the space-matter model, but different spaces. The different spaces seem to make the spatial distances shorter, because the wavelengths of space waves are longer here. From the viewpoint of masses, the following seems to be true: $v_{limit}>>c$.

8.6. Synchronization of space wave and matter vibration

You can see that the waving of space is faster than the vibration of matter. $f_{space-wave} > f_{matter-vibration}$. These motions must be synchronized. The synchronization of these motions needs algorithms of both sides. Matter and space must have algorithms. Saying this, there are structures of matter built from smaller bricks than themselves. In other words, the elementary particle of matter we know cannot be the last building bricks of the matter. These smaller bricks (or their twins) are in space, too, that is, both space and matter have structures.

More aspects of the algorithm of matter can be sketched using the space-matter theory (cp. Reference 14). I think, the algorithm of matter, ("the DNA of matter") can be almost as well decoded as the DNA of livings beings.

The elementary bricks can be postulated, the space-matter theory is the way to describe them. In this study I don't enter this way, because the length of this paper is limited.

Saying this, I don't think, we know all elementary (matter) particles, since we don't know when and how the algorithms of matter (and space) come into being. Researching the possible algorithms, we would be able to give a minimum condition for the smallest matter/non-matter particles that may exist and cannot be put into the Standard Model. See the discovery of a new, unknown particle[36] by Debrecen University (Hungary) in 2016. This particle seems to represent a new fundamental interaction[37]. that cannot be put into the Standard Model. Space-matter theory is dedicated to describe new fundamental interactions

9. THOUGHT'S SPACE

Thought force uses a space, where $v_{thought}>>c$. The big velocity of thought force can partly explain the three paradoxes written in chapter 3, but they need more explanations too. In order to understand the character of thought force communication, we have to understand how thought force spreads in the Universe. The best way to understand this is to understand the working method of gravity according to the space-matter model. Note that thought force is more complex than gravity force. Gravity force is always attracting, thought force can be attracting or pushing. Contrary to gravity, thought is able to increase and decrease the wavelength of space waves. On the other hand, the working of gravity highlights the working of thought force.

The following part on gravity is short. I think the new definition of gravity and its issues are worth a couple of extra paragraphs, I have therefore attached Part B.

10. GRAVITY IN SPACE-MATTER MODEL

10.1. Gravity as difference of wavelengths of space waves

Mass changes the wavelength (and the frequency) of space waves. The bigger (the faster) the mass, the longer the wavelength and the smaller the frequency of the space wave will be. The gravity is when space pushes masses:

$$\sum \vec{F}_{space} \neq 0, \qquad (20)$$

where $\vec{F}_{space}$ are vectors of the force (action) of space waves from the viewpoint of mass. Mass moves the direction of the resultant vector (except in special cases not detailed here).

Among bodies experiencing gravity, the frequency of space waves decreases. That is, the space “pressure” between the bodies decreases. Gravity arises, because the portions of space with higher force (action) shift the masses. If on one side of a mass the space wave has f_{s1} frequency, and on the opposite side of this mass the space wave has f_{s2} frequency and $f_{s1} < f_{s2}$, then the mass goes into the direction of f_{s1}. The greater f_{s2} frequency - the greater force (action) of space - moves the mass forward. Note the space waves between the masses contains information about both masses, see FIG.5.

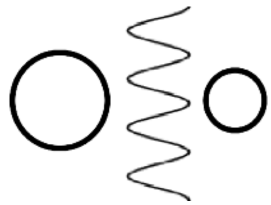

FIG. 5. Space wave model of gravity. The wave between the objects is changed by both masses (model, not proportional). The space wave "displays" the value of great mass and the value of little mass. Both masses "write and read" the information of space wave.

10.2. Speed of gravity

Gravity as space waves works well if we suppose that $v_{gravity} = c$ or $v_{gravity} >> c$. The velocity of gravity does not change the working method of gravity in the space-matter model. This is not true in the space-time model. In the space-time model, no particles (whether actual or hypothetical) can move faster than light cp. Standard Model of Physics[38]. According to this concept even (a wave of) gravity, which travels in the fabric of space, has c velocity.

$$v_{gravity} = c \tag{21}$$

In 1974 Hulse and Taylor[39, 40] proposed measuring the gravitational wave to find Eq. (21). They were awarded the Nobel Prize with this measuring[41], but the question remained open. In 2013 scientists in China were supposed to measure the same value[42]. The question is still open, since the measurements was made by light, so the scientists may have measured the speed of light. There are physicists who state gravity must be much faster than light. For example Flandern states: $\mathrm{v}_{\mathrm{gravity}} \geq 2 \times 10^{10} \mathrm{c}$. This value is based on laboratory, solar system, and astrophysical experiments[43].

The first measurement of gravitational waves were made by LIGO. Space waves. Fact.

What about the velocity of gravity (space waves)? The physicists of LIGO work within the space-time model, so they accept Eq. (21) as fact. Based upon it, LIGO's scientists are supposed to have measured the gravitational waves of two black holes that collided. Their theory is known: the event took place 1.3 billion years ago[44]. But there is a fact: the Fermi space telescope detected a burst of gamma rays 0.4 seconds later after the measurement of LIGO. In my opinion, LIGO did not measure the gravitational effect of two black holes that merged, but gravity's effect caused by the electromagnetic energy[45, 46]. Physicists at LIGO certainly refuse this interpretation[47].

From the perspective of the space-matter model, what LIGO's measurement precisely demonstrates is that everything, even light (electromagnetic energy), alters space (and time) waves. What is more, everything has time. This is exactly what the space-matter model propounds.

11. THOUGHT FORCE COMMUNICATION

11.1. Frequencies of space wave of gravity and of thought force are in different spectra

If $v_{gravity} = c$, it means gravity and thoughts must have different spaces. If $v_{gravity} = c$, then thought force is not a gravity-like force but a new fundamental interaction that is faster then light. Why? At the beginning of this article I stated that we have information about the rotation of the paper wheel before the start of rotation. Even more, we have information about the negative acceleration (-a) of the rotation caused by third party before (-a) starts, that is, while the rotation (= the electromagnetic force) is still unchanged[A]. Saying this, the thought force must be faster than the electromagnetic force (light), since the electromagnetic force doesn't exist when the "feedback signal" already arrives our brains; and the "feedback signal" exists as long as the paper wheel accelerates. Different velocities mean different spaces, but different spaces don't mean the lack of interaction of forces.

11.2. Two sources of our thoughts

Understanding the working method of gravity, we can accept thought force communication. Thought force modifies the wavelength of the space wave. The thought force as a modified space wave appears as vector – like every force does. The space wave is very fast, so the force of thought can reach even the farthest object – practically without time. The space waves allow two-way communication; remember the gravity displayed in FIG.6. So the reaction of an outermost object can reach our brains. The addition and subtraction of vectors of forces remain true in the case of thought forces, too. There are uncountable many forces (*umf*) in the Universe, but the forces always have one sum. Note the forces mentioned below are in the given spectrum of thought forces.

[A] Where (-a) set up is independent of the human experimenter that rotates the wheel with thought.

$$\vec{F}_{\text{outer world}} = \sum_{i=1}^{umf} \vec{F}_{\text{outer world i}} \ . \tag{22}$$

The $\vec{F}_{\text{outer world}}$ gives a part of our thoughts.

$$\vec{F}_{\text{your thought}} = \sum(\vec{F}_{\text{your intention}} + \vec{F}_{\text{outer world}}) \ . \tag{23}$$

If there are outer forces in the spectrum of our thought forces, these forces appear as thoughts in our brains. Saying this, our thoughts have two parts. The "intention part", we want to think, and an unknown part we get from the world (in the given spectrum) as $\vec{F}_{\text{outer world}}$.

Now the three paradoxes mentioned in chapter 1 are very clear. Your thoughts change even when they do not change – since the world changes, so $\vec{F}_{\text{outer world}}$ changes, too. If you would like to think today the same thoughts you had yesterday, you must think different thoughts – the reason is the same: the changing $\vec{F}_{\text{outer world}}$. The last one is the short summary of the above-mentioned. You have to change with the world, if you want to be the same you were yesterday – compared to the world. You should run, in order to remain in one place.

11.3. Life, consciousness, beauty, why we dream

Using the space-matter model, we have a method that describes thoughts in a revolutionary new way. With this new conception we are able to give new definitions. We have a new way of defining life, consciousness, beauty and many other phenomena of our life[48]. The space-matter model is the first theory that can answer the question: Why do we dream?

11.4. Thought in world, world in thought

Since the modified space wave by thought is as "normal" a force as the others, we may state that every thought forms the entire world.

$$\vec{F}_{\text{outer world}} = \sum(\vec{F}_{\text{your thought}} + \vec{F}_{\text{outer world}}) \tag{24}$$

Thoughts in modified space waves have forces in every moment. The sum of all forces appears as a space wave. The entire world is in your every thought, and your every thought is in the entire world.

PART B: GRAVITY IN SPACE-MATTER

11. GRAVITY AS SPACE WAVES

Part B is a very important part of this study, because it shows a known phenomenon, gravity, and how it works in the space-matter model. Understanding the working method of a known phenomenon, we can understand the working method of an unknown phenomenon like thought force.

The space-matter model allows us to discern new features of gravity. The main part of the gravity in space-matter model is the existence of gravitational waves. LIGO detected gravitational waves, they exist. According to space-matter theory gravity is the difference of the wavelengths of space waves. The velocity of gravity is irrelevant from this viewpoint. The following model works in both cases: if $v_{gravity} = c$ or $v_{gravity} >> c$. So, thought force can also be described with the space-matter model. Since this model is independent from the velocities, the nonlocal correlation in quantum entanglement (nlcqe) can be described with this model, too, where $v_{nlcqe} >> c$. Part B can also be seen as the completion of Reference 1.

12. GRAVITY INFLATES THE UNIVERSE

Gravity is the sum of different forces of space waves. The moving mass changes the wavelengths of space waves.

$$\frac{d}{dt}v = l\frac{d}{dt}\lambda, \qquad (25)$$

where *l* is a proportionality factor.

The longer wavelengths of space waves occur at a higher acceleration of mass. The accelerating mass makes the wavelength of the space wave longer, and the longer space waves accelerate the mass. This is why the gravity force is accelerating.

The acceleration itself of the Universe is able to inflate the Universe, since the wavelengths of the space wave are constantly growing.

13. DENSITY OF SPACE WAVE

The mass decreases the energy of the space wave and increases the wavelength of the space wave. Lots of mass set up this effect causing very long waves. Space regions can be depleted, where the density of the space wave is very small. Space wavelengths with different amounts of masses and their densities:

$$\lambda_{less\ mass} < \lambda_{more\ mass}\,, \tag{26}$$

$$h_{space} / \lambda_{less\ mass} > h_{space} / \lambda_{more\ mass}\,. \tag{27}$$

The densities are different. Existing space needs a minimum density.

$$h_{space} / \lambda > D_{sp}\,. \tag{28}$$

D_{sp} is the value where space stops existing as space. If the actual density approaches this density,

$$D_{space-act} \approx D_{sp}\,, \tag{29}$$

then the space wave is "too" long. In this case there are two possibilities. The masses connected with this space region are not able to accelerate at all. We don't know regions like this in the Universe. The second opportunity is that space disappears as space. The disappearing space creates mass. This script won't work so simply, since the newly-created mass increases further the wavelength of other space waves and doesn't give a solution for *space* to "live through as space".

14. DEPLETED SPACE AND BANACH-TARSKI PARADOX (BTP)

Laczkovich[49] has solved the circle-squaring problem. Taking this, there can be a possible decomposition between particles independent of their shapes. So, the BTP or a similar operation can work between space and matter. Along the second script there is a possible solution if space uses the BTP or a similar operation. Let's see one single space wave with small density. Let's see it as a three dimensional space particle. Using the BTP, the space particle goes to finitely many pieces. These pieces will be reassembled into two space particles. One space particle is measurable from the viewpoint of space. This is a space particle. The other space particle is immeasurable from the viewpoint of space. This particle is mass.

$$particle_{sp1} \equiv\ particle_{sp1} \cup\ particle_{sp2}\,, \tag{30}$$

where $particle_{sp1}$ is space, $particle_{sp2}$ is immeasurable space particle, that is mass.

$$particle_{sp2} = particle_{m1}, \tag{31}$$

The next step is:

$$particle_{m1} \equiv particle_{m1} \cup particle_{m2}, \tag{32}$$

where $particle_{m1}$ is measurable mass, $particle_{m2}$ is immeasurable mass, that is space. Eq. (28) creates a space particle with original wavelength but with a higher density.

$$particle_{sp1} \cup particle_{m2} \equiv particle_{sp1} \ , \tag{33}$$

The new mass $particle_{m1}$ makes the wavelength of space waves longer which is able to increase, since it is not depleted.

$$D_{space-act} >> D_{sp}, \tag{34}$$

Does Eq. (33) change the time? Our time unit has been longer, since the wavelength of space wave has increased. But the space wave itself has changed, too. In general we may say that masses use the space wave as time that are dependent on them, that are created by them and other masses. The new mass $particle_{m1}$ creates a new space wave; this space wave will be its time. Saying this, $particle_{m1}$ is not a "normal mass" because it uses a different time wave. It will be a special particle with large mass and with different time[B]. See FIG.6.

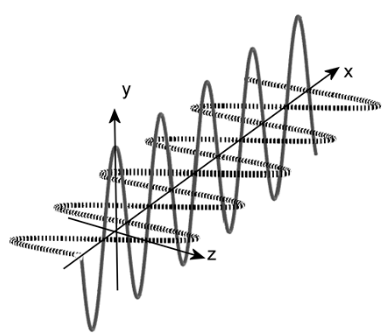

FIG. 6. A possible model of time waves of mass and $particle_{m1}$ (dark matter). The time wave of $particle_{m1}$ cannot be pictured in the cosine model. To display it, we need the z-axis, too. The two time waves are in different planes (x, y) and (x, z), where x, y, z are spatial distances. Mass and $particle_{m1}$ (dark matter) are different since their time waves are different. The dotted cosine function never appears as time for the mass since this function has no y=1 value.

[B] And maybe with a different space that doesn't exist from the viewpoint of "normal" masses.

If the space waves are not (or no more) depleted, new *particle*$_{m1}$ doesn't come into being. This is the case in galaxies, clusters and super clusters, where the *particles*$_{m1}$ have made the poise. The gravity of *particle*$_{m1}$ acts as any gravity force. Increasing the gravity, *particles*$_{m1}$ help hold together the galaxies and clusters. In the cosmic void, where the space is permanently depleted, the creating of the *particle*$_{m1}$ continues. *Particle*$_{m1}$ makes the wavelength of the space wave longer, that is, the cosmic void will grow. The Universe grows. This is the second factor that also increases the Universe, and it is still gravity.

15. GRAVITY ACCELERATES THE UNIVERSE

Lemaitre[50] and Hubble[51] gave the first theoretical and observational evidences for the expansion of the Universe. The Hubble Law shows that the recessional speed of an object (galaxy) depends on the distance between Earth and the object (galaxy). The Hubble constant has been researched since 1927. The measurements are more and more precise; the show is on to refine its value.

Perlmutter, Riess and Schmidt[52, 53] found observational evidence for an accelerating Universe in 1998. The Universe expands at an increasing rate, that is, the velocity at which a distant galaxy is receding from the observer is continuously increasing with time.

Using the new definition of gravity described above, we can give a working explanation, where gravity itself occurs as (a significant portion of) the accelerating Universe.

Gravity makes the wavelength of space waves longer. *Particles*$_{m1}$ give an extra increase to wavelengths of space waves. If the creating of *particles*$_{m1}$ is permanent in voids, it occurs that the acceleration of the Universe will accelerate. This will accelerate the creation of *particle*$_{m1}$. Saying this, and supposing that the *particle*$_{m1}$ is a kind of dark matter, (a part of) dark energy is created by the dark matter. In other words, the gravity of the Universe creates the accelerating Universe (or at least a part of it).

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