Spaces and Velocities

by

Dr. Tamas Lajtner

Contact via web site: www.lajtnermachine.com

Abstract: Space is what matter uses as space. Space is not dependent on its texture. It can be made out of matter or non-matter. Time is one characteristic of the given space. Using this new approach, we can find substantial spaces that exist in reality, but we have never considered these as spaces. In these spaces the faster-than-light communication is reality.
This paper is based on space-matter theory, but it can be understood without knowing this. Space-matter theory describes how space and matter create time. So matter that appears as space appears as time, too. This conclusion is very new, but it is an important part of the space-matter theory.

Key words: double-slit, spooky action, tunneling, space-wave, time-wave, space-matter theory, Lajtner-burger, Lajtner-submarine, more spaces,

1. What is space?

Space is a boundless, three-dimensional extent in which objects and events occur and have relative position and direction (Encyclopaedia Britannica, 2016 b). From this definition we don't know what space is made of. Is space a kind of "something" or is it an "empty pool"? Aether theories propose the existence of a substantial medium, the so-called aether that fills this "pool". 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 (Lorentz 1899, 1904) represent the theory.

In Einstein's four-dimensional space-time model (three spatial dimensions and one time dimension) (Einstein, 1905-1916), space itself is an object that produces action and reaction

in harmony with actions of mass (and energy). This four-dimensional space-time has two parts: time and space. What is time, what is space?

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 cesium 133 atom (SI, 2014 a) that we can measure. One second has its start and has its end that 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 (SI, 2014 b). 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 on what we can measure (Heisenberg, 1927). From now on I refer to matter as 'measurable and immeasurable matter '. Lets say the following: where there is matter, there is no space, where there is space, there is no matter. This definition says three things:

- Space and matter exist, if two objects exist, and one of them acts as space while the other one acts as matter.
- We cannot generally answer the question: "What is space made of?" Space depends on its relationships. Space is what matter senses as space.
- Time originates from the given space.

More details are here: (Lajtner, 2016 e). There you can find more details of the space-matter theory, too.

2. What can be space; or, the Lajtner-submarine

Let's introduce the following notations:

a. Space. This is *the* space we know as space, made out of space.

b. Time. This is our time generated by mass in Space.

c. $Space_{act}$. This is the space, where the object travels.

d. $Time_{act}$. This is the time that is given by the $Space_{act}$, where the object travels.

e. $Space_m$. This is a space made out of mass that another matter uses as space.

f. $Time_m$. This is the time that is given by $Space_m$.

g. Space $wave_L$. This is a space wave in Space generated by light.

h. Space $wave_{MV1}$. This is a space wave in Space created by Matter $Wave_1$.

i. Space $wave_{MV2}$. This is a space wave in Space created by Matter $Wave_2$.

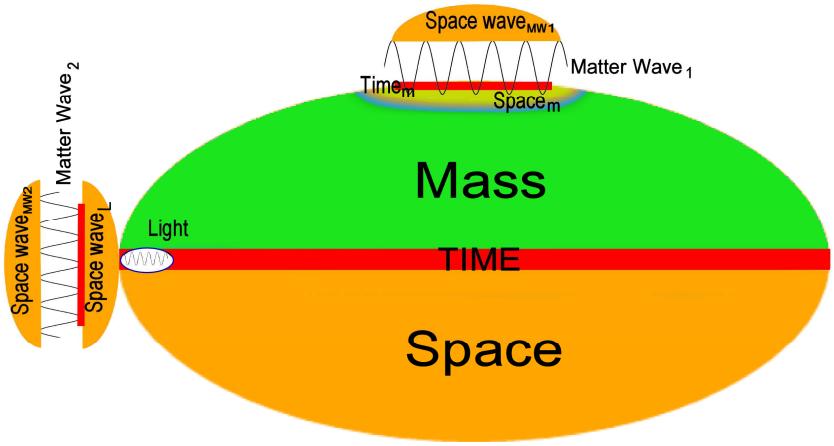

Figure 1. Spaces of Space-matter model displayed as Lajtner-submarine (not proportional).

The illustration sketches the complexity of space and time. It doesn't try to display every possible opportunity. It emphasizes that the question "What is space?" cannot be answered without knowing whose space we're talking about. Figure 1. shows, there are different spaces. Light and mass are able to generate space, and they are also able to appear as space for another matter. Space is a wider category than just "Space", space must always be understood in relations.

Let's look at the top of the figure. It shows, space can be created from mass, it is $Space_m$. Its time is $Time_m$. A given waving matter particle called Matter $Wave_1$ can travel in Space and in $Space_m$. For Matter $Wave_1$ $Space_{act}$=$Space_m$, but the following can be possible, too: $Space_{act}$=Space. In Figure 1. Matter $Wave_1$ uses $Space_m$. If the Matter $Wave_1$ jumps from $Space_{act}$=Space into $Space_{act}$=$Space_m$ or back, then the Matter $Wave_1$ has to change itself, too. Matter $Wave_1$ creates Space $wave_{MW1}$.

Let's look at the left side of Figure 1. Light travels on the space waves of mass—that is, on our Time, according to space-matter theory. The light generates Space $wave_L$ that is used by Matter $Wave_2$. For example the spooky action at a distance (the non-local correlation in quantum entanglement) travels on Space $wave_L$. The red line here without text symbolizes the time of this space. Matter $Wave_2$ creates Space $wave_{MW2}$.

Light itself also can be space; see the fast lights experiments (Gauthier & Boyd, 2007). Saying this, not only Space, but mass, light and their space waves can be used and are used as space in many cases.

If

$$Space_{act} \neq Space \,, \tag{1}$$

that is, their wavelengths (λ) are different this way

$$\lambda_{Space_{act}} >> \lambda_{Space} \,, \tag{2}$$

then the velocity of the Matter Wave v_{MW} is greater than the speed of light c,

$$v_{MW} >> c \,, \tag{3}$$

There are shown many spaces in Figure 1., but every space and time wave can be derived from the Space waves created by Masses.

$$\gamma_{act} = f_{space_{act}} / f_{Space} \tag{4}$$

where γ_{act} depends on the given $Space_{act}$ and *f* means the frequencies.

3. Spaces and velocities

Table 1 shows that *space* can be the lack of matter or even the matter itself. Everything we know (space, mass, energy) can act as space. Non-space waves can use different spaces; in different spaces they have different velocities.

Table 1. What can be space?

MATTER= / SPACE=	Mass	Light (energy)	Spooky action	Tunneling wave	Gravity	Thought force
Space	$v_{act} < c$	-	-	mass outside the barrier $v_{act} < c$	velocity disputed $v_{act} \geq c$	-
Mass	mass can turn into tunneling waves $v_{act} > c$	light (energy) can turn into tunneling waves $v_{act} > c$	?	inside the barrier $v_{act} > c$	?	thought force as particle $v_{act} \geq c$
Light (energy)	?	$v_{act} > c$	-	-	-	-
Space wave caused by mass	-	$v_{act} = c$	-	light outside the barrier $v_{act} = c$	velocity disputed $v_{act} \geq c$	-
Space $wave_L$ caused by light	?	-	$v_{act} > c$	-	"gravity" of non-mass, it's refused by physics $v_{act} > c$	thought force as particle* $v_{act} > c$
can be the matter described as modifications of wavelength of space waves (as non-matter waves)?	-	-	yes $v_{act} > c$	? $v_{act} > c$	yes $v_{act} > c$	yes $v_{act} > c$ thought force communication

Table 1. shows that both space and matter can act as space. Space and matter seem to be a category that can be understood in relationships only. The relationship determines the space that determines the v_{act}, which is the velocity of the non-space object (matter) in the given space. Table 1 shows a fact: faster-than-light velocities come into existence in many ways. If the space-matter environment changes—that is, matter changes its space—matter's velocity changes as well. The table has been filled out using the following references (Lajtner, 2016 a; Lajtner, 2016 d).

***** The thought force as particle is supposed to travel on the Space wave$_L$ made by the electromagnetic waves made by neurons.

If we see the Table 1 from philosophical viewpoint, we can put more questions:

- Fact: Matter is able to act as Space. Is Space able to act as matter?
- What is *the* Space of the void made of?
- Light travels through the dark matter. What kind of space is the dark matter? How big is the velocity of light in this medium?
- Asking this, we may ask: How big is our world?
- Is our Space made out of matter? Does the space give more than 95% of the energy of the Universe? Does a different world exist that lies "somewhere under us"?
- Does space exist as a non-matter phenomenon at all?

References

Lajtner ,T. (2016 a). *Thought force is a new fundamental interaction* http://dx.doi.org/10.4006/0836-1398-29.2.239

Lajtner, T. (2016 b). *The Milky Way wouldn't be the same without your thought force* https://www.academia.edu/28322401/The_Milky_Way_wouldnt_be_the_same_without_your_thought_force

Lajtner, T. (2016 c) *Thought Force Communication, Space-Matter, Gravity* http://vixra.org/abs/1606.0297

Buzsaki, Gy. (2006). *Rhythms of the Brain* Oxford University Press DOI: 10.1093/acprof:oso/9780195301069.001.0001

Planck, M. (1900). *Zur Theorie des Gesetzes der Energieverteilung im Normalspectrum* Verhandlungen der Deutschen Physikalischen Gesellschaft 2, 237. DOI: 10.1002/phbl.19480040404

Planck, M (1901) *Über das Gesetz der Energieverteilung im Normalspectrum.* Annalen der Physik 4: 553-563.

Encyclopaedia Britannica (2016 a). https://www.britannica.com/technology/energy-conversion

Encyclopaedia Britannica.(2016 b). https://www.britannica.com/science/space-physics-and-metaphysics

Lorentz, H. A. (1899). *Simplified Theory of Electrical and Optical Phenomena in Moving Systems* Proceedings of the Royal Netherlands Academy of Arts and Sciences 1: 427-442. (1899)

Lorentz, H. A. (1904). *Electromagnetic Phenomena in a System Moving with any Velocity Smaller than that of Light* Proceedings of the Royal Netherlands Academy of Arts and Sciences 6: 809-831.

Einstein, A. (1905). *Zur Elektrodynamik bewegter Körper*. Annalen der Physik 17, 891-921.

Einstein, A. (1907 a). *Relativitätsprinzip und die aus demselben gezogenen Folgerungen* Jahrbuch der Radioaktivitaet, 4, 411-462.

Einstein, A. (1907 b). *Die vom Relativätsprinzip geforderte Trägheit der Energie* Annalen der Physik 23. 371-384.

Einstein, A. (1914). *Formale Grundlage der allgemeinen Relativitätstheorie.* Preussische Akademie der Wissenschaften, Sitzungsberichte, 1030-1085.

Einstein, A. (1915 a). *Zur allgemeinen Relativitätstheorie.* Preussische Akademie der Wissenschaften, Sitzungsberichte, 778-786, 799-801.

Einstein, A. (1915 b). *Feldgleichungen der Gravitation*. Preussische Akademie der Wissenschaften, Sitzungsberichte, 844-877.

Einstein, A. (1916). *Grundlage der allgemeinen Relativitätstheorie.* Annalen der Physik. 49, 769-822.

SI Brochure, The International System of Units (SI) (2014 a). http://www.bipm.org/en/publications/si-brochure/second.html

SI Brochure, The International System of Units (SI) (2014 b). http://www.bipm.org/en/publications/si-brochure/metre.html

Heisenberg, W. (1927). *Über den anschaulichen Inhalt der quantentheoretischen Kinematik und Mechanik.* Zeitschrift für Physik 43 (3) 172-198.

Lajtner, T. (2016 d) *Four Mysteries Solved: Double-Slit, Spooky Action, Tunneling, and Accelerating Universe* Int Res J Pure and App Phys (IRJPAP) Vol 4, Issue 3, July

Gauthier, D. J. & Boyd, R. W. (2007). *Fast light, Slow light and Optical Precursors: What does it all mean?* http://www.photonics.com/Article.aspx?AID=27833.