

## Time, observer, and consciousness

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**Abstract:** In today's physics, opinions on what is time are different. Some physicists deny the existence of time, and others think that time has physical existence. Nevertheless, time was never directly perceived by senses. With our eyes, we perceive the flow of material changes, i.e., motion in space. Our recent proposal is that universal space is time-invariant in the sense there is no physical time which would be the fourth dimension of space. The model of space-time is replaced with the model of time-invariant space, where we perceive the flow of material changes. In past years, neuroscience has discovered that linear psychological time "past-present-future" has origin in neuronal activity of the brain. An observer is experiencing the flow of material changes in the frame of psychological time. With eyes, we do not perceive some physical time in which material changes run. The observer perceives a stream of changes that run in the time-invariant space. This stream of changes the observer experiences in the brain through the psychological linear time. In the universe, there is no linear time past–present–future, material changes run in time-invariant space. An observer only perceives changes (not time) and he experiences changes in the frame of psychological time. The observer (the subject) is beyond psychological time, and it does not change during a human lifetime. Observer can be understood as the function of consciousness. © 2022 *Physics Essays Publication*. [<http://dx.doi.org/10.4006/0836-1398-35.2.123>]

**Résumé:** Dans la physique d'aujourd'hui, les opinions sur ce qu'est le temps sont différentes. Certains physiciens nient l'existence du temps, d'autres pensent que le temps a une existence physique. Néanmoins, le temps n'a jamais été directement perçu par les sens. Avec nos yeux, nous percevons le flux de changements matériels, c'est-à-dire le mouvement dans l'espace. Notre proposition récente est que l'espace universel est invariant dans le temps dans le sens où il n'y a pas de temps physique qui serait la 4<sup>ème</sup> dimension de l'espace. Le modèle de l'espace-temps est remplacé par le modèle de l'espace invariant dans le temps, où nous percevons le flux des changements matériels. Au cours des dernières années, les neurosciences ont découvert que le temps psychologique linéaire « passé-présent-futur » a pour origine l'activité neuronale du cerveau. Un observateur fait l'expérience du flux de changements matériels dans le cadre du temps psychologique. Avec les yeux, nous ne percevons pas un certain temps physique dans lequel s'exécutent les changements matériels. L'observateur perçoit un flux de changements qui s'exécutent dans l'espace invariant dans le temps. Ce flux de changements que l'observateur expérimente dans le cerveau à travers le temps psychologique. Dans l'univers, il n'y a pas de temps linéaire « passé-présent-futur », les changements matériels se déroulent dans un espace invariant dans le temps. Un observateur ne perçoit que des changements (pas le temps) et il éprouve des changements dans le cadre du temps psychologique. L'observateur (le sujet) est au-delà du temps psychologique, il ne change pas au cours d'une vie humaine. L'observateur peut être compris comme la fonction de la conscience.

Key words: Time; Observer; Consciousness.

### I. INTRODUCTION

To progress in science, we have to trust our senses more than our imagination. Time as the fourth dimension of space was never perceived by senses. In physical reality, we perceive only the flow of material changes. The flow of changes is irreversible, change 2 is after change 1, and change 3 is after change 2, but all changes appear and disappear only in space. We perceive in physical reality certain numerical sequential order of changes that run in the space. As time as the fourth dimension is an unproven proposition, we propose

that universal space is time-invariant.<sup>1</sup> There is no symmetry in time, time travel is categorically excluded. One can move only in space.<sup>2</sup> The velocity of changes is relative, and it depends on the variable energy density of space. More the space is dense, faster is the velocity of changes, and less space is dense, slower is the velocity of changes, rate of clocks included. Twins are aging only in space. Twin on the Moon surface is aging slower than his twin-brother on the Earth surface, because the energy density of space is higher on the Moon surface.<sup>3</sup>

In the universe, we can only talk about the stream of change, not about time. We perceive a stream of changes by eyes. Perceived information in the form of photons is transformed in the electric signal and transported via eye-nerve in

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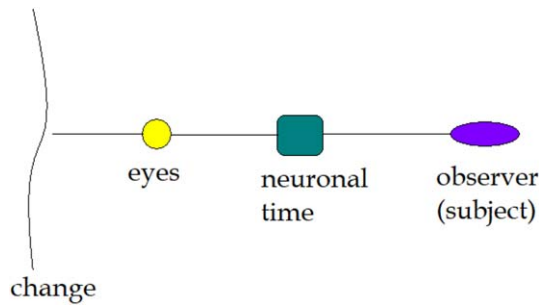


FIG. 1. (Color online) Experience of change through the neuronal time.

the center of the brain that is responsible for sight. Here, information is first elaborated in the frame of linear psychological time past–present–future that has origin in the neuronal activity of the brain.<sup>4</sup> This is so-called “neuronal time” (Fig. 1).

When the observer measures a given material change with a clock, time as duration appears. Changes do not have a duration on their own, and duration is the result of measurement from the side of the observer.<sup>5</sup> In this view, observer’s act of measurement is creating time that we use in physics. In physics, time essentially is understood as the duration of change, i.e., motion.

## II. INNER PSYCHOLOGICAL TIME AND EINSTEIN’S NOW

In today’s psychology and cognitive science, it is widely accepted that we perceive some physical time that is running in the physical reality. Experience of physical time depends on emotions, on taking drugs, on meditative states. The flow of physical time one will experience faster or slower depending on various psychosomatic factors.<sup>6–10</sup> Authors are presuming that some physical time is running in the physical reality. This presumption seems flawed, because there is no single data that changes run in some physical time. Inner psychological time is shaped accordingly to the emotions, meditative states, and use of drugs. This modification of psychological time changes the experience of an external event that runs in time-invariant space and has nothing to do with the flow of physical time that does not exist.

Perception of moving objects also has an impact on the flow of inner psychological time.<sup>11,12</sup> In our model, the object is moving only in space. Its motion influences the flow of inner psychological time.

The novelty of our model is that physical time does not run only changes run in time-invariant space. We do not perceive by senses some physical time. The only existing time is psychological time and is the result of neuronal activity. The observer only experiences his/her neuronal time that sometimes runs faster, sometimes runs slower, or also stops.

In the universe, there is no time. The universe is timeless. Humans, we experience the timelessness of the universe as NOW. Einstein has said: “For us believing physicists the distinction between past, present, and future only has the meaning of an illusion, though a persistent one.”<sup>13</sup> Einstein was worried about this NOW that is outside the realm of science: “Einstein said the problem of the Now worried him

seriously. He explained that the experience of the Now means something special for man, something essentially different from the past and the future, but that this important difference does not and cannot occur within physics. That this experience cannot be grasped by science seemed to him a matter of painful but inevitable resignation. So he concluded that there is something essential about the Now which is just outside the realm of science.”<sup>14</sup> The universe is running in NOW. In this NOW, the only existing time is psychological time. Material changes run in NOW. In our model, NOW is the intrinsic property of time-invariant superfluid quantum space (SQS).<sup>1</sup>

## III. OBSERVER AS A FUNCTION OF CONSCIOUSNESS

The intrinsic property of consciousness is awareness of mental activity. A conscious observer can observe the way his/her mind functions. The observer is not part of the mind and is not part of the psychological time. We are proposing a model where the observer is the function of consciousness that is  $n$ -dimensional. Atoms, molecules, and cells are three-dimensional (3D). Atoms are made out of elementary particles that are four-dimensional.<sup>1</sup> Neuronal psychological time is based on three-dimensional neuronal activity. The human mind is four and more dimensional. Consciousness is  $n$ -dimensional. Lower dimensional realities are existing in higher dimensional realities.<sup>15</sup> Consciousness is communicating with three-dimensional reality via pilot  $n$ -dimensional photons that are carriers of higher cognitive functions of the human mind (Fig. 2).<sup>16</sup>

Our model of consciousness and mind elegantly explains remote viewing: “Remote viewing is a methodological approach for the investigation and application of precognition and real-time psi. Psi is an inherent ability that enables us to describe and experience non-inferential objects and events in the distance and in the future. While some may not have this inherent ability, others may have it at varying degrees of proficiency—from a once-in-a-lifetime experience to giftedness that enables psi on demand.”<sup>17</sup> Remote viewing of distant objects and even events in the future is the function of consciousness that contains the entire universe. All that has happened has occurred in the same consciousness and all that will happen will occur in the same consciousness. Some people’s mind is able to receive the information directly from consciousness.

It is difficult to imagine: Consciousness as the medium (the primordial field) in which the year 2022 will appear, is

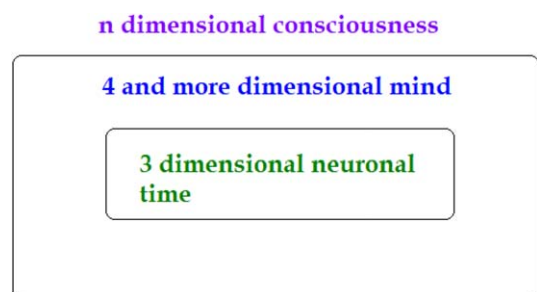


FIG. 2. (Color online) Consciousness, mind, and neuronal time.

already present. All phenomena that humans perceive by senses are subjected to change and are experienced in the frame of psychological time. Consciousness is not changing and cannot be perceived in the frame of psychological time. Change and motion happen in physical space that is existing in consciousness. That is why space is always NOW.

**IV. THE MODEL OF ONTOLOGICAL LAYERS OF EXISTENCE IS INEVITABLE**

20th-century science has discovered that matter can be transformed into electromagnetic energy and opposite. Matter and energy have been proclaimed as the only existent physical reality. Space was seen as a by-product of matter. 21st-century science has discovered that space is not “empty,” space is a kind of energy, we call it with different names: “superfluid quantum space,” “superfluid quantum vacuum,” or short “vacuum.” Einstein has predicted that universal space has four dimensions. This would mean that the energy of space is actually four-dimensional and that elementary particles that are different forms of space are also four-dimensional.<sup>1</sup> Superstring theory predicts the existence of ten dimensions. The theory requires the necessity of an ontological hierarchy of higher dimensions. In the model of “superfluid n-dimensional space,”<sup>1</sup> atoms have the lowest ontological status. Elementary particles that build atoms are four-dimensional and of higher ontological status. Biophotons in a living organism are bridging atomic three-dimensional layer with the layers of time mind that extends toward the n-dimensional layer of consciousness. Electromagnetic energy (biophotons) is the lowest layer of the mind. Higher layers of the mind have higher ontological status, and finally, consciousness has the highest ontological status. The mind can exhibit remote viewing that cannot be exhibited by the brain. Consciousness can exhibit compassion that cannot be exhibited by the mind. The ontological hierarchy of different layers of existence is mathematically described by the number of their dimensions.

**V. CONSCIOUSNESS AS AN N-DIMENSIONAL REALITY**

The result of several pieces of research is that the superfluid quantum vacuum, also named superfluid quantum space (SQS) is the physical origin of the universal space, the fundamental arena of the universe.<sup>1,18</sup> Superfluid quantum space (SQS) has a general n-dimensional complex structure  $\mathbb{C}^n$ ; every point of it has complex coordinates

$$z_i = x_i + iy_i. \tag{1}$$

$(x_i, y_i)$  ( $i = 1, \dots, n$ ) is an ordered n-tuple of real numbers  $[(x_i, y_i) \in \mathbb{R}^n]$ ; for the purpose of this paper, we consider its subset  $\mathbb{C}^4$  where all elementary particles are different structures of  $\mathbb{C}^4$ SQS and have four complex dimensions  $z_i$ .<sup>1</sup>

Elementary particles proton, electron, and photon are four-dimensional structures of the  $\mathbb{C}^4$ SQS and have according to the existing quantum theory almost infinite lifetime. Sbitnev’s proposal is that elementary particles are different

vortex structures of superfluid quantum space.<sup>18</sup> Fritz Popp’s and Cohen’s research has shown that a living organism has a coherent electromagnetic field that plays an essential role in the organism’s function.<sup>19</sup> Electromagnetism is a bridge between the atomic three-dimensional layer of life and higher dimensional layers. Electromagnetic fields are carried by the complex four-dimensional superfluid quantum space  $\mathbb{C}^4$ SQS. Our proposal in this article is that life is an “orchestra” of the higher dimensional layers of  $\mathbb{C}^n$ SQS. A fundamental particle of consciousness in our model is the photon of the n-dimensional layer of  $\mathbb{C}^n$ SQS; its frequency tends to the infinite. The energy of the “consciousness-photon” is following:

$$E_c = \nu \Rightarrow \infty h, \tag{2}$$

where  $\nu$  is the photon frequency and  $h$  is a Planck constant. Consciousness is governing life via lower dimensional SQS by the pilot photons. Biophotons are studied in detail by Popp and Cohen.<sup>19</sup> It is experimentally proved that photons in integrated photonic devices have a spin.<sup>20</sup> Left spin, we can take like 1, and right spin we can take like 0. When a biophoton is passing the microtubule, it passes the information via its spin.  $\mathbb{C}^4$ SQS photons have four bites of the information. They are getting information from higher dimensional SQS photons and are passing it to the microtubule.<sup>16</sup> The research group from China has proved that human high intelligence is involved in the spectral redshift of biophotons activities in the brain.<sup>21</sup>

In our model, higher dimensional layers of  $\mathbb{C}^n$ SQS are the information basis for the development of life. The equation for the increase in information in higher dimensional layers of SQS is following:

$$C_k(n) = \frac{n!}{(r!(n-r)!)}, \tag{3}$$

where  $n$  is the number of SQS dimensionality, and  $r = 3$  because microtubules are three-dimensional. A four-dimensional biophoton carries 4 bits of information:  $[X_1, X_2, X_3]$ ,  $[X_2, X_3, X_4]$ ,  $[X_1, X_2, X_4]$ ,  $[X_1, X_3, X_4]$  and transfers it to the 3D microtubules (Table I).

In n-dimensional SQS, the amount of information is infinite. Seems, life and the entire universe are functioning via binary logic and binary transfer of information. That is why we managed the immense development of computers; we discovered the mechanisms of information storage and transfer that are universal. The numbers sequence

TABLE I. Information density in higher dimensions of  $\mathbb{C}^n$ SQS.

$\mathbb{C}^4$ SQS	4 bit
$\mathbb{C}^5$ SQS	10 bit
$\mathbb{C}^6$ SQS	20 bit
$\mathbb{C}^7$ SQS	35 bit
$\mathbb{C}^8$ SQS	56 bit
$\mathbb{C}^9$ SQS	84 bit
$\mathbb{C}^{10}$ SQS	120 bit
$\mathbb{C}^{100}$ SQS	161 700 bit
$\mathbb{C}^n$ SQS	$\infty$ bit

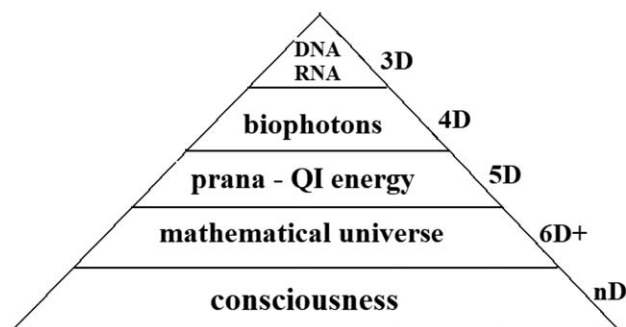


FIG. 3. Life-information system in  $\mathbb{C}^n$ SQS that exists in the entire universe.

4,10,20,35,56,84,120... is a tetrahedral sequence of numbers, also called triangular pyramidal numbers. It is interesting that several molecules have a tetrahedral structure.<sup>22,23</sup> Tegmark is proposing that the entire universe is a mathematical structure.<sup>24</sup> Comparing Tegmark's proposal, our model is moderate and proposes that the entire three-dimensional universe is built according to the mathematical structures that have their information basis in the higher-dimensional layers of SQS (Fig. 3).

Biophotons in a  $\mathbb{C}^5$ SQS are the physical basis of prana, biophotons in higher dimensional layers are the physical origin of the mathematical universe, and finally, biophotons in  $\mathbb{C}^n$ SQS are the origin of consciousness.

One bit of information in life-information system is a "complex bit," because biophotons are excitations of the complex  $\mathbb{C}^n$ SQS. One bit of information in artificial intelligence is carried by the electrical current, because in computers, one bit means that electrical current has moved in one or another direction. That is why artificial intelligence and alive intelligence will never be compatible. Computers will never have real human emotions and will never be conscious. They will never develop higher cognitive functions that are characteristic of the higher dimensional layers of the human  $\mathbb{C}^n$ SQS.

Stuart Hameroff supposes that consciousness is the result of the neuronal activity of the brain.<sup>25</sup> His view is reductionist and cannot explain extra sensorial perception and parapsychological (PSI) phenomena.<sup>16</sup> Using only the three-dimensional layer of reality when modeling the human mind and consciousness are in our view cannot bring progress.

In sleep, consciousness activities are minimized but still, the observer can experience his dreams. Dreams are conscious and unconscious mind activities of the higher-dimensional layers of the superfluid quantum space. Sometimes we dream about events that have happened during the day, and we are aware that the content of dreams is related to the experience in real life. Sometimes our dreams have contents that are related to the individual or collective unconscious, but we (the observer, the consciousness) can watch

them. The human ability to be aware of the content of the dream is direct proof that consciousness is not a part of the conscious or unconscious mind. In an awakened state and in dreams, time is running faster when one is in a pleasant emotional state and running slower when one is in an unpleasant emotional state.<sup>26</sup> Human emotions are changing biochemistry, and changed biochemistry is impacting the neuronal activity of the brain, which is the physical neuronal origin of inner psychological time.

## VI. CONCLUSIONS

With eyes, we only perceive change and motion. A belief that changes and motion run in some physical time has no scientific evidence. The universe is developing in time-invariant space where the only existing time is inner psychological time. The observer is experiencing the flow of changes and motion in the frame of psychological time. When an observer is using a clock to compare a given material change or motion with the clock motion duration enters existence. Time as duration is the result of the observer's measurement. An observer is conscious of his/her inner psychological time and does not belong to the neuronal activity. It seems observer is the function of consciousness that is n-dimensional reality containing the entire universe.

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