

DOI:

УДК 53.01:524.8

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SPATIAL-TIME CONTINUUM IN THE ENERGY-INFORMATION-TIME FIELD OF THE VOLUME UNIVERSE

Based on the duality of the material world, the zone of the location of the space-time continuum in the energy-information-time field of the volumetric Universe has been established. According to the «observation scale» available to us, the world that we observe and recognize is characterized by a four-dimensional field and is located on the energy axis of the model of the volumetric Universe. This causes the implicit expression of parameters such as time and information. That is why, for implementation, only the energy component is available to us, which determines the one-dimensionality of the field of the space-time continuum according to the fundamental dimensionality of the model of the volumetric Universe.

Keywords: Universe; event; material world; field; energy; time; information.

На основі дуальності матеріального світу встановлено зону знаходження просторово-часового континууму в енергетично-інформаційно-часовому полі об'ємного Всесвіту. Згідно доступний нам «шкалі спостереження» світ, який ми спостерігаємо і реалізуємо, характеризується чотиривимірним полем і розташовується на енергетичній осі моделі об'ємного Всесвіту. Це обумовлює неявне вираження таких параметрів як, час та інформація. Саме тому для реалізації нам доступна тільки енергетична складова, яка і визначає одномірність поля просторово-часового континууму згідно фундаментальній мірності моделі об'ємного Всесвіту.

Ключові слова: Всесвіт; подія; матеріальний світ; поле; енергія; час; інформація.

Problem's Formulation

Most modern cosmological models consider the Universe as a system containing material objects of different parameters and characteristics evolving in time, located in three-dimensional space, and some of them include additional spatial or temporal dimensions. However, the question of how many dimensions are needed to describe the Universe remains open to this day.

According to works [1, 3], the world, which is accessible to our understanding and intuitive awareness, is not limited only to material objects, it is much more diverse and can be represented as an energy-information-time field.

The purpose of this work is to consider the zone of the location of the space-time continuum in the energy-information-time field of the volumetric Universe [1, 3], which covers the entire spectrum of the surrounding world.

Analysis of recent research and publications

To consider the entire spectrum of the world around us based on the theory of volumetric numbers [2], the developed physical and mathematical model of the volumetric Universe [1, 3] makes it possible not only to one degree or another to describe the events available to our understanding and intuitive awareness but also including something incredible-obvious and obvious-improbable.

According to this model, the point of the singular «Void», which is infinitely small, but contains an infinitely large, is represented as: «initial energy»; «Initial time»; «Initial information». These invariant parameters outside the singular «Void» point are realized and identified using energy carriers, which are characterized not only by a scalar value but also by a direction vector. Thus, the physical and mathematical model of the volumetric Universe is an energy-information-time continuum [1].

Any arbitrary event of this continuum corresponds to seven mirror reflections and its own evolutionary radius, which describes the evolutionary sphere, the points of which determine the possible development options. From the condition of the constancy of the radius of evolution, it follows that the

total energy balance, for a certain stage in the development of an event, is constant. A sufficient and necessary condition for the unambiguous identification of an event in the bulk of the Universe is the point of location of the observer; observer activity; observation range width; the accuracy and division value of the «observation scale» of the observer [1].

The evolutionary process of self-realization of the singular point of the «Void» has a wave nature and is an energy-information-time field. This field is discrete in observation, perception, and realization and at any point of which energy, time, and information are unlimited. The causally entangled events of this field determine the probability that not only the past determines the future, but also the future determines the past [1].

The nature of the change in the total energy balance of an arbitrary energy-information-time field of the volumetric Universe is created by a harmonic process on the surface of the descriptive grid, and the influence of the energy, time, and information parameters on this event is estimated by the energy potential of the evolutionary sphere [3].

Formulation of the study purpose

According to [1], the main parameters of the energy-information-time field of the volumetric Universe are energy, time, and information. They also directly characterize the space-time continuum.

Consequently, consideration of the zone where the space-time continuum is in the energy-information-time field of the volumetric Universe is one of the fundamental ones.

Presenting main material

The physic-mathematical model of the volumetric Universe (Fig. 1) is an energy-information-time continuum, where events are described by volumetric numbers of the form

$$V = a + bi + cj,$$

and the process of their formation and origin by appropriate actions with them [1, 2].

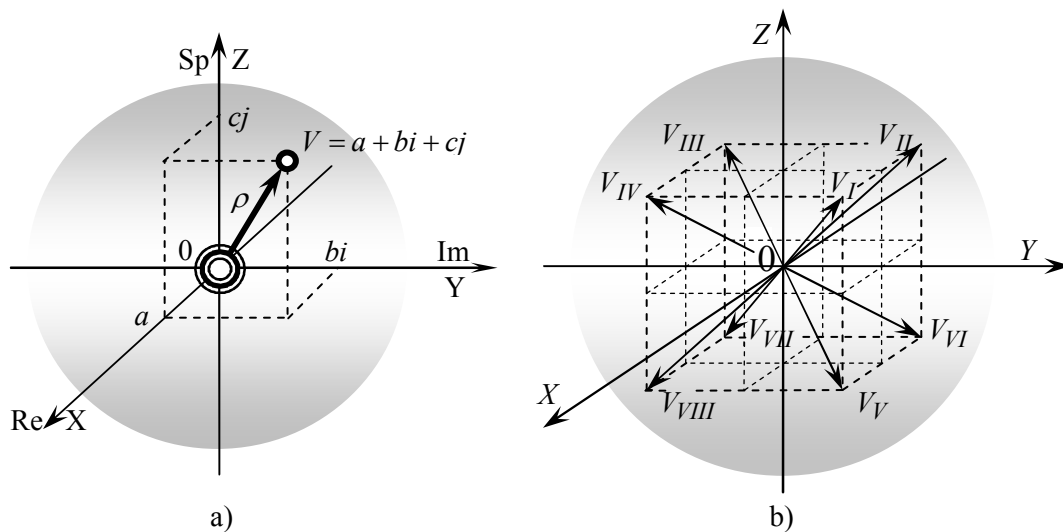


Fig. 1. Physical and mathematical model of the volumetric Universe

The numbering of events in the physical and mathematical model of the volumetric Universe corresponds to the generally accepted rule of numbering the octants of the numerical space [1, 2], and, accordingly, is conditional. However, in order to understand and analyze evolutionary processes, taking into account the available «observation scale», we need a certain starting point, which we can determine based on the method of logical thinking. Based on the principle of self-realization of the singular point of «Void», according to which any event emanates from the «Beginning», is such and returns to the «Beginning», we choose the initial event — the event of the seventh octant. Since, first of all, energy carriers with a minus sign are formed,

$$\left. \begin{matrix} i \times i = -1 \\ j \times j = -1 \end{matrix} \right\} \Rightarrow -1 \equiv a, b, c < 0.$$

Thus, we assume that

$$V_1 = V_{VII} = -a - bi - cj.$$

Having determined the starting point, it is necessary to establish a rule for the numbering of subsequent events.

A certain initiating event V_1 and its first- and second-order mirror images are located on the corresponding parallels (Fig. 2). Therefore, they are in the same potential field [3], the value of which is determined by the equations:

$$\Pi_x = \sum_{i=1}^4 E_{\Sigma} = \pm 4a;$$

$$\Pi_y = \sum_{i=1}^4 E_{\Sigma} = \pm 4b;$$

$$\Pi_z = \sum_{i=1}^4 E_{\Sigma} = \pm 4c.$$

Therefore, it is advisable to number the events in the appropriate planes. Conventionally, we choose the direction of counting counterclockwise in the planes where $\Pi < 0$, and clockwise where $\Pi > 0$. The transition from the plane ($\Pi < 0$) to the plane ($\Pi > 0$) through the origin is due to the zero value of the potential field in the equatorial planes.

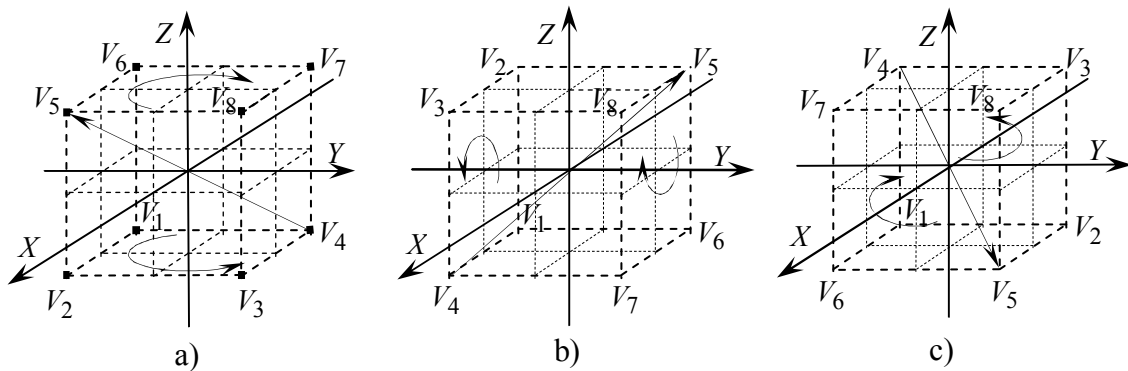


Fig. 2. The principle of numbering events

Thus, regardless of the axis with respect to which the numbering occurs (Fig. 2a, Fig. 2b, Fig. 2c), we have a closed curve formed by the corresponding events and the singular point of the «Void»

$$0, V_1, V_2, V_3, V_4, 0, V_5, V_6, V_7, V_8, 0.$$

The pie chart of events constructed based on this curve can be considered as an energy octagram of the volumetric Universe, the main properties of the elements of which are shown in the table in Figure 3.

It should be noted that the sum of the energy carriers of events of any arbitrary *chorus* (ancient Greek χορός - circle, chorus, round dance) of the octagram is always equal to the «initial energy»:

$$V_1 + V_2 + V_3 + V_4 + V_5 + V_6 + V_7 + V_8 = 0;$$

$$V_{12} + V_{23} + V_{34} + V_{48} + V_{78} + V_{67} + V_{56} + V_{15} = 0,$$

and also

$$V_1 + V_2 + V_3 + V_4 = \Pi;$$

$$V_5 + V_6 + V_7 + V_8 = \Pi.$$

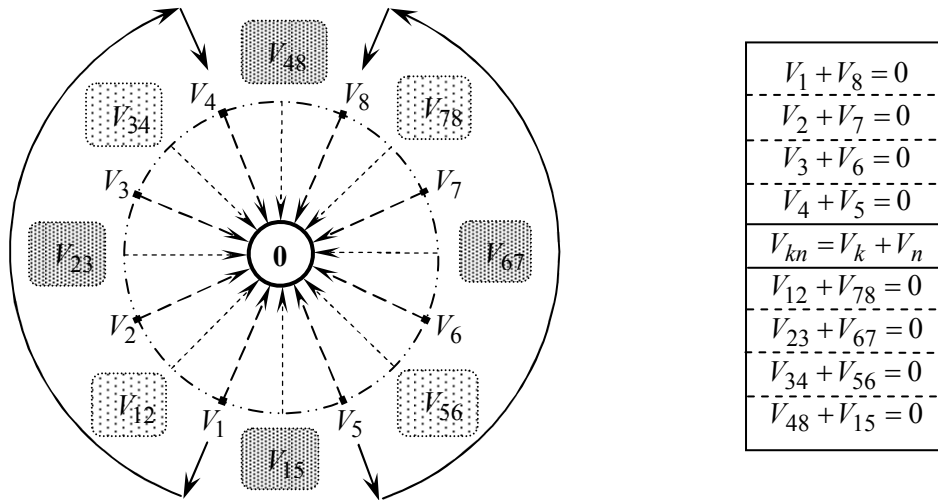


Fig. 3. Energy octagram of the volumetric Universe

To determine the area or point that corresponds to the space-time continuum in the field of the volumetric Universe, we use the property of duality of the surrounding world, which manifests itself in all its aspects.

According to the «observation scale» available to us, from the whole variety of events, let us consider those that are characterized by more pronounced energy-information-time parameters. These objects are living entities. The main feature of their implementation and development is the process of cell division, according to which we have a series of numbers

$$1, 2, 4, 8, 16, 32, 64, 128, 256, 512, 1024, 2048, 4096, \dots$$

Applying the principle of extracting the digital root from a digital number and the summation process, assuming that single-digit numbers fully characterize the material world, we get a periodic series of numbers

$$1, 2, 4, 8, 7, 5, 1, 2, 4, 8, 7, 5, 1, \dots$$

A feature of this series is the absence of numbers 3, 6, 9. It was these numbers that Nikola Tesla assigned to a special rank, assuming that the magnificence of the three, six, and nine plays the key role in the understanding of the universe [4]. These numbers are also given a certain special meaning in the enneagram [5]. According to which 3, 6, 9 lie outside the world of duality, but are the reason for its existence, the source of its energy.

Thus, using the period for numbering events, the numerical series, as well as excluding the numbers 3 and 6 from the octagram of the volumetric Universe, assuming that the equivalent of the number 9 is the «initial energy», we obtain the energy hexagram, Fig. 4. The elements of this hexagram retain all the properties of the octagram. The special properties of the elements are:

$$V_1 + V_2 + V_4 + V_8 + V_7 + V_5 = 0;$$

$$V_{12} + V_{24} + V_{48} + V_{87} + V_{75} + V_{51} = 0;$$

$$V_{51} + V_{24} + V_{87} = 0, \quad V_{12} + V_{48} + V_{75} = 0;$$

$$V_{12} + V_{48} = V_{24}, \quad V_{48} + V_{75} = V_{87}, \quad V_{75} + V_{12} = V_{51};$$

$$V_{51} + V_{24} = V_{12}, \quad V_{24} + V_{87} = V_{48}, \quad V_{87} + V_{51} = V_{75},$$

and also

$$V_1 + V_2 + V_4 \neq \Pi;$$

$$V_5 + V_7 + V_8 \neq \Pi,$$

which corresponds to an intermediate model between the energy-information-time continuum and the space-time continuum.

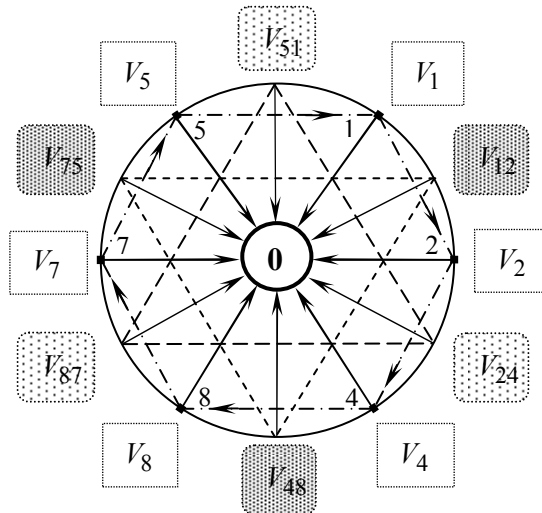


Fig. 4. Energy hexagram of the volumetric Universe

Changing the numbering of events in the energy hexagram, according to the generally accepted rule of numbering the octant of the number space, which was used in the physical and mathematical model of the volumetric Universe, we will receive the energy hexagram of the material world (Fig. 5).

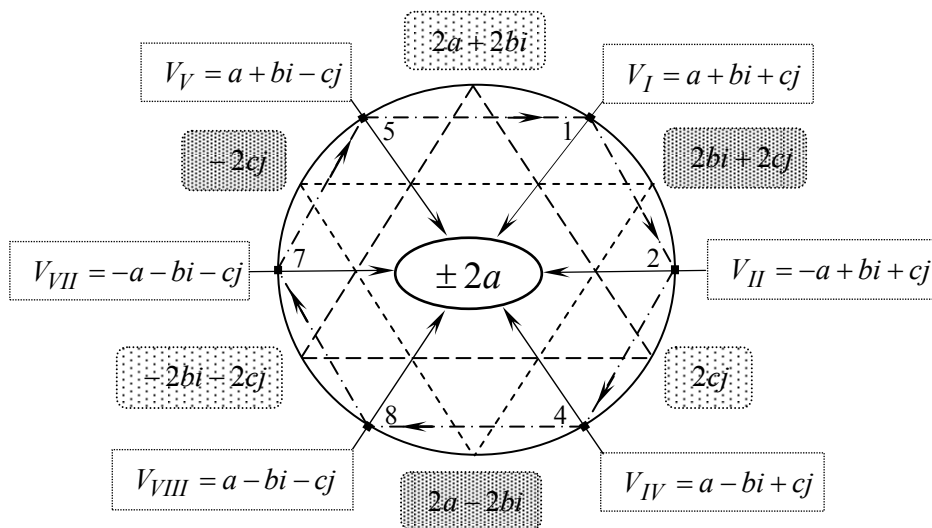


Fig. 5. Energy hexagram of the material world

The main feature of the elements of this hexagram is the equivalence of the parameter $\pm 2a$ «initial energy». Because:

$$\begin{aligned}
 V_I + V_{II} + V_{IV} + V_{VIII} + V_{VII} + V_V &= 2a; \\
 V_I + V_{VIII} &= 2a, \quad V_{II} + V_{VII} = -2a, \quad V_{IV} + V_V = 2a; \\
 (2a + 2bi) + (2cj) + (-2bi - 2cj) &= 2a; \\
 (2bi + 2cj) + (2a + 2bi) + (-2cj) &= 2a.
 \end{aligned}$$

Thus, it can be assumed that the parameter $|2a|$ describes the entire energy spectrum of the material world. Hence,

$$|2a| \equiv E_{\Sigma \max}.$$

Since the maximum value of the total energy balance, according to [3], is determined by the equation

$$E_{\Sigma \max} = \sqrt{m} \times \rho,$$

then accordingly

$$|2a| = \sqrt{m} \times \rho.$$

Considering that m – is the dimension of the field, and $\rho = \sqrt{a^2 + b^2 + c^2}$, then conventionally dividing the energy components and their coefficients, we obtain the following dependences:

$$\begin{cases} \rho = a, \\ \sqrt{m} = 2. \end{cases}$$

Consequently, according to the «observation scale» available to us, the area of the material world that we observe and realize is located on the energy axis X (Fig. 6). Since $\rho = a$, $\Rightarrow b = c = 0$. That is, the parameters time and information are expressed implicitly, but not equal to zero, since i and j are invariant in the energy-information-time field. Therefore, only the energy component is available to us for implementation, at this stage of civilization development.

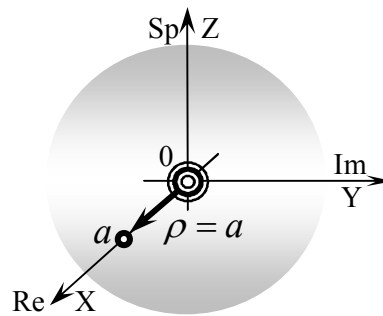


Fig. 6. The zone of location of the space-time continuum in energy-information-time field of the volumetric Universe

According to the second dependence $\sqrt{m} = 2$, $\Rightarrow m = 4$. That is, the material world is a four-dimensional field (Fig. 7), which corresponds to the space-time continuum $[l_1, l_2, l_3, t]$, where: l_i – distance; t – time. Whereas, in the energy-information-time field of the volumetric Universe, our material world, according to the fundamental dimension, is one-dimensional, $[E]$.

Dimension of fields	$\{0\}$	$\begin{aligned} \{[E], [T], [I]\} &\Leftrightarrow \{E, T, I\} \\ \updownarrow & \\ \{[E, T], [E, I], [T, I]\} & \end{aligned}$	$\left\{ \begin{array}{c} [\dots] \\ E \\ T \\ I \\ L \\ [\dots] \end{array} \right\}$	$\left\{ \begin{array}{c} [\dots] \\ [\dots] \\ [l_1, l_2, l_3, t] \end{array} \right\} \leftarrow \dots$ <p><i>Space-time continuum</i></p>
m	0	Fundamental dimensionality	Integral dimensionality	Differential dimensionality

Fig. 7. Dimension of the fields of the physical and mathematical model of the volumetric Universe. Designation: E – energy; T – time; I – information; $L \in [l_1, l_2, l_3]$

Conclusions

Thus, at this stage, we observe, recognize, and realize events in the differential area of understanding. That sometimes leads to extremely complex mathematical calculations for describing the relevant events, since we consider a certain whole as separate parts, sometimes, in our opinion, are not interconnected. To realize, and even more so to understand this single whole, it is necessary to move into the integral area of understanding. And the most progressive of all, of course, is the area of fundamental understanding, because realizing events $V_1, V_2, V_3, V_4, V_5, V_6, V_7, V_8$ as a whole, we can not only understand the true essence of things but also learn how to implement them.

It is possible to realize and perceive the zero dimension only by knowing the basic law of the Universe, in all its infinite diversity.

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ПРОСТОРОВО-ЧАСОВИЙ КОНТИНУУМ В ЕНЕРГЕТИЧНО-ІНФОРМАЦІЙНО-ЧАСОВОМУ ПОЛІ ОБ'ЄМНОГО ВСЕСВІТУ

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Реферат

Основними параметрами енергетично-інформаційно-часового поля об'ємного Всесвіту, є: енергія; час; інформація, які безпосередньо також характеризують просторово-часовий континуум. Отже, питання визначення зони знаходження просторово-часового континууму в енергетично-інформаційно-часовому полі об'ємного Всесвіту є одним з основоположних.

Відповідно до встановленого правила нумерації відносно початкової точки відліку, незалежно від розглянутої осі, наступні події утворюють замкнуту криву на основі якої побудована енергетична октаграма об'ємного Всесвіту. Дана енергетична октаграма характеризується унікальними властивостями, а саме: сума енергетичних носіїв подій по будь-якій діагоналі або будь-якого довільного «хороса» октаграми завжди дорівнює «початковій енергії».

Згідно властивості дуальності матеріального світу була перебудована енергетична октаграма об'ємного Всесвіту в енергетичну гексаграму матеріального світу, що дало можливість встановити зону знаходження просторово-часового континууму в енергетично-інформаційно-часовому полі об'ємного Всесвіту. Відповідна зона характеризується чотирьохвимірним полем і розташовується на енергетичній осі моделі об'ємного Всесвіту. Це обумовлює неявний вираз таких параметрів як, час та інформація. Саме тому для реалізації нам доступна тільки енергетична складова, яка і визначає одинірність поля просторово-часового континууму згідно фундаментальної мірності моделі об'ємного Всесвіту.

Таким чином, на даному етапі нашого розвитку ми спостерігаємо, усвідомлюємо і реалізуємо події, в диференціальній області розуміння. Що зумовлює іноді надзвичайно складні математичні викладки для опису відповідних подій, так як розглядаємо певне ціле як окремі частини, іноді на наш погляд не взаємопов'язані. Для усвідомлення, а тим більше розуміння цього єдиного цілого необхідно переходити в інтегральну область розуміння. Прогресивніше за все, є область фундаментального розуміння, тому що, усвідомлюючи події восьми октант, як єдине ціле, ми зможемо не тільки зрозуміти справжню сутність речей, але й навчитися їх реалізувати. Усвідомити і сприйняти нульову мірність, можливо тільки пізнавши основний закон Всесвіту, у всьому його нескінченному різноманітті.

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