

# **REFLECTIONS: BELIEF, DISBELIEF.**



## **SPIRIT and MATTER.**

# FROM THE AUTHOR: ON THE SCOPE AND LIMITATIONS OF THE STUDY

This work is the result of an independent interdisciplinary inquiry and represents a philosophical-theoretical attempt to interpret certain fundamental regularities of nature.

The author considers it necessary to define the scope and character of the presented approach:

## **1. Scientific and Philosophical Character**

The work is based on rational analysis, logical comparisons, and interpretative engagement with existing physical concepts. The arguments presented constitute a conceptual model and do not claim the status of a completed scientific theory.

## **2. Principle of Hypothetical and Critical Openness**

The author acknowledges the potential incompleteness and possible fallibility of specific propositions. The work remains open to critical analysis, revision, and refinement. None of the statements should be regarded as final or absolute truth.

## **3. Rejection of Esotericism and Sacralization**

This text is not related to mysticism, occult doctrines, esoteric practices, or paranormal interpretations. Any analogies drawn between physical and philosophical concepts are exclusively metaphorical and analytical in nature. The author does not claim possession of “hidden knowledge” and does not attribute sacred status to the ideas presented.

## **4. Absence of Practical Methodology**

The work does not contain techniques for spiritual development, psychological influence, personal transformation, or any applied instructions. It is not intended to function as a guide for action.

## **5. Individual Character of the Inquiry**

The reflections presented are part of a personal intellectual exploration and do not imply the creation of ideological systems, schools, movements, communities, or hierarchical worldview structures.

## **6. Prohibition of Organizational or Manipulative Interpretation**

Any use of this work, in whole or in part, to justify sectarian activity, closed groups, ideological associations, “constructive societies,” initiation systems, or other forms of worldview control constitutes a direct distortion of the author’s position.

The author does not grant consent for the creation of doctrines, teachings, training programs, or organizational structures based on this work.

## **7. Rejection of Absolutization**

Any attempt to present this text as exclusive knowledge, a final worldview, or a universal explanatory principle contradicts both its content and the author’s intent.

This work is an invitation to free reflection and rational discussion, not a foundation for a new dogma.

## **Abstract**

This work presents a philosophical and theoretical study aimed at constructing a unified model of reality that integrates both physical and subjective aspects of perception.

The proposed approach is based on treating energy as a fundamental entity manifested through wave processes and resonance. Matter, interactions, and the observable structure of the Universe are interpreted as stable forms of energy distribution and transformation.

Particular attention is given to the development of a model of consciousness, in which it is viewed as a resonant structure that cannot be reduced to matter, yet remains intrinsically connected to it. Within this framework, consciousness and matter are understood as different frequency manifestations of a single underlying process, thereby removing the traditional opposition between the “spiritual” and the “material.”

Based on this model, interpretations are offered for a number of fundamental physical and philosophical concepts, including the nature of dimensions, the role of the observer, dark matter, black holes, as well as questions of evolution, death, and the formation of perception.

The work is interdisciplinary in nature, does not claim the status of a complete scientific theory, and is presented as a conceptual framework open to further development and critical analysis.

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## Preface

It has now been more than two years since my restless mind decided to engage in a rather unusual undertaking: attempting to fill the conceptual gaps that kept emerging whenever I looked at the structure of the surrounding world.

Not in the sense of “overturning physics,” “rewriting textbooks,” or “finding the final theory of everything.” Quite the opposite. The deeper I explored, the clearer it became that existing theories work remarkably well within their respective domains. General Relativity describes gravitational effects on large scales with extraordinary precision. Quantum mechanics functions exceptionally well in the realm of microscopic particles. There is little sense in breaking what already works.

At the same time, there remains a feeling that some simple physical bridge is missing between these pictures. Not necessarily a final one. Not necessarily a strictly mathematical one. At least something capable of intuitively explaining why mass, fields, energy, gravity, and even certain vacuum effects may all represent manifestations of a more general underlying process.

Yet the greatest gap appears in our understanding of life and consciousness. What is all this for? Who are we? What is actually happening? Consciousness is constantly discussed, yet its role in reality remains undefined. Some believe consciousness is immaterial and eternal; others consider it merely a product of the brain. The conflict between these opposing views continues, and disagreements between different approaches to life repeatedly lead to confrontation.

Physics is precise and internally consistent. It includes the concept of an observer, but only as something secondary, capable of influencing processes. Yet I cannot escape the feeling that none of what is happening would have meaning without consciousness itself. After all, the foundation of how we perceive the world lies precisely in the ability to perceive and, most importantly, to analyze. A stone may also “perceive” gravity, but the ability to analyze and to take interest in what happens around it is something entirely different.

For different levels of consciousness, the picture of the world may differ significantly. If, for example, a person were raised from early childhood in entirely different conditions and environments, even such fundamental abilities as color perception or spoken language might simply fail to develop due to lack of necessity. In other words, consciousness, as we understand it, depends on the surrounding environment and on its ability to align with what occurs around it. Even if a child grows up in an educated family and has no physiological problems, this does not guarantee that they will not become antisocial. The connection between environment and consciousness undoubtedly exists, but it is not one-sided.

If, for instance, humans did not possess vision but instead had a sensory system similar to that of bats, the observed picture of reality would become fundamentally different. Our perception of geometry would change. Concepts such as radius might not exist, replaced by entirely different quantities describing the same processes. Physics itself would become mathematically different. Thus, our perception of the world and our ability to describe it are inseparably connected. Different forms of consciousness may perceive the same process differently — both as form and as action. What appears as form to one observer may appear as process to another.

In a certain sense, the complete lack of understanding regarding the principles of consciousness leads to a lack of understanding of reality itself and, in my case, to an internal tension compelling me to search for deeper meaning. To understand why, despite the irrationality of many of our actions and intentions, we still act instead of remaining passive. Why, even in moments when everything appears fine, we often remain restless, capable of destroying what we built only to begin again.

At some point, all of this grew into an entire series of texts. It is no longer a single article, but a collection of interconnected works published on Zenodo. They cover many topics: from attempts to

describe matter as stable wave structures to reflections on consciousness and perception. A significant portion belongs more to philosophy than to technical or physical science.

As much as I tried, the result did not become easy reading. Moreover, this is not a finished theory, but rather a set of conceptual models connected ideologically, though direct mathematical transitions between them have not yet been fully established. Much still requires formalization. Nevertheless, the work is not entirely devoid of mathematical structure, much of which has been built through intuition — hopefully not devoid of logic and not contradicting established and verified scientific facts.

Because the relationships between the various parts of this broader framework remain incomplete, I am forced to briefly explain from the outset what connects them, so that the text may be perceived more easily. In constructing a possible description of the observable world, the attempt was made to rely only on known physical foundations and concepts. The central concepts are wave, frequency, and resonance. These are precisely the elements connecting all the scattered parts of this series.

Before proceeding further, I should note that there is still no answer to the question: frequency of what, or wave of what? No answer currently exists. Perhaps it has been possible to identify or approach a certain principle, but not yet to explain what fundamentally lies behind it. For now, it remains a “black box.”

This article is probably the simplest in the series and requires minimal knowledge of physics. At the same time, it is foundational. All the ideas originally emerged here. The second part of this article may be skipped if necessary. It primarily serves as a bridge enabling analogies between matter and consciousness and is mainly intended to expand the physical picture of the reality we perceive. In fact, it ultimately became the largest and most difficult part because it functions as a connecting structure for the other works in the series.

Its essence lies in constructing a model of matter as standing waves of energy, which may be structurally simplified as spherical formations with wave-like variations of energy density inside them. The core ideas are therefore wave, frequency, and resonance acting as the limiting condition required for standing waves to exist. Another crucial element throughout the entire cycle is the idea of the possible emergence of dimensions. This idea is built upon the same principles — wave, frequency, resonance as limitation — while also introducing the necessity of a source as a characteristic of the observer or consciousness.

At present, the entire cycle consists of eight articles published on Zenodo (with copies hosted on Mail.ru):

1. “[Reflections: Faith Unbelief. SPIRIT and Matter](https://zenodo.org/records/20032688)” (<https://zenodo.org/records/20032688>) — a philosophical and ethical manifesto. The central core of the entire series. This is where the main ideas first emerged and took shape.
2. “[Energy as Fundamental Reality: From Points to Processes](https://zenodo.org/records/17170686)” (<https://zenodo.org/records/17170686>) — the formation of an ontological foundation (what the physical world is made of). An attempt to show that physical processes may be viewed differently without destroying accepted physical principles.
3. “[Wave Structure of Matter and the Fractal Structure of the Universe](https://zenodo.org/records/19703486)” (<https://zenodo.org/records/19703486>) — the core of the physical part of the series. If the first article asks “Why?” and the second “What?”, this work attempts to answer “How?” and introduces a mathematical framework. It is still weak in many respects, but it nevertheless contains several potentially important ideas.

4. “[The Hypothesis of Wave Equilibrium: The Universe as a Balanced State of Zero](https://zenodo.org/records/19727806)” (<https://zenodo.org/records/19727806>) — the ontological foundation addressing the question “Where did everything come from?”
5. “[The Emergence of Dimensions as a Consequence of Fractal Resonance](https://zenodo.org/records/19695379)” (<https://zenodo.org/records/19695379>) — the cosmological mechanism addressing “How is the structure of reality organized?”
6. “[Consciousness as a Wave Structure: A Possible Connection Between Brain Frequencies and Frequencies of Perception](https://zenodo.org/records/19839850)” (<https://zenodo.org/records/19839850>) — applied neurophysiology and psychology, addressing the question “Where is the human being situated within this model?” or “What is the physical manifestation of consciousness?”
7. “[Unity of the Wave: Matter, Energy, and Consciousness as Aspects of Frequency](https://zenodo.org/records/19839673)” (<https://zenodo.org/records/19839673>) — the final synthesis addressing “How is everything connected?”
8. “[A Simple Wave Interpretation of Gravity and the Casimir Effect](https://zenodo.org/records/20117425)” (<https://zenodo.org/records/20117425>) — an interpretation of gravitational effects within the wave-based approach.

At present, the main ideas have already been established, though the text still requires refinement for greater clarity and accessibility. Despite modern technological capabilities, including artificial intelligence, bringing the work into its final form requires considerable time. Given my heavy workload in my primary profession, updated versions will continue to be published as changes are introduced, even minor ones, if I consider them important.

These reflections are of a philosophical character. They represent an attempt to view the phenomenon of life from the outside, detachedly, without attachment to familiar specifics. They do not enter into dispute with religious views nor do they reject moral principles. The aim is simply to see the **overall picture** of ongoing processes and to search for a possible answer to the question: why might all of this be necessary? In the process of comprehension, a search for analogies inevitably arises.

To obtain an overall picture, it was necessary to forgo details and specific clarifications. For instance, when describing a hypothetical version of the physical picture of the world, I had to largely refrain from using mathematical apparatus. Of course, much is still fundamentally absent; nevertheless, everything already developed in physics remains essentially unchanged—only the understanding of the processes changes, while the mathematics remains. However, this work does not examine this with the aim of seeing the overall picture, rather than a single pixel of the image.

Similarly, when analyzing the spiritual dimension of a human being, I had to distance myself from concepts of norms, morality, categories of good and evil, and other very important facets of human essence. This is simply necessary in order to see what is happening as a whole, or more precisely, to broaden the scope of the observed picture of the world. These reflections are merely a view from the outside, from a different plane—one that is not the result of intersecting vital categories, but is **orthogonal** to them. Only through such an approach does it become possible to see what is happening in its entirety. Otherwise, any concretization would lead to a narrowing of the horizon, a transition into one of the habitual ways of studying the world, which would disrupt the integrity of perception.

The work is divided into three parts.

**The first part** attempts to understand the essence of a human being, their particularity. It seeks to understand what the process of life is, what role life plays *for* a person, and not vice versa. Here, the categories of good and evil, right and wrong, are deliberately excluded. Understanding the essence by

operating only with particulars is not always possible. Giving preference to something specific means losing completeness. Explaining the essence through any preferences, filtering thoughts through the prism of morality or religion, means losing the overall picture. A person, in my understanding, is like an engine in a car: by itself it does not move, but only thanks to the wheels, systems, and connections—morality, religion, science, culture—does it gain the ability to move. This part is the most difficult to perceive, and it is precisely here that various interpretations may arise. Although people sometimes speak the same language, they understand what is said differently, based on their own experience and values. Therefore, finding common examples understandable to everyone is very challenging. The work is considerably simplified and has many shortcomings; in a sense, this is necessary. Much is presented exclusively on an intuitive level, but I hope it is not devoid of some logic. Nevertheless, I believe that the first part is capable of providing answers to many life questions.

**The second part** concerns the construction of a possible model of the physical world's structure, one that could shed light, in our "dark times," on phenomena such as dark energy, dark matter, black holes, etc. In particular, **it all begins with a possible understanding of the structure of elementary particles**. Importantly, it introduces absolutely nothing new to the physics known today. It exclusively utilizes concepts of wave processes and all phenomena associated with them—resonance, interference, diffraction. Here, I had to resort to a few formulas; however, the main explanation is built on images: the vibration of a string, the distribution of forces in space. This part is easier to understand because the language of description is more rigorous. But even in science, everything is relative. The same process can be viewed from different perspectives. For centuries, people successfully calculated the motion of celestial bodies based on the geocentric model, until they transitioned to heliocentrism—not because the former was "wrong," but because the new point of view proved more convenient. Yet it did not solve all problems: the three-body problem remains unsolved. Therefore, the principle "everything is relative" persists. The goal set in this work is to choose the optimal point of view for studying ongoing processes, one that would require a minimum number of variables and the simplest possible formulaic description, while simplifying the logic of understanding the processes themselves. The famous phrase "shut up and calculate" is, in a sense, comical. Physics has created and continues to create very accurate and astonishing systems, continuing its development, but has begun to lose the intuitive understanding of ongoing processes. Its capabilities have become great, but its actions sometimes resemble the behavior of blind kittens **who poke around but fail to see the overall picture**. The essence of the approach proposed in this work lies in **evolutionary development**. There is no need to cross out everything that works perfectly well; we need to change our understanding, remove the veil of mysticism, and clarify uncertainties. Everything already exists in physics; there's no need to reinvent the wheel—we just need to learn how to ride it.

To accomplish what was intended, a few things did have to be changed. All processes are considered from the perspective of **change in energy**. Essentially, this is not new to physics either. Attempts to describe processes from this point of view have been made before. In this work, fields are considered as static, established wave processes of energy change, but the **change** in the field's energy itself occurs constantly. Energy cannot be static; its essence is **change at a constant speed – the speed of light**. The constancy of the speed of light is due to the phenomenon of resonance. It is precisely this approach to understanding fields that allows us to explain the limiting speed of interaction between different energy structures. This includes the limiting speed of propagation of electromagnetic oscillations, gravitational disturbances, and everything else known to humanity today. Even the curvature of space can possibly be explained by understanding the limited speed of energy change. Part of the speed of energy change is spent on mass, part on the dimension of time, part on the dimension of space. Energy is unified and therefore redistributes its speed of change across different dimensions. The speeds do not superimpose. It is this that creates the illusion or the understanding of the curvature of



dimensions. These are merely different points of view on the same process. The process itself remains the same, as do most of the formulas obtained to describe it.

**The third part** is the result of combining the first two. It draws many analogies between the physical and spiritual worlds. The physical world is studied quite well. Thanks to physics and its language—mathematics—many processes can be foreseen, predicted, and predetermined results achieved with considerable accuracy. Psychology, of course, has also achieved very good results, but the understanding of consciousness remains, in a sense, a black hole. I believe that constructing analogies from the domain of describing the physical world to the domain of the spiritual could bring much that is useful to psychology, to the study of the phenomenon of mind. Perhaps a slight "physicization" of the approach to studying consciousness could help shed light on our essence. I assume that the physical world and man are inseparably linked and therefore are subject to common or similar laws.

Initially, the first and second parts existed as two separate works, developed in parallel. But over time, it became obvious: spirit and matter are inseparably connected. Their common essence is energy, manifesting in different dimensions. Life turns out to be the point of contact between these dimensions. The text has been rewritten many times. Initially, it consisted merely of stating intuitive feelings, but gradually it became enriched with more logical conclusions. Since my professional activity is in no way connected with the sciences, let alone philosophy, it takes a great deal of time to correctly transfer my thoughts onto paper. Around the turn of 2025, both parts were merged into a single whole, because it became evident that consciousness and the perception of the physical world are inseparably linked.

By the title "Faith, Unbelief," it is meant that it doesn't matter what a person believes in—eternal life or that it is given only once. Regardless of the answer, the principle of life remains. I think that, in any case, one should live in such a way that life is pleasant and meaningful for you, that if not to love everyone around you, then at least to show respect towards them. If only because it's better and more joyful to live that way, and because we are all in the same boat. And also because love lies at the core of our essence. And betraying oneself is not worthwhile — which means, one must love.

## **BELIEF, DISBELIEF**

Life is an astonishing phenomenon. We come into this world with absolutely no understanding of who we are or what is happening to us. We do not know what we should do and what we should not. We are born and only after some time do we begin to perceive ourselves as "I" and the world around us. It would seem that the process itself is the same for everyone, yet we are all different, and each of us has their own path in life.

Our ignorance and lack of understanding of what is happening throughout our lives forces us to constantly make choices. This manifests itself in absolutely everything and constantly. In childhood and adolescence, a general foundation is laid—a set of common knowledge. Our choices at this age shape our life values, which later, as a rule, usually do not change. Of course, all this happens against the backdrop of our environment, yet the same environment often leads to the formation of completely different personalities.

At the next stage, upon reaching a certain level of development, a person stops opposing themselves to the surrounding world. They stop imitating others. At the same time, the person retains their individuality. They accept the fact that there is no right or wrong. Everyone is right in their own way, based on their adopted life values. And none of these values is better or worse—it all depends on external factors and on the person's choice, which is not limited by anything. This level of maturity is not tied to biological age. It comes at its own time for each person, or may never come at all.

However, the discussion here is not about how personality is formed, but about who we are, what, in fact, is happening, and why all of this is needed.

To get even a little closer to answering these questions, we need to look at what is happening from the outside. We need to set aside individuality and find what is common to every person. We need to discard differences, discard filters, judgments of people, discard everything that makes us compare ourselves to one another. We need to find what is common to each of us, what is inherent to a person regardless of the time of their existence, something that would manifest itself both today and in distant eras when life was completely different.

Obviously, the first thing that comes to mind is the body. The second thing that can unite people is feelings. Everything else is subject to differences. On the other hand, while our bodies are similar, they are still different. Even in identical twins, differences are observed one way or another. Feelings, however, are merely signals; they help the body react and achieve results, and in fact, they are often linked to the peculiarities of our body structure and the life values we have chosen.

The next thing to pay attention to, as mentioned earlier, is that a person makes choices. Encountering what happens in the world, they assess the situation, and based on this assessment an attitude arises — either they like it or they do not. Striving appears. This process gives rise to a force that directs them toward something or, conversely, pushes them away. Undoubtedly, this is a very simplified description of what takes place, but it is capable of conveying the essence itself.

There are many definitions similar to the adjective “to like” that could also suit the description of this process, but there is one that can rightfully be considered multifaceted — love. Much has been written on the subject of love, and it has been explored quite thoroughly, all the while remaining utterly mysterious. One song by Ivan Timofeev wonderfully captures this remarkable phenomenon:

*She's calm as bliss, she is like a dream.  
Unpredictable as the sky — no scream, no passion's gleam.  
They bend her every way, in vain, as if a law.  
They fear her, chase her, and for her they pray.*

*She heals and tortures, always in the right.  
Her words can sometimes bring the heart to light.  
She's strong, yet for rough hands she's frail and slight,  
But all around us, she is in plain sight.*

I believe that love is the word that best suits the description of a person's process of choice. In this context, love should be seen not as a feeling, but as the force that drives a person. Based on this, when characterizing a person, the phrase "Love is the only force in the Universe" naturally suggests itself. Everything a person does is in one way or another connected with the concept of love. But to realize this, one must not attach labels to love. To grasp this fact, there must be no filters.

Thus, after this analysis, we can conclude that the one truly unifying trait common to all people remains **striving**. I believe there is a chance that this characteristic may apply not only to humans but to all living beings. Very often, animals perform actions that cannot be described as vitally necessary; therefore, they do them because they like them, which testifies to the manifestation of "love."

As stated, striving manifests itself in the emergence of force. From physics, we know that force is always a manifestation of a change in energy. This means that a person, as an object or subject, is capable of changing energy. It will be shown later that the essence of energy is always change—energy cannot not change. Energy itself is the source of change. A person is a source of change of energy, or a source of energy. A common characteristic of any person is striving.

To find answers to the vital questions that inevitably arise in people's minds, it is worth taking a closer look at the inner world of a person, born of the phenomenon of life.

## **Immortality – A Gift or a Curse?**

A frightening word for the uninitiated is death. But why? Why does the very thought of death send chills down our spine and leave us numb? After all, we know with absolute certainty that it is inevitable. We also know that all, absolutely all, without exception, who lived before us, who live with us, and who will live after us, will inevitably die. Inevitably. There are no options. No way out. This is an immutable law of nature.

Thoughts of death surely cross every person's mind in one way or another. Many philosophers and writers have touched upon this theme. The idea of immortality, or at least of extending the duration of our existence, constantly surfaces in science. We constantly observe humanity's thirst for immortality. The desire to at least increase lifespan is the main goal of medicine. The wish to break this immutable law of nature often drives a person to act, to study the space around them, to study themselves. It compels them to hurry to see as much as possible, to experience all the good that exists in this world, if such an opportunity presents itself. Or to enjoy, as best they can, what they already have.

Of course, there are exceptions. Unfortunately, bad things also happen, and often not only through our own fault. And sometimes, we ourselves can ruin life for those around us. But these are nuances often tied to morality and rules of conduct, as well as to another important element of our lives

– imperfection, which will be discussed further. Morality, religion, science, culture – these are very important elements of human existence; they are systems that allow a person not just to stand still, but to move in the right direction. However, in this work, the focus of the investigation is shifted from the particular to the general, and therefore these filters have been excluded from consideration so as not to narrow the scope of study.

Whatever life situation arises, I believe that the initial striving of every person is to be happy. What that specifically means is something different for each individual. There is no single answer to this question. The only formulation that comes to mind is – happiness is when you like everything, when you love. But in reality, it's not that simple. Frozen happiness simply cannot exist. Love is a force, and force brings about change. Therefore, happiness is change. Love and constancy are opposites.

Let us return to immortality. Is it truly so wonderful? Most people dream of immortality, of going to heaven and living there forever. They consider life on Earth as a kind of punishment. But is it really so?

Imagine that you have become immortal. Your body is perfect, you are invulnerable, time no longer holds power over you. What will you do?

At first, life will seem delightful: travel, learning new things, enjoying the beautiful. But sooner or later, everything will become routine. Even the most beautiful sunset, repeated day after day, will lose its charm. The idea of immortality seems attractive until you realize it lacks the main thing – diversity.

Here is a simple example. Surely many have created their own favorite music playlist. Suppose initially the songs are played in an unchanging order, in a loop. At first, each song brings delight, but after a while the same compositions start to become tiresome. The more time passes, the stronger the desire to create a new playlist. Some say that their consciousness has “outgrown” the chosen songs, so they look for something new. But I think this isn't quite the correct conclusion: simply adding a shuffle effect can restore interest in the playlist for some time. This clearly shows that what a person needs is diversity, and not necessarily in content. In this example, the songs remained the same; only their order changed — and this is not connected with the meaning of the songs or their performance. One could say that a change has occurred in another plane, another dimension. This is a very important point that characterizes our essence. Later it will allow us to draw the necessary parallels. The example shows that it is precisely diversity that fuels our striving and makes life interesting. This striving is our perpetual engine. Without it, we lose interest, we lose ourselves.

Let's continue our reflections on immortal life. Take a notebook and try to write down all your "I want." How many pages did it take? Was the notebook enough? Or better to ask: was your imagination enough to fill it?

You need to approach this process honestly and listen to your own desires, rather than simply listing everything you know. You need to weed out whatever arises as a consequence of resentment at the injustice of the WORLD towards you. You need to truly turn to yourself, setting aside the usual imitation of those around you. Listen to your inner voice, try to hear and understand what it is really saying. For this, you can, for instance, ask yourself for each chosen goal: why do I need this? or why do I want this?

If you manage to find an answer that is not connected to other people, one that forms a genuine inner desire to experience, to feel, to do, to enjoy, to learn, to see, to touch — rather than a desire to be no worse or better than others, to have what someone else has, or to have something only for yourself, and so on. To set aside your own egoism and ordinary greed, which most often are merely offspring of fear arising under the influence of the surrounding WORLD.

I don't know what the result will be for you, but in my case there turned out to be not so many desires. I could count them on the fingers of both hands. Moreover, not all of them are proper or conducive to a healthy lifestyle, not all support the development of consciousness.

Now let's add invulnerability and omnipotence to immortality. You only need to snap your fingers, and everything you wish for is instantly fulfilled. How long do you think you could keep snapping your fingers? How far would your imagination take you?

Is immortality truly so wonderful? Is death truly so bad, if we consider how much emotion and change our struggle against it brings into our lives?

Death is that boundary which gives life meaning. There's no need to seek death; one should try to avoid it – that is its role. Death can play the role of a shuffle mechanism, preventing our interest in life from fading away. Death is the main source of life; victory over death could rob us of the main thing – striving, love.

There is a well-known observation, often called in popular culture the "**lottery curse**." The general trend for people who suddenly receive enormous sums of money without inner readiness is often very sad. They lose the money within a few years. This is often accompanied by excessive alcohol consumption, drug use, and not infrequently, death.

There is also another interesting phenomenon, associated with "**silver spoon children**," children of very wealthy parents. In this case, the illusion of **omnipotence** and **permissiveness** often leads people to do what is "**forbidden**," because they already have everything else. Such is the essence of man – to change; he cannot do otherwise; everything else he already has. If consciousness is unable to devise "**lofty goals**" for itself, to find development in another plane requiring greater effort, then it shifts toward destruction. A rebound, a degradation, is observed.

These observations lead us to an important conclusion. Surely the majority of people living today, myself included, are not capable of living forever, even though they strive for it. Thanks to this striving and, I hope, the impossibility of destroying death, a person during their life is able to accomplish much: to feel, to build, to study, to create, to achieve, to learn, to write, to love, and so much more.

Death is what the immortals lack. Only for the immortals does death have meaning. People are very prone to desiring what they do not have, while what they do have very often escapes their view. From this perspective, life begins to acquire a certain meaning. Life is very important for the immortals; it gives them what they lack – death.

This analysis is not capable of providing a precise answer to the question – whether man is immortal or whether life is given only once. Perhaps we are immortal, and life is merely a gift that awakens in us striving, strength, and feelings. They can be joyful or bitter – this depends on the initial conditions, environment, choice of goals, and many other factors. There can be infinitely many meanings in a person's life, and each is right in its own way; it all depends on one's perspective and life values. But perhaps life itself still has a certain meaning – more on this will be said later. In what is happening, there is one common thing: we live as long as we have striving, as long as we are capable of love. Love changes us and the world around us.

My decision is to treat life like a vacation – temporary, but valuable. Yes, it can be spoiled, but it is within our power to make it joyful. Some will spend their time on the beach, others – in creativity, in study, in creation. The main thing is to listen to oneself, not to copy others. Life gives each person what they need. It's just that often we are blind, consumed by fear and bustle, and therefore waste time.

I repeat, the analysis does not provide a definitive answer — whether we are immortal or live only once. But that's not important; I am confident that this is precisely its main advantage. Why does a person ask this question? To choose the principle of their existence. To answer the question — how should we live? No matter how hard philosophers try, in the end, there remain only two possible answers to this question – either we are mortal, or we are immortal. If we are immortal and death was

created so that we might love – then we must love. And if we are not immortal, then what difference does it make? From my own experience, I can say that when you love, life is more pleasant. Resentment, anger towards others, thoughts that the WORLD is unfair to you – all of this destroys us from within. There is no sense in it.

One can endlessly agonize over the question of our immortality, or spend one's whole life grumbling about the injustice of the WORLD towards us. Or one can simply live and love. For that is indeed the only thing that is given to us.

To live and love does not mean to resign oneself. One must learn to find a certain balance in every life situation. To live and love means to develop, to be able to find the good and, as far as possible, to cast aside the negative. Not to waste one's own or others' energy on a reverse course, because otherwise there will be no movement.

### **Imperfection as a Source of Diversity and a Source of Striving**

The previous section examined in detail the nature of human choice. This question is constantly raised in religions and in many philosophical works. Indeed, it is a cornerstone of human existence. Perhaps it is the only thing that distinguishes the living from the non-living, the physical world from the spiritual.

At the next stage, it is worth focusing our attention on the concept of the “I.” There are many different approaches to studying this concept. It is known how it is formed in the course of our lives. What connections are formed between it and the structure of our personality — “I” – subconscious – consciousness – superconsciousness (intuition). Many different approaches have been described on how to relate to our “I,” how to change the relationship between it and the WORLD. Some suggest distancing oneself from it, others are completely focused on it. All sorts of things are done with it. What is right, what is wrong — who knows?

Let us try to approach this question somewhat informally. The previous section showed that man is characterized by striving. Striving arises as a result of the manifestation of some force. Let us turn to physics with this question. Who, if not physics, has studied this question far and wide?

In physics, force is a vector physical quantity that is a measure of the intensity of the influence of one body on another. As a result of this influence, the body either changes its speed (acquires acceleration) or becomes deformed.

Simply put, force is the reason why an object begins to move, stops, or changes its shape.

#### **Characteristics of force:**

Force is not just a numerical value. To fully describe a force, it is necessary to know its three main characteristics:

1. **Magnitude (numerical value):** shows how intense the influence is.
2. **Direction:** since force is a vector ( $F$ ), it is extremely important to know where it is applied (up, down, at an angle to the horizon). The trajectory of the body's motion depends on the direction.
3. **Point of application:** the specific place on the body where the influence is exerted.

There it is – the third point, the point of application. For now, let us not get too distracted by what causes the force. The process itself can be viewed from different perspectives. We are not yet deciding what the primary cause is – everything is relative. The main thing at this stage is the point of application. Simply put, we can say that a force has a point from which it originates. If we look at the structure of our personality, which, as we have established, possesses striving, possesses force, then among the four known components, it is the “I,” conceptually, that can be attributed to such a point.

The “I” is the source from which force originates. The “I” is the source of change. The “I” is energy. Continuing this line of thought, we could fully delve into metaphysics. The “I” is love.

The other components of our personality grow from this source, this beginning. It is our “I,” on the one hand, that serves as the boundary between the inner and outer worlds. The very concept of choice exists only because of this boundary. There is, of course, a second boundary – which in a sense sets the scope of awareness of our “I” – but we will return to this in the following sections.

Now the main thing is to try to understand – what is the purpose of this “I” within us, what is its role? The heart pumps blood, the lungs supply the body with oxygen and remove carbon dioxide. But the “I” – what is it for? Now is not the time to delve into the structure of our personality; we need to set aside specifics – each of our parts is responsible for its own function, but if we consider all this as a manifestation of the original point, then we can determine a general simplified function. It is important to try to determine the very essence. What role does our “I” play?

First of all, it takes care of the body’s safety, ensures it is fed, and solves the tasks of obtaining food. It monitors the condition of organs, breathing, and the work of the heart. These are the first steps in the struggle against death. Then the “I” begins to study the world — again, primarily to circumvent death. But it also seeks ways to make life easier, more pleasant, and to eliminate minor inconveniences.

The same “I” tries its hand at art, painting pictures to please the eye or convey hidden messages to others. Some express themselves through music, selecting sequences of sounds pleasing to the ear. Some devote their entire lives to mathematics, solving problems, sometimes without a final answer.

If we simplify and generalize all this, the **“I” is a problem solver**. That is its main purpose.

What would happen if the heart were deprived of blood? It would stop working and lose its reason for existence. If we draw an analogy, what would happen to the “I” if it were deprived of problems? I dare to suggest that the result might turn out to be not very pleasant and, apparently, the complete opposite of what we, without thinking, might initially picture. If we nevertheless apply logic, the process of “depriving the I of problems” would most likely lead to its destruction. It would disappear, dissolve, degrade. The paradox is that the “I” strives to eliminate problems, which ultimately leads to its own destruction. The fulfillment of our desire — Paradise, the absence of problems — could lead to the destruction of our “I,” which is undoubtedly the source of our consciousness. The “I” is the center of our personality as a subject. No center — no subject.

In the case of the heart, one thing is reassuring: blood circulates – both to the left of the heart and to the right of it. In the case of the “I,” we see a similar situation – any event, any choice we make, is simultaneously both good and bad. We are not always capable of realizing this and do not always think about it, but sooner or later, if we reflect a little on what is happening, we can see it. Winning in one thing, we inevitably lose in something else. You cannot have everything at once. The desire to be merciful gives rise to its opposite. The concept of truth also defines the concept of falsehood. Life is like a wave. You cannot create only the crest; there will inevitably be a trough. Every striving for the good gives rise to its opposite. Doing good to others, if it was simply under the influence of learned rules of behavior, merely to achieve, for example, Paradise, gives rise to pride. A magnet does not exist without two poles. An electron is not born without a positron. And so it is with life as a whole – any phenomenon, any action, any decision of ours carries duality within it. Everything depends on the chosen point of view and life values. A positive outcome for one may be judged negatively by another, thereby generating further change in energy, which for energy itself is the very foundation — change.

Life is full of paradoxes; there are no frozen laws or rules in it. Here is one vivid example of this — “The pride of insignificant people consists in constantly talking about themselves, while the pride of great people is to never speak of themselves at all.” There are no rules in life; the same outward manifestation can signify completely different origins and consequences. Life is a process, change.

Rules, norms, laws are undoubtedly necessary to define certain frameworks, but one must remember that this is merely a sketch, and that life is far more multifaceted and changeable.

The foundation of our world is the wave. It manifests itself in everything. Electromagnetic waves, sound waves, gravitational waves, probability waves in quantum mechanics – these are all examples. The behavior of elementary particles is also often associated with wave properties. Man is often said to have a dual nature – light and darkness, angel and devil. The life situations of a person can be viewed as oscillations in the field of “good and evil.” The driving force becomes our desires, our “I want” or “I do not want.” Man acts as a generator, creating waves in this field.

For events to happen, desires are necessary. Consciousness, being a problem solver, often sees exactly those problems. It sharpens its attention on what it **does not like**, in order to obtain what brings delight. Now, rephrasing, we can arrive at the phrase — ***“Imperfection gives rise to the striving to overcome, and hence to development.”*** This is precisely what was mentioned in the previous section.

It is imperfection that generates the diversity that makes life beautiful. For example, errors in the process of DNA replication at the quantum level have given us an incredible diversity of flora and fauna. It is this diversity that makes the world so interesting and captivating.

The absence of errors, perfection, would turn everything into monotony, would deprive us of development and life itself. Errors, imperfection, create the soil for the diversity of the world, which, as mentioned earlier, is the driving force for man. No wonder the Chinese proverb says: ***“In water that is too pure, fish do not dwell.”*** Perfection is not intended for life. In various religions and teachings, it is often said: ***“do not create ideals for yourselves.”*** One should strive for the better, but the ideal is a trap.

It is especially worth noting that the phenomenon of death can today be viewed as the greatest “defect” of the WORLD from the perspective of consciousness. It is something that consciousness has not yet been able to rectify. And herein lies the main paradox: what appears to us as the greatest enemy actually fills our lives with diversity and change. It is a vicious circle for consciousness — we strive to conquer death, yet it is death that makes our striving meaningful. Many before have already arrived at similar conclusions; many have realized that death is not actually evil. Accepting, and above all, realizing this fact profoundly changes a person’s aspirations and tames fear.

## Creator

Now we smoothly move on to the next burning question. Perhaps even more frequent in people’s minds than the question of immortality. It is about the existence of the Creator (Maker, God, the Almighty, Allah...) and about what the relationship between man and Him should be.

This question is truly difficult. It has given rise to many irreconcilable opinions, which greatly complicates the decision for those around. The crucial point is that the choice we make significantly influences our life values, and therefore our entire life. Every religion is beautiful in its own way; each carries immense spiritual experience and helps shape a person’s moral core. But even the scientific approach today is not without its foundations in morality, ethics, culture, and other things vitally necessary for personal growth and development. Moreover, many scientists do not deny that life did not arise by itself; it is simply that definitive proof has not yet been found. What to choose? Who is right?

In my own time, this question also arose before me. Guessing from coffee grounds seemed somewhat absurd. I am not used to tossing a coin. Here I will note that everything I set out below is merely my point of view, not a claim to absolute truth. It is only my choice. Everyone has the right to choose their own path. To resolve this question, I think one can proceed as we did earlier with the question of immortality. There are only two possible answers – He exists, or He does not. To be frank, I have no precise data. But let us ask ourselves: why do we need to know the answer to this question?



First – to understand how everything came into being, curiosity. Second – the desire to get into Paradise.

I believe it is unnecessary to discuss that the second motive can be dismissed. Everything that has been said earlier speaks for itself. But the first is truly interesting. In the previous chapter, a remarkable point important for the development of consciousness was shown – imperfection. If the WORLD was indeed created, then it was created by reason, because everything in it is arranged for the development of reason. It is very likely that there exists a Reason that gave rise to it. It is not even about the complexity of the cell or the improbable probabilities of chemical reactions that led to the origin of life. It is about the very Reasonableness of the world's structure – in its imperfection. On the other hand, as noted above – the striving of one reason creates echoes around, in the surrounding WORLD, giving rise to subsequent changes in energy in space. We, humans, are essentially a change in energy. Therefore, based on this logic, I am inclined to think that yes, there is one who gave rise to us – the Creator, the Maker... as, indeed, everything we observe.

Having settled on existence, it makes sense to consider the relationship as well. Here again, I think, we will have to draw an analogy. We simply have no choice. There is a well-known aphorism by the American psychiatrist Thomas Szasz: "If you talk to God, you are praying; if God talks to you, you have schizophrenia." We must understand that we speak with Him in different languages. Undoubtedly, He speaks to us, but we do not hear Him. His words are in the WORLD around us, in the song of birds, in the beauty of mountains, in the silence of the forest, in the scale of the universe, in the size of the atom. We have only begun to study His language. The language of love. Of course, much is hidden from our understanding, much we perceive incorrectly. Perhaps we will never be able to understand Him fully, because while we are developing toward His heights, He, too, does not stand still; He continues His own life path.

This process can be compared to a situation familiar to many parents, who at some point must "let go" of their children so that they may begin to live independently. If they do not do this, the children will not grow up, will not gain independence, and will not taste life. This is a difficult decision, but very important for both parents and children. Wise parents wish happiness for their children, and their only reward is to see the joy and wisdom in their children's lives. They do not need constant gratitude or material gifts. It is enough to know that the children are happy.

Children who continue to complain about the injustice of life and cannot take responsibility remain children. They may be charming in their childish way, but they do not become adults.

Perhaps I have simplified the life situation to resolve two such complex questions. But I based myself on known facts and tried not to invent anything inexplicable. At the same time, I tried not to offend anyone or diminish anyone's dignity. Everything was built on ordinary logic and on comparing and analyzing my own life and the lives of those around me. This is not a claim to absolute truth. It is an attempt to find a possible logical explanation based on known data.

Thus I came to the conclusion that if the Creator exists, His role is in many ways similar to that of parents. He gives a person the opportunity to mature. He does not interfere and does not dictate what exactly to do. Our love for the world is our gratitude to Him for having given us all this. He is probably always near and able to lend a hand in a critical moment, but like a wise parent, He will not live the child's life instead of the child. Yes, a person will make mistakes, get burned, but without problems there is no growing up. The important thing is that these difficulties be surmountable; otherwise growth is impossible.

Our joy can express itself in everything: in music and food, in discoveries, in peaceful solitude with nature, even in simply watching an autumn leaf fall. Each person has their own, and there are no limits here. But one condition, I think, remains obligatory – respect for other people. As far as possible, one should not spoil the lives of those around them. That is reasonable.

Even if I am wrong and the Creator does not exist, the position I have chosen will not harm, will not ruin life. Therefore, I come to the conclusion: it does not matter which answer a person chooses for themselves. In any case, the only thing we can do is to love the WORLD. The answer is always the same: LOVE THE WORLD.

Beside the image of the Creator there always arises its opposite – the Devil (Satan, Lucifer, Beelzebub, Iblis...). Most often, he is labeled as a negative character. I would like to slightly change this approach, to show once again that everything in the WORLD is relative. Let us look differently.

There are many theories about his role. But the main thing is that the Devil does not force anyone to follow his will. He merely offers, and the person chooses for themselves. One can draw a parallel with school exams. The teacher offers options, and the student either finds the correct answer or stays behind for another year. Is it worth hating the examiner? He is only doing his job. The Devil is an examiner, and therefore a teacher. He should not be feared, but he should be respected. For it is precisely mistakes that become the soil for our growth. Only one thing is truly frightening – doing nothing.

In conclusion, I want to note that I am convinced of the existence of the Creator, but I could not accept any of the religions. They all carry enormous positive potential, but at the same time much that I find difficult to accept. Everyone must choose their own path, one that is feasible for them. Everyone has the right to decide what is more acceptable for themselves. For some it is easier and more proper to live by laws written by someone else; others must arrive at those same laws by themselves. This depends on many factors; it depends on the person themselves. We are all a process, a change. Today we need one thing, tomorrow we will choose another. The foundation may not change, but the change around us shapes our relationship with the surrounding WORLD.

In my own time, I had to go through panic attacks that lasted two or three years. They forced me to search for answers to questions I had considered long forgotten. Their unresolved nature still affected my life. That is how I understood: fear sometimes makes us think. And although I did not choose any specific religion for myself, each of them played a role, awakening this fear in me. For this I am grateful to them. Religions are indeed necessary – they provide a person with the soil for maturation. But to each their own.

The main thing to remember is: perfection is a trap. One should not create ideals for oneself.

Once again – this is only my point of view. Every person must come to their own conclusion. Even the Devil has no right to decide for you. Conclusions may differ, because everyone has their own experience and values. Some need uncertainty to live, others need precise knowledge. The main thing is not to ignore this question. Find your own answer.

And whatever it may be, one principle remains unchanging: LOVE THE WORLD. That is the only constant.

## **Mind**

The previous sections have provided answers to most of the philosophical questions related to life. The answers obtained are capable of transforming our perception of life. Capable of changing our attitude toward what happens. Capable of teaching us to understand ourselves, our reactions. Capable of showing us the advantages where we used to see only disadvantages.

As mentioned earlier, the “I” is always burdened with “problems” in the broad sense of the word. Most often, this “I” is dissatisfied with everything, always; that is its function. It focuses its attention on the unpleasant, on what it does not like, and therefore remembers the bad for a long time and quickly forgets the good. This is a property of most “I”s, and it is simply a consequence of their main functions. Hence the main reason why many people are unhappy living in this WORLD. We come into this

WORLD seeking happiness, but due to the nature of the “I”, we are unable to realize it. We often mistake the good for the bad and the bad for the good.

I am not saying that consciousness (understood as the “I”) should love endless problems. But one must understand: problems for consciousness are like moisture for a seed. Without moisture the seed will not sprout, but if you drown it in water, it will die. So it is here — a balance is necessary. Without problems, consciousness does not develop. When it becomes aware of this fact, the next stage of maturation arrives. Let us call it mind. Mere acknowledgment or acceptance of this fact does not give rise to mind. It must be internalized. In this case, the process of perceiving the WORLD changes. Mind can, like a surfer, ride the crest of the wave and take pleasure in life itself.

Of course, this process is not quick. It resembles the first steps of a child. First we “crawl” — we live within the framework of the “Ego” instilled in us by educators and mentors, a set of rules of behavior. Then, with time, we accumulate the evidence that life does not have to obey the ingrained rules, and the person encounters a contradiction: the inner picture does not match real life. For some this moment comes earlier, for others later, and for some it never comes at all. Perhaps full comprehension requires more than one lifetime. This, by the way, may explain why even twins living in identical conditions can be so different.

The realization that life does not obey fixed rules can lead to a restructuring of consciousness. It begins to “detach” from the “I”, trying to “examine” what is happening around without relying solely on itself. It can also observe its own “I”, follow its thoughts, emotions, and motivations. In psychology this process is called self-reflection. Simply put, one can imagine that a person draws a certain boundary around themselves, allowing their own internal rules, laws, and life values to exist inside, but on the outside they no longer impose their views on other subjects. They separate themselves from others, forming their own inner world. The process of self-reflection itself does not usually arise spontaneously; it is accompanied by inner turmoil. This is not a split personality nor a break in the connection with the “I”. A more complex structure of the relationship between the WORLD and the person is formed. It is known that the “Ego” is easily predictable, it is deterministic, but consciousness cannot be calculated — that is a different level. For consciousness there are no strict rules; its decisions do not arise solely from preset principles; it takes into account not only its own “I” nor only the surrounding WORLD. It is capable of finding a compromise between the existence of both entities. Here intuition, or super-consciousness, arises — that which eludes logical analysis.

In the second part of this work, it will be shown that the circle and the sphere are a special way of organizing energy. Their connection with the number  $\pi$ , which is irrational, makes it impossible to precisely calculate processes occurring along the circumference. Only an approximate value can be given, but absolute precision can never be achieved. This serves as a good analogy for describing consciousness and intuition.

To clarify the distinction, we can conventionally identify three levels:

- **consciousness** — always connected with the given moment of time, here and now, this is the initial connection with the “I”, our source, source of energy, time;
- **subconscious** — this is our automatism, our rules; they accumulate through the movement of our “I”; everything that once was may no longer burden our “I” — analogous to size;
- **intuition** — arises in the process of self-reflection; the energy of the “I” is spent on “looking around”, our mass. It creates a certain inertia in decision-making, depending on what is happening around.

In the process of forming self-reflection, one should not detach from the “I”. The joint interaction of the whole structure is important. Only in this way is Mind or Personality formed. One should not

neglect one's "I" — it is the source of energy. But one should also not forget the surrounding world. Balance must be maintained.

As will be shown in the following part, such a division reflects the similarity between the spiritual and material structures of the world. Everything is energy, its different forms and transitions. A person is a change in energy across three dimensions: consciousness, subconscious, and intuition.

Intuition is especially interesting. While the subconscious and consciousness can at least be partially studied, intuition remains completely behind a veil of uncertainty. It cannot be calculated: if we obtain a concrete answer, we can no longer say whether it resulted from intuition. If we speak of intuition, we cannot know in advance whether there is an answer. One excludes the other. But I think this is to be expected. The first two belong entirely to a single subject, while intuition is the result of the interaction between the surrounding infinity (nothing suggests the finiteness of our WORLD) and that same subject. It can be approximately calculated, but never exactly.

The particularity of the mind is that it begins to recognize its own boundaries. Its massiveness allows it to find its place in life, to become, in a sense, more stable. It begins to exhibit a different attitude toward the WORLD; the feeling of resentment and the feeling of injustice disappear. The ability to find joy in life emerges from inner needs, rather than by imitating the actions of others.

## **Freedom of Choice and the Meaning of Life**

Life is full of paradoxes and knows how to surprise. Everything in it is interwoven with contradictions. Take physics, for example: there is a constant struggle between two fundamental theories—the theory of relativity and quantum mechanics. One describes the world as continuous, the other as discrete. The clash of opposites is the very essence of life.

One frequently arising philosophical question is whether free will exists. On the one hand, much in the world can indeed be calculated, and therefore it seems that everything is predetermined. There are many arguments for this—both in the realm of rigorous science and in the realm of the paranormal. But, on the other hand, it would be wrong to exclude ourselves from the analysis—our inner world, our attitude toward what happens. How we perceive events depends only on us, on our understanding, our life values, our development. Our attitude gives rise to our choice. Therefore, free will exists always, as long as we exist. There is no contradiction here: as long as our "I" is alive, we ourselves form our attitude toward the world. Yes, what happens influences our decision, but no one makes it for us.

The world may resemble an amusement ride, but how we experience this path is already our choice.

One last vital question remains unanswered. What is the meaning of life? It has already surfaced in the earlier sections. Even then, it was implied that there are two possible answers to this question. The point is that this question sounds similar to the question of our childhood— "Which came first, the chicken or the egg?" Strange as it may seem, I found the answer to it only when I was already quite mature. As a child, I could not guess to broaden it to the necessary level by asking a clarifying question, because the question itself lacked data—is it a chicken's egg, or does it not matter? It is the same with the question—what is the meaning of life? The point is that if we seek the answer from the perspective of a person, we arrive at an infinite number of possible variants, because a person's choice is limited by nothing. But if we approach this question from the perspective of life itself, the situation reverses—from an infinite number of answers to a single one: development. For a person at this stage, development consists in the formation of personality and the cultivation of intuition.

And so, in fact, all the burning philosophical questions have been examined. With this I conclude the first part of this work. In the next part, we will try to find answers to the dark spots in physics—this is quite necessary in order to unite the first part with the second into a single picture.

## SETTING THE RECORD STRAIGHT

The second part of these reflections touches upon a vast domain of human achievement: physics. Its current level of development is truly mesmerizing. The results of its capabilities can be seen in nearly every aspect of human life. It provides answers to questions concerning unimaginably small dimensions and indefinitely gargantuan scales. It excels at describing everything we can and cannot observe in our world, possessing the power of foresight and the ability to achieve necessary results.

Precisely for this reason, it would be a mistake not to utilize its knowledge in an attempt to answer the questions: Who is **MAN**, and what is his essence? How is the **UNIVERSE** structured?

Physics itself covers more than half of all human knowledge. In its arsenal, it employs perhaps the most precise language ever developed by man—mathematics. The greater part of its knowledge obeys a strict, indisputable logic. Nevertheless, even physics has its limits and unsolved mysteries.

What remains unresolved in physics today? Quite a lot, actually. Among these, I would highlight several crucial questions:

- What is the elementary electric charge as an **essence**, and why is it constant?
- What is mass as an **essence**; how is it born, and why are mass and energy essentially identical?
- Why do elementary particles have specific masses and charges?
- Why are there only four stable elementary particles (though the neutron is considered unstable, so it is often accepted that there are only three)?
- Why does speed affect mass, but not charge?
- What is time as an **essence**?
- What are the four known fundamental forces as an **essence**?
- What is dark matter as an **essence**?
- What is dark energy as an **essence**?
- What is a black hole as an **essence**?
- Why is "spooky action at a distance" possible?
- Why does a limitation such as the speed of light exist?
- ...

Quantum mechanics, which defies common sense, must also be added to this list. Everything related to the microworld often resembles a form of mysticism. Yes, a mathematical apparatus exists that can perform the necessary calculations, and it works perfectly. Yet, this field carries an aura of mystery. While everything else in physics is wonderful and fascinating, the microworld remains a "fly in the ointment." Something similar has manifested on cosmic scales as well—too much "darkness" has surfaced in our understanding.

Up to a certain point, physics is transparent and logical. But at a specific junction, clarity began to fade. Looking back at history and setting aside the disputes between various schools of thought, one can identify a critical conflict. It manifested most strongly in the form of wave-particle duality, but it does not end there. In one way or another, it constantly haunts physics. Take, for instance, wave probability in quantum mechanics—the word "wave" is there for a reason. Yes, the conflict was

technically "resolved," and a decision was made. Physics split into two irreconcilable camps: General Relativity and Quantum Mechanics, each a queen in her own realm. Many years have passed, yet they remain ununified. Everyone understands that something was missed, something is clearly lacking. Great effort has been spent on resolving this conflict, but the solution constantly slips away.

Therefore, the essence of the following reflections will be built with a focus on this very conflict. Something split the general flow of physics, and it was at this point that logic began to falter. I believe this is no coincidence. Perhaps, an error has crept in here.

## Matter and Field

Classical physics is accustomed to operating with point-like objects. This approach is highly logical and demonstrates excellent results. However, the transition to the microworld shatters this conventional logic. Similarly, we observe immense difficulties in understanding phenomena at cosmic scales. Could the problem lie in the approach itself?

Today, perhaps somewhat unofficially and informally, many physicists are inclined to suggest that elementary particles are most likely **standing waves**. Yet the question remains: what kind? Simply calling them electromagnetic is insufficient. Since we are discussing spatial boundaries, space itself is characterized by its coordinate axes. An electromagnetic wave is transverse, and its essence is the **surface of a sphere**. As will be shown later, this already represents the birth of a new dimension—in our case, the characteristic of **mass**. Therefore, only a **longitudinal wave** is capable of defining the dimensional parameters of an object. Historically, it was accepted that only the electromagnetic wave is self-sufficient, with the vacuum itself acting as its carrier. Longitudinal waves possessing such a quality have not been introduced into physics. Nevertheless, if they did exist, they could explain a great deal.

Hypothetically, longitudinal standing waves could explain, for instance, the behavior of the microworld. Depending on how their "contact" occurred, we would observe a wave-like result—probabilistic behavior—even if the elementary particle were still considered a point-like object.

Furthermore, such an approach could explain the results of the famous Michelson-Morley experiment. Truth be told, I am inclined to believe that this very moment was the turning point for physics. The "war against the ether" left its mark, leaving an indelible scar on the body of science.

In reality, this war continues to this day. There are still those who hold the opinion that the ether exists. But their role is that of outcasts. Nevertheless, the Michelson-Morley experiment remains of paramount importance.

**Purpose of the experiment:** *To test whether there is a so-called "ether wind" - the movement of the ether relative to the Earth, which should affect the speed of light in different directions.*

**Basic idea:** *If the Earth moves through the ether:*

- Light travelling **along the Earth's motion** must travel the path in **one time**.
- Light travelling **across** has to travel the path in a **different time**.
- This should cause **interference** when comparing the two beams.

*Michelson and Morley built an **interferometer** to compare the two beams.*

The Michelson-Morley experiments did show small deviations, but:

- **Small shifts of the interference pattern** were recorded, about **10 times smaller** than expected in the presence of an ether wind with the Earth's velocity (about 30 km/s).
- These deviations **were not of a magnitude or direction** that could be explained by the motion of the Earth through the ether.

*How the result was interpreted:*

- **Michelson and Morley considered** these small deviations **to be within the errors of measurement**, and not evidence of an ether wind.
- The work was later repeated with **increased precision** (including by Michelson in the 1920s, as well as by Miller), and although **Miller claimed to have found the effect**, his results were not confirmed in other experiments.

This is a remarkable and, in my view, very accurate result. The "ether," as it is conventionally understood, certainly does not exist. This is indisputable; the result is correct. But... let us consider this experiment from a somewhat different perspective.

Suppose, hypothetically, that a certain medium exists. Within it, elementary particles are standing waves (longitudinal within the region of space). That is, all our matter is merely a wave disturbance of this medium. What do we know about the relationship between a medium and its waves?

1. **A wave is not a carrier of the medium itself.**
2. **Energy is what is transmitted.**
3. **The speed of propagation is a constant.**

The first can explain why the ether wind was not detected. The third provides a possible explanation for understanding the speed of light, but more on that a little later.

These are, perhaps, arguments strong enough to hold onto. There remains one "headache" — the longitudinal wave. In fact, this approach could explain many other unresolved questions, but let us set those aside for now. We need to understand: where do we find this longitudinal component, and why is it so elusive?

Further reasoning is built using an "inverse" approach. In physics, there is a method known as the **Black Box**. We apply certain inputs and observe the resulting output. Based on what is observed, we form conjectures about the internal structure. This is precisely the position I have decided to take. Indeed, my approach to explaining the Michelson-Morley experiment serves as a prime example of applying the Black Box method. Physics has already achieved so much; the amount of data is simply overwhelming. All that remains is to analyze it. Perhaps we need to adjust or correct our understanding of the observed picture, relying on entities already known and accepted in physics. There is no need to multiply entities if the old ones can already explain everything.

And so — the longitudinal wave. We need a starting point. How do we find it? And a wave of *what*? We possess knowledge of transverse waves — electromagnetic waves. But we also know they propagate at a boundary velocity — the speed of light. In physics, cases of paired existence of two types of waves are not uncommon. Could this be our case? Is it possible that something is being viewed from a different angle, missing the very essence of the process?

### **Fundamental Delay and the Nature of the Wave**

The fact that interactions propagate through space at a finite speed is a key argument in favor of the wave nature of reality. If a certain parameter at a point in space cannot change instantaneously, it implies the existence of a transient process: the value must rise and fall smoothly. Such a dynamic distribution of changes in time and space is, in itself, an exhaustive description of a wave. In this context, we are speaking of a **longitudinal disturbance** that describes the very process of energy "transfer."

### **Energy as the First Principle of Fields**

While in a transverse electromagnetic wave, energy cyclically transitions between electric and magnetic forms, at a deeper, more abstract level, we can operate with a unified concept: **the dynamics of energy density**. From this perspective, physical fields are not independent entities but rather "**standing waves**" of energy localized in space. It is crucial to understand that the "standing" nature of a field does not imply that the energy itself is static; within it, a continuous dynamic process persists, limited by the same ultimate speed of propagation. This is precisely why any changes in a field (such as a Coulomb field) reach other objects not instantaneously, but with a delay characteristic of a wave process.

### **Radiation Reaction as Evidence of a Medium**

A vivid confirmation of this model is the phenomenon of **radiation reaction** (radiation back-reaction). An accelerated charge experiences deceleration, described by the Larmor and Lorentz–Abraham–Dirac equations. This occurs because the charge's own field cannot instantaneously readjust to its new position. The charge effectively interacts with a "delayed" disturbance that it created itself. If we view this process through the lens of energy transformation, radiation reaction is the moment when the longitudinal stability of the "standing wave" (the particle's field) is disrupted, generating a transverse disturbance (radiation). Here, the field manifests not as a mathematical abstraction, but as a real wave of energy within the physical medium of space.

### **Synthesis**

I believe these subtle shifts in understanding do not contradict established physics. However, the most vital takeaway is that these two types of waves—the electromagnetic and the longitudinal—are inextricably linked. Under certain circumstances, specifically regarding the **rate of change**, the connection between them can become highly significant. Radiation reaction is a perfect example. It is possible that upon reaching certain parameters of change in the longitudinal wave, it becomes capable of halting the propagation of the electromagnetic wave. This gives rise to a self-contained wave element within the dimension of space: **the elementary particle**.

### **The Birth of Mass and the Discreteness of the Microworld**

If we assume that under certain energetic parameters, a longitudinal disturbance component is capable of "looping" a transverse electromagnetic wave, we obtain a fundamentally new object. This is no longer freely propagating radiation, but a **localized wave node**—a standing wave trapped within a finite volume of space.

This transition explains several fundamental mysteries at once:

1. **The Nature of Rest Mass and Inertia.** In this model, mass ceases to be a mysterious "intrinsic property" of matter. The energy trapped within the standing wave continues to rotate or oscillate at the speed of light, yet to an external observer, the object remains stationary. However, to move such an "energy node," one must overcome the resistance of the internal wave dynamics striving to maintain their configuration. This resistance is what we perceive as **inertia**, and the amount of trapped energy, according to the formula  $E=mc^2$ , determines the particle's mass.
2. **The Cause of Quantization and Stability.** Why do particles have strictly defined masses rather than arbitrary ones? The answer lies in the properties of standing waves. Just as a guitar



string produces only specific notes (harmonics), a wave node in space can only be stable when an integer number of waves fits within its volume.

- If resonance conditions are met, a **stable particle** (electron, proton) emerges.
- If conditions are violated, the wave quickly "spreads out" (dissipation), which we observe as the decay of unstable particles.

3. **The Geometry of Charge.** Electric charge in such a system can be viewed as a constant deformation (tension) of the medium caused by the presence of this wave node. The charge is inextricably linked to the structure of the "standing wave" itself, explaining its invariance: no matter how fast a particle moves, the structure of its wave node—and thus the deformation it creates (the charge)—remains unchanged.

Thus, the division of physics into "matter" and "field" proves to be artificial. Matter is merely an ultra-dense, self-trapped state of the field. The world is unified in its wave foundation, and the entire diversity of elementary particles consists of nothing more than different "modes" or "melodies" of oscillations within a single energetic vacuum medium.

#### **Energy as the Sole Reality**

It is essential to emphasize: within this approach, the medium and energy become inseparable. We cannot view the medium as some external "substrate" existing independently of energetic processes. The wave itself is fully described through the dynamics of energy and its fundamental manifestations: resonance, diffraction, and interference.

#### **Resonance and the Hierarchy of Harmonics**

It is essential to emphasize that within this approach, the medium and energy are inseparable. We cannot view the medium as an external "substrate" existing independently of energetic processes. The wave itself is fully described through the dynamics of energy and its fundamental manifestations: resonance, diffraction, and interference.

Resonance, which was mentioned briefly above, is a parameter of paramount importance for a wave-based world. As established in physics, waves that correlate with one another according to specific rules gain the ability to interact profoundly. It can be said that they "feel" each other, becoming capable of exchanging energy without loss. This lossless energy exchange must be characterized by the conservation of energy; when this condition is met, the system gains the capacity to perform a specific portion of work.

The particular dependence between wave frequencies dictates the rate of energy exchange within such a system. These are the fundamental rules arising from the concept of resonance. To these, we must add the emergence of harmonics as the fundamental frequencies increase. **Fundamental frequencies create dimensions, while harmonics create coordinates.**

Endless debates over the existence of the ether lose their meaning if we acknowledge that we ourselves, being products of a wave process, lack the tools for direct cognition of the medium's substance (if it is indeed distinct from energy itself). For us, energy is the only accessible reality and the only medium.

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#### **Cosmological Implications**

Upon transitioning to the macro-level—the level of formed matter—we see that it, in turn, becomes a medium for the birth of new wave processes. Thus, the **principle of similarity** is realized:

the microworld "projects" its wave laws onto macro-structures, creating an infinite hierarchy of complexity. This, in turn, sheds light on dark matter, dark energy, and black holes.

- **Dark Matter:** It represents large-scale longitudinal waves of changing medium density. At these scales, the frequency characteristics of energy shift, leading to a different manifestation of mass. This is a process of continuous transition from one form of energy to another. It is possible that this is also a formed elementary particle, but on a significantly larger scale.
- **Dark Energy:** This is the reaction of the surrounding space to the changes that gave rise to dark matter. According to the law of conservation, if "compression" (concentration of energy) occurs in one region, a corresponding expansion must be observed in another. This manifests as the redistribution of energy between dimensions and scales.
- **Black Holes:** These are the nodal points of the transition itself, where conventional concepts of spatial dimensions lose their meaning. A black hole is not an object, but a "channel" or a point of connection between different levels of the Universe's hierarchy, through which energy circulates between worlds of different densities.

In conclusion, a single fundamental assumption regarding the wave nature of matter can provide answers to the most complex conceptual questions of our time. A wave naturally unites **discreteness and continuity**. This allows for the reconciliation of General Relativity and Quantum Mechanics, restoring to the physical picture of the world its lost logical coherence, beauty, and—most importantly—intuitive clarity.

### **Interaction Fields as an External Manifestation of Structure**

One must not overlook the fact that when local closed connections (matter) are formed, the longitudinal components of the energy wave change inevitably manifest both inside and outside the emerging structure. The formation of a particle's "wave node" bound to reflect on the state of the space enclosing it. It is precisely this external projection of internal energy dynamics that creates the fields we observe and the various types of interaction forces.

Thus, force is not a "spooky" action at a distance through a vacuum, but the result of the superposition and interference of external wave "tails" from various local objects. In physics, it is absolutely correct to state that energy is a scalar quantity. In itself, it has no direction; however, given that everything is interconnected, it is energy that ultimately gives rise to force.

### **Structure of Elementary Particles. Photon. Gravitational Force.**

This work does not contain mathematical derivations. For that, there is a separate work — *“Model of the Wave Structure of Matter and the Fractal Structure of the Universe”*, available at <https://zenodo.org/records/19703486>, which explores a possible mathematical formulation of the wave model of matter. Here, the aim is to suggest a possible vector for development. An attempt is made to explain the essence of the process in a simplified way. Therefore, some points may not be entirely rigorous, but they are intended to convey the logic.

This chapter partially repeats the previous one, but proceeds from different considerations. It is based on the same characteristic of the finite propagation speed of electromagnetic oscillations; however, further reflections are derived based on the well-known formula linking charge and the speed of light.

To date, science has not provided a description of the origin of the elementary electric charge. What is its nature? Why is its value invariant for elementary particles? The charge does not change its

sign or magnitude regardless of the environment. Why does the mass of a body change with speed, while the charge remains unaffected?

It is known that:

$$1/c = \alpha \hbar / e^2$$

where  $e$  is the charge of the electron,  $\hbar$  is the reduced Planck constant, and  $c$  is the speed of light. One constant is expressed through the other.

One can consult, for example, the table at <http://nuclphys.sinp.msu.ru/misc/constants.htm> (second line):

Symbol	Name	Value
$e$	elementary charge	$1.6 \cdot 10^{-19} \text{ C}$
$1/\alpha = \hbar c / e^2$	fine-structure constant	137.0
$c$	speed of light in vacuum	$2.998 \cdot 10^{10} \text{ cm/s}$
$h$	Planck constant	$6.626 \cdot 10^{-27} \text{ erg} \cdot \text{s}$
$\hbar$	reduced Planck constant	$6.582 \cdot 10^{-22} \text{ MeV} \cdot \text{s}$
$\hbar c$	conversion constant	$197.3 \text{ MeV} \cdot \text{fm}$
.....	.....	.....
	neutron magnetic moment	$1.913 \mu\text{N}$

or via the link (<https://n-t.ru/tp/ns/oss.htm>).

The physical quantity reciprocal to velocity is called tempo. Tempo indicates the time it takes to cover a given distance.

This parameter is clearly a characteristic of an elementary particle — not of an interaction, but of the particle itself. It is explicitly related to the tempo of the speed of light. The question is: what is being traversed within the particle, and how? What could this refer to?

Drawing on the results presented in the previous chapter, we can speculate about what might be changing. When speaking of a “longitudinal wave,” it must be understood that this term is used in an extended sense: it is not a new type of wave, but rather a part of the process associated with the front and the finite “thickness” of the electromagnetic wave. Essentially, it is the same field, considered not separately but as an integral part of the wave itself. Such a view allows us to unify the description of the wave and the field and to propose a quantization mechanism through the identical work done by space in forming each half-wave.

When an electromagnetic wave leaves its source, it alters the energy density in the surrounding space. As it propagates, the energy at the source point gradually returns to its original value, yet it remains altered at a distance  $R$ . This implies that an energy gradient exists between these points, which can be viewed as a **longitudinal energy wave**. In classical physics, this is not typically considered, but that does not mean it is absent. In this work, the phrases “change in energy” or “change in energy density” will be used frequently. Certainly, in physics, these are fundamentally different concepts and must be distinguished; however... The essence of this entire work is that energy characterizes change; different wave frequencies give rise to the concepts of dimensions, each responsible for its own physical quantity. There is an interconnectedness between them, but... in one way or another, this can be called “change,” albeit across different dimensions. Physically, this will be expressed through different numerical values, manifestations, and relationships with the speed of light, but as an action—

metaphorically speaking—it is simply a change, or simply energy, without additional definitions. Therefore, in this work, energy essentially denotes "change" in a general sense.

Furthermore, this work frequently states that the rate of energy change equals the speed of light. This is another simplification: here, the speed of light is mentioned as the ultimate possible velocity characterizing the wave transmission speed. Certainly, when considering, for instance, the energy change in heat transfer, other speeds will occur, dictated by the specifics of the medium itself. However, if we reveal all components of this process and decompose them into a kind of projection, reaching the very foundation, we will ultimately find the same rate of change. Moreover, this model does not introduce any absolute speed limits. For example, even within a single resonant system, when transitioning from one base frequency to another, a jump-like change in the speed of light as a constant will be observed. That is, more often than not, the speed of light will simply be referred to as a certain constant characterizing a specific **resonant world of frequencies**.

One could put it differently: space, initially energy-homogeneous, becomes inhomogeneous after the wave passes. And if energy is redistributed, then a process occurs that can be described as a longitudinal oscillation.

De Broglie put forward the idea that particles possess wave properties, but he did not propose a specific mechanism for their emergence. If we assume that an elementary particle is indeed based on a standing wave, a natural question arises: what exactly creates this wave? If an electromagnetic wave generates longitudinal energy oscillations, then these could stabilize a standing wave, transforming it into a particle. In this case, the particle ceases to be merely an abstract probability wave and becomes a real structure of space, born from wave processes.

When such a structure emerges, it is more appropriate to regard the field as a standing wave — not as a stationary state, but as a process manifested in longitudinal form. After all, from the perspective of energy, it becomes clear: it is energy that forms the stable standing-wave structure, yet energy itself never freezes; it is always in motion.

To reiterate: if the WORLD is wave-based at its core, then resonance is of paramount importance to it. Resonance allows for the observation of elastic interactions between local formations. In such a system, the law of conservation of energy must be satisfied. An equal amount of work (in terms of magnitude) must be expended by space to form each half-wave of a standing wave. For space, the elements resonating with it are equivalent; there is no preferred direction. However, their total contribution must be compensated for. The net work of space remains equal to zero. In this system, space does not lose energy during the formation of particles: energy is distributed symmetrically, and the particles themselves mutually compensate for one another. It naturally follows from this that the number of particles and antiparticles must be equal, as only such symmetry maintains the energy balance. The distinction between matter and antimatter will be discussed further below.

In contemporary physics, it is customary to speak of baryon asymmetry, which contradicts the above assumption about the equality of matter and antimatter. Perhaps the resolution of this asymmetry lies in the very mechanism of motion of matter and antimatter. It is all connected with the structure of the standing wave underlying particles of matter and antimatter. This will be shown in more detail later — at the level of force vectors that determine their different behavior in space. For now, I will only note one thing: matter tends inward, toward the center — toward the black hole. Antimatter, conversely, shows an outward tendency: it moves toward the boundary, where, like matter, it will be processed. This process will be discussed further.

Next, we can proceed to describe the construction of elementary particles. Before doing so, let us make a brief remark: modern physics deals with a multitude of different entities — from point objects and fields to the curvature of spacetime. In the view presented here, there is only one foundation — energy as a process. Everything we see is a manifestation of energy in its various forms. Particles of

matter and antimatter are standing waves of energy in space, generated by an electromagnetic wave, or conversely — both formulations are valid.

The only universal characteristic of all processes is energy. Its peculiarity is that it always changes, is always in motion, is always interconnected, and contains no breaks. That is its nature.

With this approach, it becomes possible to dispense with the effects of space curvature and, for instance, time dilation. In a sense, this allows for a simpler intuitive understanding of the underlying processes, even though the mathematical formulas will contain the exact same elements. That is, the essence of our understanding of the process changes, but the computational language remains the same. Why is curvature observed today? Because all dimensions are interconnected through a common resonance: if there is an increase in one area, there must be a decrease in another. Looking ahead, I will say that this is geometrically linked to the concept of a circle—that is, point – circle – sphere, and so on—something we are not yet capable of fully grasping. Mathematically, yes, but intuitively, no.

Let us return once more to elementary particles. Under certain conditions, in the course of propagation of an electromagnetic wave, a stable structure can arise in which a wave redistribution of energy occurs in the form of a longitudinal wave.

Let us return to the concept of tempo. We need to understand what moves, where it moves, and why the tempo can take the values “+1”, “-1”, and “0” (we divide the tempo by  $\alpha\hbar/e2\alpha\hbar/e2$ , because this whole expression is a constant, while retaining the sign of the charge, which will be very useful to us). For now, let these be merely numbers indicating direction: “+1” means that something is moving at the speed of light in one direction, “-1” means motion in the opposite direction, and “0” means no motion.

We will consider only standing waves, whose mathematics has long been well known. The first variant:

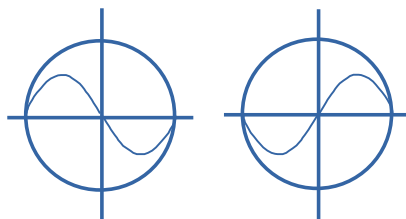


Fig. 1 The first elementary particle, the neutral, neutrino

The wave has one node. The wave goes up once and down once. The result is zero. This is the first neutral particle. Let us suppose it is the neutrino. If a node of the standing wave is located at the center of the circle, the particle will be neutral. With an odd number of nodes the particle is neutral; with an even number it will be “charged”.

The next variant — two nodes:

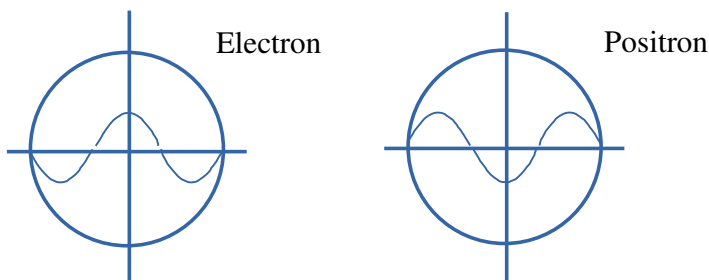


Fig. 2 Electron and positron

Suppose this pair of particles is the electron and the positron. For the electron, the wave goes down twice and up once. Two antinodes are negative and one is positive. If we sum them, we obtain the tempo.

Apparently, it is precisely this process that gives rise to the concept of tempo within an elementary particle. For the electron it equals  $-1$ , for the positron  $+1$ .

Perhaps it is with this process that the elementary charge is associated — more precisely, its reciprocal squared. This is why it is a constant. This holds only for standing waves that can exist indefinitely. It must be remembered that this is not the electromagnetic wave itself, but the wave of energy density distribution in space, which the electromagnetic wave created during its propagation.

This is the first “charged” particle — the electron or the positron, depending on how the half-waves alternate in the internal structure. In this case, the electric charge characterizes the tempo of the wave’s change in space. For standing waves, the tempo is always known; it must be an integer from the set  $-1, 0, +1$ . There are only three values. The parameters that vary are the particle’s radius (the circumference of the circle) and the number of nodes or antinodes. The connection between tempo and charge is evident. I have omitted the numbers; this work is meant to convey the logic.

It is worth noting that for matter, “charged” particles always have a positive value of the change in energy density on the space side at the center. In the center of matter, the energy density increases; a process of compression takes place. For antimatter, it is always negative. The energy of the electromagnetic wave is spent to decrease the energy density on the space side at the center of antimatter. One could say that space expands, but it is more accurate to speak of a decrease in energy density on the space side.

A particle can also be depicted as a circle with different shading. Let the region of increased energy density in space be shown with light shading, and the region of decreased energy density on the space side with dark shading.

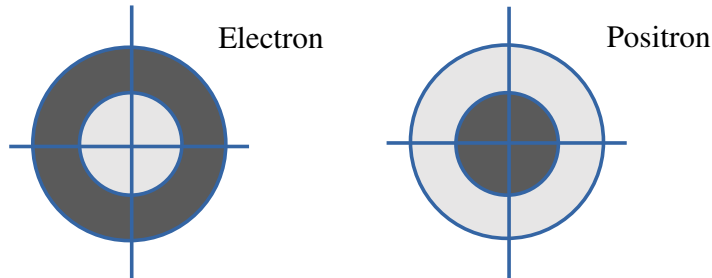


Fig. 3 Electron and positron

The mass of the electron and the positron will be the same. The distribution of energy density will be different. When they are superimposed, the particles will annihilate each other. The standing wave perishes, and the energy of the electromagnetic wave is set free.

The understanding of mass is related to the amplitude of the longitudinal energy wave and to the structure of the resulting configuration. This question is examined in detail in the work “*Model of the Wave Structure of Matter and the Fractal Structure of the Universe*”, freely available at <https://zenodo.org/records/19703486>. As an illustrative example, one can consider a bubble of air in water: it is isolated from the medium and cannot be accelerated abruptly — a certain inertia is observed. In this comparison, mass resembles such inertia arising from interaction with a non-uniform energy density.

Let us try to understand how neutral particles are formed. To begin with, let us depict the very moment of the emergence of a particle and an antiparticle — the neutrino. Their structure is identical; here is what we obtain:

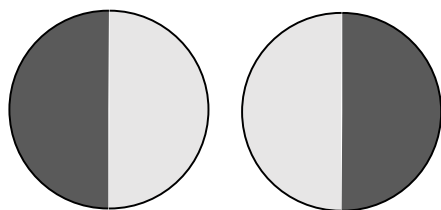


Fig. 4 The birth of neutrinos and antineutrinos

Initially, they are no different from each other. One would expect that the energy density around them, pressing on their boundary, creates equal forces. As long as their central axes have not diverged, nothing special happens. Once their axes move slightly apart, the effect of rotation immediately arises:

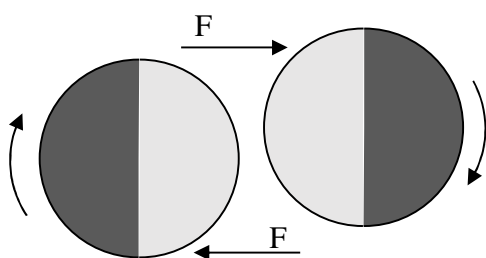


Fig. 5 Occurrence of rotation of neutral particles

All neutral particles will be characterized by internal rotation, which gives rise to the concept of spin. When their relative positions change, the direction of their rotation will change. A neutral particle and its antipode – the antiparticle – will swap places. They are not constant; they are interconnected. The difference between a particle and its antiparticle for neutral particles lies solely in the direction of rotation. It is worth noting that the connection between this pair passes through their common center of mass. They become entangled. If the rotation of one particle is determined, the parameter of the other becomes known as well. However, they can also change their rotation parameters; everything depends on their mutual arrangement. This connection between two particles will give rise to the phenomenon of “spooky action at a distance.” The connection of particles through rotation will not “feel” the concept of distance. Energy associated with rotation loses the sense of scale. The connection is located at a point. Einstein was right in some respects. If you came across a right-handed glove, the second one would have to be left-handed. But in some ways, he was mistaken. A glove can be either left or right. This is more like mittens: if one becomes left, the other becomes right.

The rotational effect of energy in a neutral particle will create a spiral-like distribution of energy density within the neutral particle. Since a neutral particle has increased energy density on one side and decreased energy density on the other, the rotation will cause the energy density in space to distribute itself in the form of a spiral.

The fact of such energy distribution may subsequently aid in discovering the fractality of the Universe.

Let us consider the next possible particle. Let us assume it is the proton and antiproton:

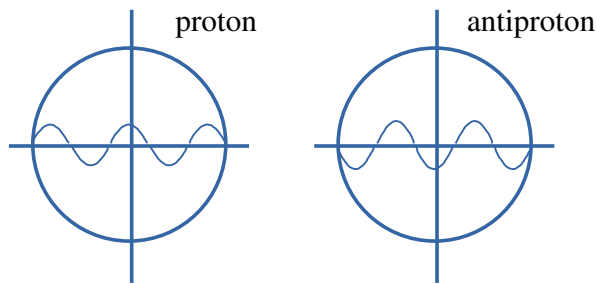


Fig. 6 Proton and antiproton

Stable elementary particles are standing waves with a number of nodes  $n$ , consisting of  $n+1$  half-waves. Each half-wave is a localized region of increased or decreased energy density, created by the invariant work of space  $WW$ . Half-waves cannot exist in isolation, since the stability of the entire structure is ensured by integral resonance. However, in processes with high energy transfer (deep inelastic scattering), the probe “senses” individual half-waves, which in elementary particle physics have been named quarks. It would be more accurate to say that quarks are not individual half-waves, but stable combinations of half-waves that behave as unified objects in interactions. Or, a quark is a quasiparticle corresponding to a localized segment or a set of segments of a hadron’s standing wave. Thus, within the proposed framework, a quark is interpreted not as a point-like fundamental particle, but as a half-wave or a combination of half-waves of a hadron’s standing wave, carrying a certain fraction of the work  $WW$ . Although the work  $WW$  itself is invariant and generates a unit charge, within the internal structure of a particle, due to the alternation of positive and negative waves, it makes sense to introduce the concept of an effective charge of a half-wave or of a more complex structure, which, if the particle possesses a charge, will be distributed among the corresponding half-waves. This approach naturally explains confinement: an attempt to extract a single half-wave destroys the resonance and requires energy sufficient for the creation of a new hadron pair.

### The Emergence of Gravity, Dark Matter, and Dark Energy

For “charged” particles, a certain gradient of density change arises at their boundary. The energy density will either increase or decrease. From this arises the effect of interaction between “charged” particles. Like charges repel, opposite charges attract. This can be explained by the fact that the total energy density of the surrounding WORLD will try to minimize the distortions in particle density created at their boundaries.

One must also not forget what the “charged” particle carries in its center. The difference in the behavior of matter and antimatter depends on this latter factor. For matter, the particle’s center will contain an increased energy density in space compared to the surrounding WORLD, which will lead to the appearance of gravity and the formation of macro-objects. In the case of antimatter, the process will proceed in the opposite direction; all particles will try to move as far apart from each other as possible. However, antimatter will also attempt to cluster at a certain distance from the particles of matter, maintaining an overall balance. The accumulation of antimatter will occur along a sphere.

Let us try to understand the mechanics of the clustering of macro-objects. Suppose there is only one simplest “charged” particle in space – an electron. Let us consider the interaction between the particle and space itself.



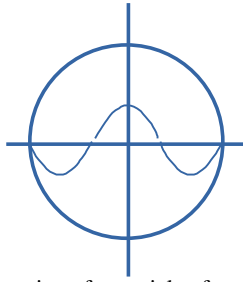


Fig. 7 Interaction of a particle of matter and space

If we consider the particle as a wave (Fig. 7), we can notice that along its edges there are two symmetrical regions of energy change. These distortions of space balance each other, so no external influence from the edges acts on the particle. The main action is concentrated in the central region. For matter (for example, for the electron), it is precisely in the region of the central half-wave that an effect manifests itself that can be described as the tendency of energy to become denser. The surrounding space plays its role in this process: the energy distribution of the medium “supports” the particle, maintaining its configuration in a stable state. It can be said that the formation of a particle is connected with the fact that the energy structure of the Universe tends to localize energy at a certain point. Schematically, the forces of the external space relative to the central particle can be depicted as follows:

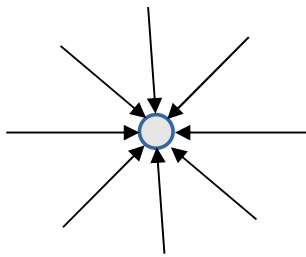


Figure 8 The result of the effect of space on a particle of matter

It is important here to understand how space “reacts” to create such an effect. What happens to the energy density of the surrounding space in this case? We know that forces arise when energy density changes. Consequently, from the particle’s boundary to the boundary of space (a necessary condition for the existence of standing waves), a gradient of energy density is formed that balances the forces. It is precisely the gradient that matters, because it is the change in energy that generates forces. The energy density of the surrounding space is not simply set at an average level — a gradient of density change is created. In the region around a particle of matter, a decreased energy density in space is observed, regardless of the “layers” of the particle itself. This is necessary to balance the changes at its center. The outer layers of the particle shape it as a bounded object, but the particle itself affects all of the surrounding space. The central part leaves an imprint on the state of the environment.

It is this process of changing the density of space itself that will later become decisive in the formation of a black hole. It is this that becomes the cause of the emergence of gravity. This is how the process called the curvature of space originates. Space itself does not change; a gradient of energy density change is observed on the side of space, and this gradient is not uniformly distributed throughout space. Most of it will be in the immediate vicinity of the particle and will fade away toward the boundaries of space.

It is precisely the change in energy density in the surrounding space that will later become decisive in the localization of energy and the formation of a black hole. This process also underlies the

effect called dark matter. The structure of space itself does not change; a gradient of energy density is observed, and it is distributed unevenly: the greatest part is concentrated near the particle and gradually weakens toward the boundaries of space. This is why dark matter and ordinary matter form their filaments. The non-uniformity arises because there is an interaction between regions of different scales — the particle and the entire Universe — yet the interaction remains balanced. As a result, the reaction from space manifests as a wave process, where the maximum gradient is observed closer to the formed matter. This is how the event horizon is born during the formation of a black hole.

The region extending from the maximum of the reaction to the boundaries of space forms the effect known in physics as dark matter. In contrast to this, dark energy also emerges. The two are interconnected. The greater the mass formed as matter, the more the distance between individual large-scale objects — in our understanding, between galaxies — increases.

In cosmology, the network-like structure of dark matter is often discussed, through which matter is distributed in the Universe. In this case, these two entities are interconnected. The “web” is essentially the distribution of space’s reaction to the appearance of matter through the redistribution of energy density. Based on symmetry, this structure forms accumulations of baryonic matter, creating the process we perceive as gravity.

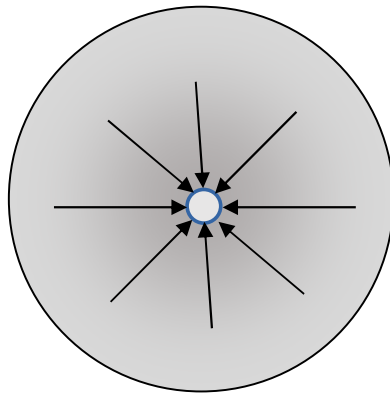


Fig. 9 Change of energy density in a region of space due to the birth of a mother particle

Fig. 9 shows the change in energy density of space around a particle of matter. When two particles interact, the region of change in the energy density gradient propagates through their common center of mass and “envelops” both particles. Around a macro-object, this region intensifies as the total mass increases. In other words, around macro-objects, space is formed with a redistributed energy density in the dimension of space.

When the surrounding energy density reaches values comparable to the energy densities in the outer layers of the particles of matter, the particles lose their distinctness. They “disintegrate,” and the energy is redistributed in a similar manner, but on a much larger scale. This process underlies the formation of black holes. And the very process of black hole birth can give rise to the phenomenon of the fractality of the Universe. Under certain parameters, the resulting object together with the black hole can become an elementary particle the size of a galaxy, in the simplest case. On the other hand, given that matter is capable of grouping, it is most likely that galaxies will represent more complex structures — atoms.

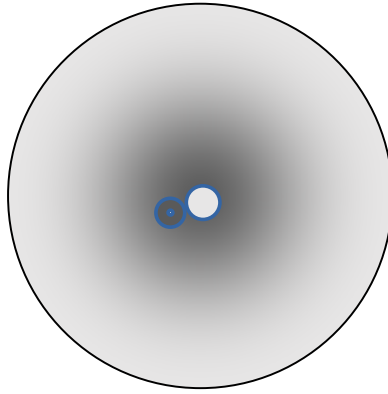


Fig. 10 Disappearance of a particle when it enters a higher density space.

Fig. 10 depicts the moment of disappearance of a particle (for example, a proton) upon reaching the boundaries of a black hole. Due to the equal energy density of space and the particle's outer layer, its boundary ceases to constrain the particle's size, and it "spreads out." It becomes an ordinary electromagnetic wave. Its central part passes into the region of the black hole, while the outer layer passes into the surrounding space. A redistribution of the amount of energy between space and the black hole occurs.

The electron, unlike the proton, has a region of decreased energy density at its boundary, which will cause it, as far as possible, to avoid such dense regions of space. This process may enable the formation of neutron stars.

Let us return to the consideration of particles. Now, having established the forces, we can examine the interaction between particles:

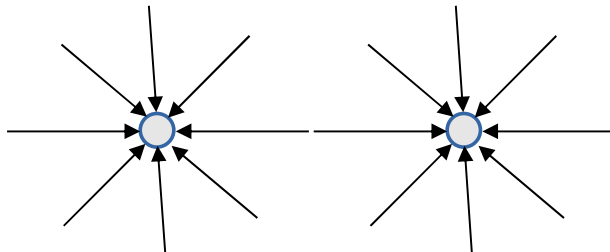


Fig. 11 Birth of gravitational force, formation of macro-objects

From Figure 11 it can be seen that between the particles (in this case, at the midpoint of the distance between them) there will be a point (for two particles it will be a line, but for three or more a point) where the force on the side of space equals zero. This is the place where the gradient of energy density on the side of space is absent. The forces directed from the center of mass toward the particles cancel each other out. Consequently, from the side of space a resultant force appears, directed toward bringing these particles closer together. This is how the force of gravity is born.

If we apply similar reasoning to particles of antimatter, we obtain a somewhat different picture. In the central region of "charged" particles of antimatter, there is a decreased energy density, which creates an effect opposite to the gravitational attraction of matter. The direction of the resultant forces from the side of space changes: instead of tending toward the center of the particle, the forces create the impression that the particle is "pushing space apart" or trying to compress it in the opposite direction. As a result, an interaction opposite to that of matter arises.

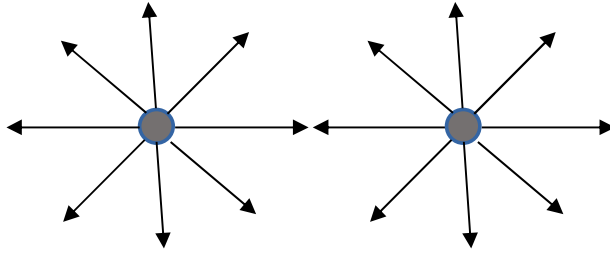


Fig. 12 Birth of antigravity force between antimatter particles.

The opposite picture is evident: since in the center of the antiparticle there is a region of decreased energy density in space, the resulting force is directed not toward the center of the particle but away from it. Consequently, the interaction between antiparticles will manifest as repulsion from each other. By analogy with the phenomenon of dark matter, in this case one can observe an effect of “expansion” or a conceptual analogue of dark energy, when particles tend to move apart.

One more case remains: the interaction between particles and antiparticles:

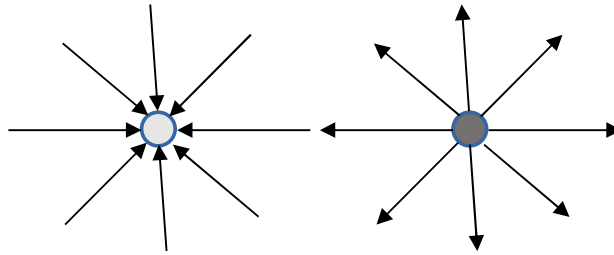


Fig. 13 Particle-antiparticle interactions

If we consider the segment connecting the centers of a particle and an antiparticle, it can be seen that the force created by the antiparticle through its interaction with space is balanced by the force created by the particle for its compression. That is, the direct interaction between the particle and the antiparticle is effectively compensated through the reaction of space. In an ideal case, antiparticles arranged in a sphere around particles of matter balance the non-uniformity of the energy density distribution in space. Inside such an object, a relatively uniform energy distribution is formed. If the “sphere” is not closed, the particles at the center continue to be attracted to the outer particles and gradually merge with them.

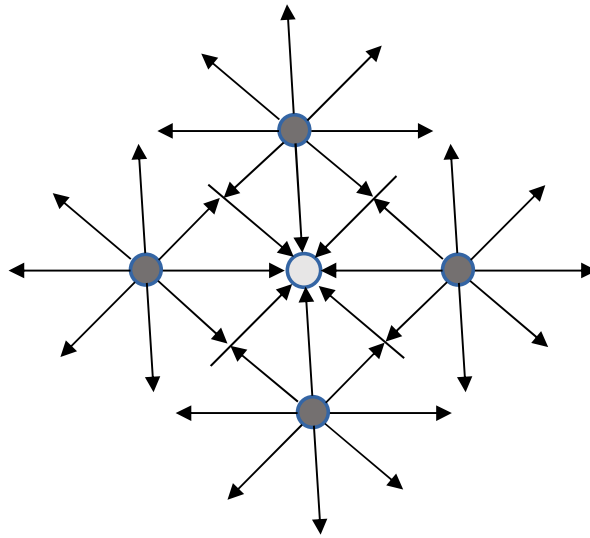


Fig. 14 Redistribution of matter and antimatter particles

A configuration similar to Fig. 14, but with particles and antiparticles swapped, will be unstable. This follows from the fact that particles of matter will begin to cluster together around a common center, while antiparticles at the center of such a system will try to move apart. Such a structure will disintegrate.

When a particle and an antiparticle interact, they will remain at a certain distance from each other. Based on the principles of interaction considered, one can conclude: antimatter does not form macro-objects characteristic of matter. Within the framework of this model, the most it can create is the nucleus of a hydrogen atom.

In reality, antimatter most likely tends toward the outer boundary — toward the event horizon of our Universe, where it annihilates with matter of a larger scale. The phenomenon of the accretion disk at the event horizon of a black hole may be a process of annihilation of our matter with antimatter of a smaller scale, of a lower fractal level. In this way, energy exchange occurs between different fractal levels of the Metaverse.

## Limitation of Space

It was stated earlier that space has a finite size. The event horizon acts as such a limiter, serving as a transition between fractal levels. On one side, matter tends toward it; on the other side, antimatter of a lower order. Why do such limiters arise? Everything considered above is related to the wave process. An important feature of wave processes is resonance, which occurs when the wavelength matches the size of a confined region. Another key parameter is the speed of wave propagation. Naturally, resonance and propagation speed determine the size of the region.

There is an important clarification. In classical physics, it is believed that the properties of the medium determine the speed of wave propagation. In this case, there is no medium as such, and there are no restrictions on speed. Instead, the frequency of the wave process sets the speed of interactions, and the speed of interactions dictates the size at which resonance occurs. In other words, we observe resonant phenomena for our fixed speed of interactions. However, this does not mean that analogous processes with a different frequency and, consequently, a different speed of interactions cannot occur in our space.

## PHOTON

— What is a photon?

On the one hand, a photon is considered a particle. On the other hand, it is never at rest. Why? A photon, as a particle, should be a standing wave, yet it cannot be in a state of rest.

If we look at the structure of particles, we can notice one feature — their center of mass and geometric center coincide. In this case, there is no imbalance of forces caused by the action of energy inside and outside the particle, and the particle can remain at rest.

If the center of mass and the geometric center do not coincide, the particle will constantly be under acceleration, which leads to its motion. It is likely that the birth of a particle at the moment of accelerated motion during its formation can explain the appearance of a photon. This is supported by the fact that photons are emitted by atoms when the excited state of electrons changes.

It is known that photons are formed or absorbed when electrons transition between energy levels. Since the electron has mass, its movement during transitions between sublevels is accompanied by acceleration. It is precisely this acceleration that can create a moving particle — a photon — whose center of mass and geometric center do not coincide.

A mathematical model shows that a photon has no closed shell or boundary, which explains its constant motion. The boundary of a photon has the shape of a parabola, and rotation along the axis connecting the center of mass and the geometric center can explain its spin.

Such a structure allows us to explain many properties of the photon, including the polarization of light, its speed, and processes occurring inside complex systems such as the atom.

## Emergence of Other Forces

As is known, physics distinguishes four fundamental forces: gravity, electromagnetism, the strong nuclear force, and the weak nuclear force. The origin of gravity was considered earlier. Let us try to find the causes of the other forces.

The strong force manifests itself at distances on the order of  $10^{-15}$  m — a magnitude comparable to the size of a neutron. The neutron itself, being a neutral particle, must possess internal rotation of energy density. When such particles approach each other, a confining effect arises — they seem to “penetrate” each other, and this forms a force that holds them together. The process resembles being drawn into a whirlpool.

Remarkably, observed physics shows that a complex nucleus is smaller than the sum of the sizes of its constituent nucleons, indicating an overlap of their internal structures. This agrees with the idea of the origin of the strong nuclear force: the rotation of energy inside particles creates local fields that, upon approach, form a binding interaction. Thus, this concept does not contradict existing observations and offers an intuitive explanation of the nature of the strong interaction through the internal dynamics of elementary particles.

The weak nuclear interaction most likely arises from the overlapping of half-waves of protons within the nucleus. When these half-waves overlap with the participation of the strong force, an effect occurs in which space is unable to compensate for or maintain the resulting configuration without changes. As a result, the process is accompanied by the release of energy — a nuclear reaction takes place. In other words, the weak interaction is the result of a mechanism of superposition of individual half-waves of energy redistribution within the nucleus, which leads to the observed nuclear transformations.

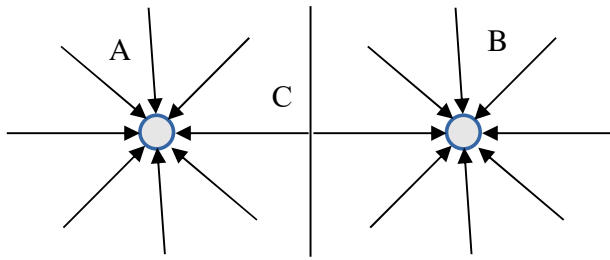


Fig.15 The birth of the electromagnetic force

Let us examine Figure 15 more closely. In space, a straight line is formed that passes through the common center of mass and is perpendicular to the segment connecting the centers of the particles. Along this line, the resultant force in the dimension of space is zero, meaning no change in the density of space is observed. In all other regions, a gradient of change in energy density arises.

If we draw a line through the center of particle A parallel to the line of constant density, then the region to the left of this line exerts an influence on the particle, tending to shift it toward the common center of mass. For particle B, the region to the right of its center is considered analogously. It is precisely this force directed toward bringing the particles together that manifests as gravity.

The internal planes bounded by the same lines, between the particles (from A to C and from C to B), behave differently: here the particles tend to repel each other. At a certain distance, this interaction becomes noticeable, and its strength is determined by the compression of space at the particles' centers. This effect corresponds to the manifestation of the electromagnetic force, which in this context acts against gravity.

Thus, we observe a confrontation of two forces: gravity, which tends to bring particles together, and the electromagnetic force, which tends to separate them. The central point of the interaction is the common center of mass.

It is worth noting that the gradient of internal energy change (electromagnetic force) is significantly more pronounced than the energy change gradient associated with the emergence of gravitational force. This explains why gravity is so much weaker than the electromagnetic force. It is fair to state that gravity will be the weakest of all because its gradient arises against the background of the entire scale of the Universe, whereas other forces manifest as a result of a much smaller scale while performing the same amount of work.

When the number of interacting particles increases to three or more, the line of zero energy-density gradient transforms into a sphere in the dimension of space. It is this sphere that will later become the event horizon, coinciding with the process of space's reaction to the formation of macro-objects of matter discussed in the previous chapter.

As the number of interacting particles grows, the electromagnetic force gradually weakens in the region of space, because the energy of the electromagnetic wave is "smeared out" within the dimension of space. As a result, the distance between particles decreases, and the uniform energy density in the dimension of space begins to change.

This confrontation of the two forces — gravity and the electromagnetic interaction — shapes all known physical phenomena. It creates temperature through chaotic motion and the constant shifting of the common center of mass as particles interact. Thanks to this, various states of matter arise, magnetic properties emerge, and many other physical effects manifest.

## Measurements

The question of dimensions is one of the cornerstones in the understanding of the world. It is significant not only for physics but also for philosophy, where it touches upon the nature of perception and existence.

Three works are devoted to this topic:

- “The Birth of Dimensions as a Consequence of Fractal Resonance” – <https://zenodo.org/records/19695379>
- “Hypothesis of Wave Equilibrium: The World as a Wave Equilibrium of the Zero State” – <https://zenodo.org/uploads/19307384>
- “The Unity of the Wave: Matter, Energy and Consciousness as Aspects of Frequency” – <https://zenodo.org/records/17432603>

In them, an attempt is made to describe the structure of the world through wave processes. For the wave itself, the concepts of space, time and mass are not mandatory — they can be merely forms of its interactions. A wave can exist even at a point, as a process of energy change. It is itself a source of time, while the interaction of waves with each other creates interference patterns, where differences in frequency and phase shifts manifest. An interesting case is when one frequency exceeds the base frequency by a factor of the frequency itself. Such a process can be characterized as the appearance of a wave relative to the original wave. The base wave “freezes” in front of the second one. This process is able to preserve the concept of balance — that from which the WORLD arose. This process can also explain how we perceive the world geometrically. Geometrically, each new dimension is the result of rotation about a center according to certain rules. The number of nested such processes relative to the base frequency can be regarded as the number of dimensions. Thus, the familiar categories — time, space, mass — can be considered as manifestations of interacting waves. And mathematically, this process has no limits.

Here I would also like to note that since the concept of space is related to the concept of frequency, for the emergence of standing waves the concept of bounded space ceases to be necessary. A standing wave is connected only with the concept of resonance. Size and boundedness arise from the concept of frequency.

Today in physics it is customary to speak of four dimensions: three spatial and one temporal. Why exactly that? Most likely for the following reasons:

1. With spatial dimensions, everything is clear – length, width and height.
2. Time. It is believed that there is a concept of the arrow of time, which always moves forward. There is also the concept of the curvature of space, which characterizes the phenomenon of mass. In this case, it turns out that three chosen parameters are quite sufficient. Which is logical.

In mathematics, a dimension is the number of independent directions in which one can move. In physics, a dimension is a quantity that can be quantified using a physical magnitude.

In general, what is currently accepted as dimensions in physics is quite sufficient. This is an absolutely correct approach.

But I think that, based on the possible principle of forming an interesting dependence – a wave upon a wave – one can build a different differentiation of the formative connections of various frequencies. The most interesting thing is that geometrically, for example, we clearly see that the formation of volume in space is associated with the emergence of the concept of mass. Moreover, ideally this object, under the action of the surrounding space, tends to a sphere, to an ideal shape.

It is worth noting that, for now, putting aside the arrow of time:



- Time:
  - Present
  - Past
  - Future
- Space:
  - Length
  - Width
  - Height
- Mass, characterized by the parameters of a sphere, one might say the result of an electromagnetic wave – let me simply list them using spherical coordinates:
  - radial distance
  - zenith angle or polar angle
  - azimuthal angle

It is amazing that everywhere there are three parameters (three coordinate axes). Essentially, if we have three basic frequencies connected by resonance and take into account the presence of a source – a point – then through resonance they will all be connected, i.e., have three connections each. One of the frequencies will be the fastest, capable of “probing” everything else, geometrically appearing as a circle. Everything else will be straight lines and a point for it. We get space and a point – the reference for time.

A little more philosophy. The arrow of time undoubtedly exists, but everything is relative in a sense. Consciousness is capable of the following actions: to imagine its future, designating what it strives for. Based on this, to perform the necessary calculations, then the necessary actions, and ultimately achieve the result. If we now analyze this situation, we can say that from the perspective of consciousness – we, being in the future, influenced the present in order to change the past.

Yes, the material world has an arrow of time; it has no choice. But consciousness can change that. Since physics today does not cover the realm of consciousness, the rule adopted for time in physics, as an arrow, is absolutely correct. But for consciousness, it is not so. Therefore, in the general case, if we are not limited only to the material manifestation of this WORLD, it is quite possible to broaden the understanding of dimensions without violating any laws.

Traveling through time in bodily form is most likely possible only in a given direction. But consciousness initially possesses the ability to perceive all its manifestations.

Thus, one can arrive at a somewhat different understanding of dimensions and coordinates. Dimensions are associated with the manifestation of the phenomenon of a wave upon a wave. And the connections of interaction between them reflect the concept of coordinates in each dimension. Since the source is one common, the number of dimensions and the coordinates describing them will be the same. For three dimensions – three coordinates for describing each connection. For four – four coordinates.

## Consequences

The transition from a point-based model of matter to a wave-based one, from a static field to the dynamics of energy, changes not only the language of description but also our very understanding of what we call reality. The proposed view does not reject the achievements of modern physics; rather, it allows us to reassemble its picture around a single principle — the wave, resonance, continuous change. From this, consequences follow that concern not only the microcosm but also the structure of consciousness and how we perceive ourselves in this world.

**On the unity of matter and field.** In the proposed model, the artificial boundary between substance and field disappears. What we are accustomed to call a particle is a standing wave, a closed node of energy dynamics. What we call a field is the external projection of the same internal dynamics — its “trail” spreading through space. The difference between them is only a matter of degree of localization and stability. This means that the world is inherently whole, and its division into “objects” and “interactions” is a convenient but conditional way of description imposed by our perception.

**On the nature of mass and charge.** Mass ceases to be a mysterious inherent property. It arises as a measure of the inertia of a localized wave node — the resistance that the internal energy dynamics offers to an attempt to shift it. Charge, in turn, turns out to be a geometric characteristic of this node: the energy density gradient at its boundary, a constant deformation of the medium that does not depend on the velocity of the node. This is why charge remains unchanged at any speed — it is “built into” the very structure of the standing wave.

**On quantization and stability.** Why are the masses of elementary particles discrete rather than continuous? The answer lies in the properties of resonance. A standing wave can be stable only under strictly defined ratios between its dimensions and wavelength. Just as a guitar string produces only certain notes, a wave node in space can exist only at “allowed” frequencies. This explains why there are exactly four stable types of matter particles (and four antiparticles) — as many harmonics as can be sustained in a closed wave system under the given boundary conditions.

**On the speed of light and resonance.** The constancy of the speed of light is not an accidental constant but a consequence of the fundamental resonance on which our world is built. The frequency of the wave process determines the speed of interactions, and the speed of interactions in turn determines the scales at which resonance is possible. In other words, we live in a “resonant layer” where the limiting speed is fixed, but this does not exclude the existence of other layers with different speeds.

**On dark matter and dark energy.** The proposed model interprets dark matter as the region of the energy density gradient extending from the maximum reaction of space to its boundaries. It is not a substance but the very “structure” of space reacting to the presence of matter. Dark energy is the opposite reaction: compression in one place entails expansion in another, in accordance with the conservation law. Together they form a single mechanism linking local energy condensations with the global dynamics of the Universe.

**On black holes.** In this model, a black hole is not an object but a node of transition between fractal levels. At its center, familiar spatial dimensions lose meaning, for it is a point of resonance connecting our scale with another, deeper level of reality. Accretion disks, jets, gravitational waves — all these are manifestations of how energy is redistributed between levels while maintaining overall balance.

**On quantum entanglement.** If a particle is a rotating wave structure, then its connection with a paired particle occurs through a common center of rotation. For this type of connection, distance does not matter: energy is concentrated at a point, and a point has no size. This is why a change in the state of one particle instantly affects the other — not because a signal traverses space, but because both particles remain linked through a single resonance node.

**On geometry and the number  $\pi$ .** The sphere, the circle, the number  $\pi$  — these are not mere mathematical abstractions. They arise from the very nature of the wave process, from how energy is distributed along a closed path. The irrationality of  $\pi$  makes it fundamentally impossible to calculate exactly the processes that proceed along a sphere; we are always forced to work with approximations. This reminds us that absolute accuracy in understanding the world is unattainable — and this is not a flaw but a property of reality.

## On the Nature of the Medium and the Geometric Determination of Motion

Within the context of the presented model, it is necessary to clarify the question regarding the existence of a "medium" for the propagation of wave processes. For a system that exists within a wave process and is an integral part of it, the question of the physical properties of the medium as a separate, distinct object is devoid of practical meaning. As a collection of resonant wave structures, we fundamentally lack the methods or instruments to "look from the outside" and measure a medium that is distinct from the energy itself.

In this mapping of reality, **energy is primary and self-sufficient**. Everything we perceive as physical reality—mass, time, space—is a derivative of the dynamics of this energy.

The key factor that precludes a state of static rest in the Universe is the fundamental geometry of space. In the transition from linear parameters to spherical (volumetric) structures, the factor of the number  $\pi$  inevitably arises. Being irrational, it points to a fundamental impossibility of an ideal, completed "packaging" of a wave into a closed sphere.

This leads to three fundamental conclusions:

1. **The Impossibility of Statics:** The geometric incommensurability of linear and spherical coordinates creates a constant "remainder" or "error" during the formation of a standing wave. This forces energy to remain in perpetual motion. Energy cannot stop, as there is no point of ideal geometric equilibrium.
2. **The Birth of Dimensions:** The impossibility of precisely closing the system within three dimensions forces energy to transform, giving rise to new physical quantities. What we define as mass or time is a method of compensating for this geometric non-closure.
3. **The Nature of Constants:** Fundamental physical constants (including the speed of light and the relationship between mass and energy through its square) are not random numbers, but coefficients of this geometric transformation. Specifically, the quadratic dependence of energy on frequency when transitioning to mass reflects the shift from the linear density of a wave to its volumetric, "collapsed" configuration.

Thus, the world does not require an external "engine." The very structure of space, permeated by irrational ratios, is the cause of the infinite process of energy transformation that we call Life and Matter.

## Derivations and Fundamental Physical Manifestations

The principles outlined above give rise to many well-known physical concepts and characteristics.

### The Uncertainty Principle as "Geometric Jitter"

In classical quantum mechanics, uncertainty is a fundamental limit of precision. In this model, it can be interpreted as the impossibility of static fixation.

- **Thesis:** Since a wave cannot perfectly "close" into a sphere due to the irrationality of the number  $\pi$ , it always possesses a microscopic "shift" or phase remainder.
- **Corollary:** Any attempt to measure a precise coordinate (to freeze a moment in time) contradicts the irrational nature of motion. A particle "jitters" not because of measurement

limitations, but because its geometric form is a process of continuous completion of  $\pi$  iterations that never end.

### Spin as a Result of the "Unclosed Circle"

Spin is often represented as rotation, but an alternative interpretation arises here.

- **Thesis:** If a wave, describing a circle, does not return to the exact same starting point (due to the irrational ratio of circumference to radius), an effect of "twisting" or internal energy circulation occurs.
- **Corollary:** Spin is the measure of this geometric non-closure. It is a "vortex" generated by the fact that energy is forced into a new cycle, unable to come to rest at the completion of the first.

### Quantization as the "Selection of Stable Iterations"

Why does the world consist of discrete particles rather than a chaotic "soup" of waves?

- **Thesis:** Amidst a constant irrational "shift," only those configurations (standing waves) that are closest to resonance survive.
- **Corollary:** Quantum levels are "islands of stability" in an ocean of geometric chaos. Nature selects those frequencies where the " $\pi$  error" is minimally destructive to the structure.

### The Second Law of Thermodynamics (Entropy)

- **Thesis:** The arrow of time and the increase in entropy are driven by the continuous flow of energy resulting from the impossibility of reaching static equilibrium.
- **Corollary:** The Universe "cools" and expands in an attempt to find the very equilibrium that is geometrically prohibited by the number  $\pi$ .

### The Golden Ratio as an Algorithm for Chaos Minimization

Under conditions where ideal spherical packaging is impossible, energy seeks the most stable (efficient) distribution.

- **Thesis:** Since the number  $\pi$  prevents the closure of a cycle and the achievement of static rest, a dynamic system seeks a configuration with minimal mutual overlap of wave fronts. In mathematics, such "optimal packaging" over iterations corresponds to the irrational number  $\Phi$  (the Golden Ratio).
- **Corollary:** Fractal structures—from plant phyllotaxis to the spiral arms of galaxies—tend toward forms based on the Fibonacci sequence. This is not a random aesthetic choice by nature, but a physical necessity. The only way to organize the "energetic chaos" generated by the irrationality of  $\pi$  is to build the structure according to the principle of the Golden Ratio. This serves as a bridge connecting the pure geometry of space with the morphology of observable matter.

I believe this concludes the second section. One small assumption, based on the existence of a process such as a longitudinal wave — the "trail" or thickness of an electromagnetic wave — could provide answers to many unresolved questions in modern physics. For mainstream physics, this is

unacceptable due to Maxwell's equations. For alternative physics, this approach will be unpalatable because it lacks the "ether."

In the first section, I mentioned that I could not accept any single religion. All of them carry immense positive potential, yet also much that I find difficult to embrace. The same applies here: neither camp of physics provides a logically complete picture. Each holds a piece of the truth in its arsenal. The first focuses on the *essence*, the second on the *process*.

The fact that my primary professional activity is unrelated to these studies has influenced my freedom of choice. Remaining independent of the system allows for a certain "intellectual liberty." Most likely, my choices will not ruin my career; perhaps the follies I utter will not be met with sideways glances from those around me. It is easier for me to speculate when there is no pressure from the system.

From my perspective, modern official physics views processes through their projections. Quantum mechanics examines processes in the plane of electromagnetism, while General Relativity (GR) does so in the plane of gravitation. An interesting pattern emerges: GR is responsible for the "plane" itself, while quantum mechanics, by introducing "illogic," managed to cover everything up to the GR plane. There is no unifying element, no connection, no overarching process.

Take, for example, the study of gravitational waves. To oversimplify: they propagate from the source to us at the speed of light, but upon detection, the concept of a "process" vanishes — everything appears instantaneous. Similarly, the ability to describe a **singularity** disappears. Why? I believe it is because a singularity is a **process**, not a frozen essence. Yet it is precisely this "process" that has been discarded from physics. It is the missing link.

If we simplify this understanding further, moving from planes to coordinate axes, then from a mathematical standpoint, it makes sense to say that we see two distinct directions for describing the WORLD. Moreover, we see that one does not follow from the other — a characteristic of coordinate axes. Therefore, they must be orthogonal to each other. If quantum mechanics is the offspring of the electromagnetic wave, and that wave is transverse, then what must be the opposite of transversality? I believe the answer to this question will resolve the problem of unifying the two.

## SPIRIT and MATTER

I made an attempt to construct a mathematical model of the wave structure of matter. The work is available at <https://zenodo.org/records/18937231> (*Model of the Wave Structure of Matter and the Fractal Structure of the Universe*). The ideas are original, and their foundation is set out in the present work. AI was used to give the text an academic style.

Using nothing but the constant speed of light and the constant  $\pi$ , the following was obtained:

- the possible number of stable elementary particles: 4 matter and 4 antimatter;
- the mass, size, and wavelength of elementary particles;
- the value of the elementary charge;
- possibly, the fine-structure constant is a manifestation of the force of gravity on electrostatic interaction, a kind of viscosity coefficient. If this constant is indeed constant within our Universe, it may be related to the level of fractality;
- using a fractal formula and the theoretically calculated parameters of the neutron (mass and size), scaling to a larger fractal level yields values quite close to the parameters of the Milky Way. I do not rule out that this may be mere numerology, but the probability of two parameters coinciding simultaneously is rather low;
- a value quite close to Planck's constant was obtained — again based solely on the speed of light. This was only an observation. In this case one could say it is most likely a result of numerology; the value arose by chance from looking at the numbers. Nevertheless, I suspect it did not appear for no reason, and a possible explanation is offered. If this is indeed valid, then this point can be used to support the viability of the proposed wave model of the structure of matter.

The work contains many shortcomings, including the fact that dimensional analysis is not used in the calculations, which is fundamentally incorrect in physics. However, in this case, I consider this approach to be justified. The reason is that the work is based on a possible framework for the formation of such a concept as a dimension. This issue is examined in the paper “*The Emergence of Dimensions and the Perception of Fractality*,” available at <https://zenodo.org/records/19695379>. The essence of the proposed approach links the emergence of dimensions to the concept of frequency and to the formation of a phenomenon that can be described as waves upon waves. If the base frequency is taken to be  $v_0$ , then a sequence of the form:

$$v_n = v_0^{2^n}, n \in \mathbb{N}$$

gives rise to the formation of a nonlinearity in perception, which is precisely what constitutes the emergence of the concept of dimensions. Therefore, with a properly constructed mathematical framework, the use of such a concept as dimensions, from the standpoint of frequency, is not of fundamental importance.

Nevertheless, in the calculations based on the derived formulas, values from the SI system of units were used. Therefore, at the present stage, this may not be such an incorrect approach.

The previous two parts consider entirely different planes of our existence. The first concerns the SPIRITUAL WORLD, while the second addresses the PHYSICAL or MATERIAL WORLD. Although humanity has become accustomed to separating them, one cannot help but notice certain similarities between them. There appears to be a common foundation, as well as some analogous

structural formations. In this part, an analysis will be carried out with an attempt to identify parallels between these two WORLDS.

### **The Physical Structure of Particles**

Elementary particles have an interacting wave structure. An electromagnetic wave, propagating along a sphere, creates a field in space — a longitudinal wave of energy that links the individual components of the particle. The center of mass can be regarded as a point — a source of energy and force. The spatial confinement of this energy creates the perception of mass, distinguishing the object in the surrounding space, while at the same time it coexists with it, being in constant interaction.

### **Human Being and Consciousness**

Human consciousness is connected with a “point” — the feeling of the “I” being here and now, which is an analogue of physical time. At the same time, the “I” is a source of force. The subconscious reflects accumulated experience — an analogue of size in the physical world. Self-reflection, the ability to be aware of one’s thoughts, emotions, and motivations, is an analogue of an electromagnetic wave — observation from the outside, around. All three components together create the Personality or Mind. At the same time, although the Personality is spatially separated from the surrounding WORLD, an indissoluble, constant connection is nevertheless formed between them. Personality is a kind of elementary particle of the SPIRITUAL WORLD. Intuition is based on this interaction. It is the result of the RESONANCE of the SPIRITUAL DIMENSION.

### **Dimensions of Personality**

Above, possible variants of the structure of elementary particles and the structure of Personality have been described. It is difficult not to notice a certain similarity in their makeup. There is a point, there is a size, and all of this has an outer spherical boundary in relation to the UNIVERSE. The foundation of both is energy, change. Of course, there are differences in physical terms — no one has yet registered consciousness as a kind of substance, and it may lack an understanding of the arrow of time. No one is saying that there are no other differences, but that is not the point. What matters is what is common, what is similar:

- the point — the center of mass and the “I”;
- size — space and the subconscious;
- the spherical boundary — the electromagnetic wave and self-reflection.

We have already spoken about the “I”. The subconscious is space. This conclusion was drawn because the subconscious can be understood as a size — our automatism, which is built up over the course of our entire life. It can often be mistaken, but it serves to relieve our consciousness of routine work. The subconscious does a great deal, but decision-making often occurs without an analysis of the whole external situation.

Self-reflection gives rise to a process that does not merely involve carrying out simple tasks, but rather a constant study of external and internal changes in perception. A certain common resonant state of the relationship between the Personality and the WORLD is found. The Personality does not expect predetermined rules of behavior or reaction from the WORLD, but carries out a kind of scanning. After

this, taking into account inner impulses, interaction takes place. This somewhat resembles inertia, which is a characteristic of mass.

In psychology, there are quite a few ways to study and describe Personality, but I would like to propose an alternative — an analogy drawn from the approach used in physics.

Let us examine this using the example of space — the subconscious. What do we know about space from physics? It is defined by three coordinates — x, y, and z, or length, width, and height. These coordinates are related to each other by an angle of 90°. Theoretically, any object can be rotated relative to space at different angles, yet the internal vectors of the coordinate axes remain subject to certain rules.

Now let us try to apply the same principles to the subconscious.

The first thing that comes to mind is that the subconscious is inevitably connected with **fear**. Fear is something that operates automatically, often without the involvement of consciousness. The same can be said of reflexes. Therefore, fear can be regarded as the **first coordinate axis** of the subconscious.

Second: the second axis must be **independent of fear**, otherwise the system would become degenerate. This axis must define a direction that is not based on reactions but on conscious attitudes. Such an axis, in my view, could be **life values**. They are formed under the influence of family, upbringing, education, and society. Sometimes it is precisely values that compel a person to act **against fear**, overriding its instinctive limitations.

Third: we need to determine the final coordinate. At the beginning of my reflections, I spoke about **striving**. It arises as a result of the interaction of the first two coordinates — fear and values. **Striving** is a derivative of their relationship, the direction of movement determined by their mutual influence.

Thus, the **subconscious** can be viewed as a three-coordinate system whose axes are **fear**, **life values**, and **striving**. It is not yet clear in what units these quantities could be measured, but the logic of such a structure seems quite sound.

By analogy, the **super-consciousness** can be considered in a similar way, emerging as a result of **self-reflection** — a process akin to an electromagnetic wave, uniting the three dimensions into a single dynamic field.

There is another very interesting feature — consciousness is three-dimensional, and the physical world perceived by consciousness is also three-dimensional. Perhaps this is no accident. Perhaps the awareness of the **WORLD** depends on the level of development of consciousness. But most likely an overall connection is formed. Consciousness is given that level of the physical **WORLD** which it is capable of perceiving. It is quite possible that this process may proceed smoothly, evolutionarily. Surely much else must change in the human body for consciousness to reach a new level.

## The Meaning of Life

This question was examined in great detail in the first part. If we answer the question of what the purpose of life as a process is, the answer is quite unambiguous — development. For us as beings of the third dimension, development consists in cultivating intuition. The **WORLD** gives us the opportunity to develop — and it is only up to us whether we take this opportunity or sink to a lower level.

I do not think there are simple ways to achieve this. The process depends on the development of consciousness and the subconscious. Our world is constantly becoming more complex and faster. Most likely, this is a very long process. The source is our “I”. Its ability to create the necessary level of



different frequencies that enter into resonance and to distribute energy among them allows the elementary particle of the SPIRITUAL WORLD — the Personality, the Mind — to take shape.

This path cannot be traversed in an instant: it requires experience, mistakes, and the accumulation of knowledge. Only under certain conditions does an integral structure of personality emerge.

This process can be considered by analogy with the emergence of elementary particles — perhaps their structures will be similar. For the third dimension, it is possible that four stable types of particles and four antiparticles exist. Studying Personality from this angle is, of course, difficult, but drawing parallels is quite feasible. Self-reflection can reveal inflection points; knowing their number, one can judge the type of “particle”. Perhaps psychology in the future will be able to determine personality types using a similar approach. These points can be identified by analyzing the three coordinates of the subconscious — fear, life values, and striving.

For my own analysis, I chose the axis of fear — it is the most pronounced in me. Fear is the basis for the emergence of human vices. Examining myself, I discovered at least three inflections associated with vices — pride, greed, and anger. These are the places of inner tension that I now feel compelled to watch closely.

If these reflections are correct, then by analogy with the physical WORLD, I represent an analogue of a neutron (or an antineutron, which, in a sense, is the same). The neutron is a very interesting entity — it is universal, able to interact **without destroying**, whether with matter or antimatter. At the same time, it has a sufficiently large mass, allowing it to influence what happens around it. Its main feature is unification. Under certain conditions, it may decay.

In the end, one can say that our vices are both weaknesses and points of growth. Under certain conditions, they become a source of strength and development. Everything depends on the environment. Man is like light: by interacting with others, he can move to the next stage — to a state corresponding to the formation of particles.

## Forces in the Dimension of Consciousness

In the study of the physical world, science introduces the concept of forces of nature. There are four known forces:

- electromagnetism;
- strong interaction;
- weak interaction;
- gravity.

It makes sense to find their analogues in the dimension of consciousness.

**Gravity.** Its characteristic is the cumulative effect. The phenomenon of antigravity has not yet been experimentally confirmed, although what else could dark energy be if not evidence of it?

What in the dimension of consciousness could play the role of gravity? What could be characterized not always by a particular strength, yet possess a cumulative effect? Perhaps it is our fears? As humanity develops, there are more and more paths for them to arise. People can react to emerging fear in different ways — some submit to it, others go against it. This may depend on the action of other forces.

**Electromagnetism.** Gravity always contends with this force. I believe that **Faith** can be singled out as the analogue of electromagnetism. It is a force that gives impulse and direction. In physics, electromagnetism is orders of magnitude stronger than gravity; likewise, Faith can overcome the pull of fear, changing the trajectory of consciousness. Faith is not necessarily religious — it is an inner confidence, a vector that allows consciousness to break free from the inertia of the material world.

Electromagnetic fields can not only attract but also strongly repel. We observe the same in the world of faiths: different structures either unite or enter into fierce opposition.

**Strong interaction.** For this role in the dimension of consciousness, **Science** fits best. In the microcosm, this interaction holds the structure of the nucleus together, preventing it from disintegrating. In consciousness, Knowledge acts as the “glue” of reality. It structures faith, making it stable and logically grounded. Knowledge complements faith, transforming it into experience and creating a solid foundation for personality.

**Weak interaction.** In physics, it can change the “flavor” of particles during close contact without destroying the basis of the particles themselves. This is the subtlest force, manifesting at the level of communication with close people. In life: within the radius of trust, we allow ourselves to be different. We may disregard rigid principles (the strong interaction) for the sake of resonance with a close person. Close people are part of our structure where we allow our consciousness to change its settings, while remaining ourselves to the rest of the world.

A question may arise: why is Faith singled out as electromagnetism rather than Science? Here the matter is one of principle. The key point is that science, for all its diversity, remains non-contradictory in relation to itself, which cannot be said of faith.

- **Strong interaction (Science) and stability:** in physics, the strong interaction must be coherent and “unified”; otherwise the atomic nucleus simply could not exist. If different branches of science fundamentally contradicted each other, the “glue” of reality would cease to hold the structure of personality. This is precisely what allows the analogy to Science.
- **Electromagnetism (Faith) and polarity:** electromagnetic fields can not only attract but also strongly repel. The contradictory nature of different faiths explains “social magnetism”: why some groups of people instantly unite, while others enter into fierce opposition. This gives Faith a dynamism that stable Science lacks. It is this analogy that allows Faith to be cast in the role of electromagnetism.

Observing what happens to matter, one can foresee the process of development of the spiritual world. We see that matter tends to unite from the periphery toward the center of the galaxy, toward the region of the black hole. What do we observe there? Gravity is balanced by electromagnetism. If we now transfer this to the dimension of consciousness, then fear and faith (including knowledge and experience) balance each other. In this case, a transition occurs, or the birth of a new dimension.

## The Soul

The answer to this question is not trivial. Throughout life, we speak of a person as having a soul, and also as having consciousness. Thus we see that soul and consciousness are not the same thing.

It is said that the soul is the source of life. The material body, as a form of the physical WORLD, is the result of the generation of energy, with its source at the center of mass. Consciousness is likewise connected with energy, with its own source — the “I”. For energy located at a point, the concept of distance does not exist. The connection between body and consciousness in the dimension of space is possible through the center of mass of the body.

The soul is the very mechanism of connection between WORLDS. It cannot be weighed. It is simply a transition.

In this sense, one can say that everything in this world has a soul. Given that there is only one force in this WORLD, the statement “EVERYTHING IS MADE WITH LOVE” is likewise true.

## The Connection Between Consciousness and the Brain

Modern brain research shows that brain activity is governed by rhythms of various frequencies. However, the frequency nature of consciousness remains unclear: the recorded electromagnetic waves have extremely low frequencies (up to hundreds of hertz), which is incommensurate with the scale of the information processes occurring in the psyche.

The work “*The Unity of the Wave: Matter, Energy, and Consciousness as Aspects of Frequency*” suggests that reality is a system of interconnected waves, where the material and spiritual worlds differ in frequency. Presumably, the emergence of dimensions is associated with the process of forming a wave relative to the original wave, i.e.

$$v_n = v_0^{2^n}, n \in \mathbb{N}.$$

If we take a closer look at brain rhythms, we can discover a very interesting pattern that may lead to the conclusion that consciousness can indeed be a separate entity.

Physiology distinguishes five main ranges of brain waves:

Range	Frequency (Hz)	Primary Function	Interpretation in the Wave Model
Delta ( $\delta$ )	0.5–4	Deep bodily processes	Subconscious (base wave)
Theta ( $\theta$ )	4–8	Transitional states, intuition	Channel of communication between levels
Alpha ( $\alpha$ )	8–13	Balance, inner attention	Consciousness (stable level)
Beta ( $\beta$ )	13–30	Active perception, thinking	Interaction with the external world
Gamma ( $\gamma$ )	30–100	Integration, insight, coherence	Superconsciousness, resonant phase

Within the framework of the wave model, these ranges can be seen as interference layers. The true frequencies of consciousness may differ from those of the physical range, but their interaction with the material medium of the brain creates a low-frequency projection perceived as EEG activity.

In other words, brain waves are a picture of the superimposition of spiritual frequencies onto a physical carrier, analogous to the interference pattern of light on a screen.

Consider the delta range (0.5–4 Hz). Squaring the boundary frequencies yields the range 0.25–16 Hz. This is closest to the alpha range (8–13 Hz), but there is no exact match. This may be explained by the fact that consciousness is not initially a perfectly coherent structure, so some fluctuations are possible.

Now let us perform the same operation with the alpha range (8–13 Hz). Squaring gives the range 64–169 Hz, which is quite close to the gamma range (30–100 Hz). Discrepancies are indeed observed, but overall the pattern:

$$v_n = v_0^{2^n}, n \in \mathbb{N}$$

can be discerned. That is, for the boundary frequencies of brain activity, a relationship described by this formula is observed.

It is possible that the observed brain wave ranges are not the primary frequencies of consciousness, but derivatives of the interaction between two world frequency systems. Therefore, the relationship between the ranges (delta, alpha, gamma) corresponds to an interference pattern that should also obey the rule

$$v_n = v_0^{2^n}, n \in \mathbb{N}.$$

A paper was written on this topic: “*Consciousness as a Wave Structure: A Possible Connection Between Brain Frequencies and Perception Frequencies*” (<https://zenodo.org/records/19332683>).

## Esotericism and the Paranormal — Through Analogies

Resonance can explain many things, including the “universal database of the Universe” that so many people speak of. This is not some separate entity, but rather the connection between everything in this world. It is not a library, not a hard drive, not an ether where all thoughts are recorded. It is **pure connection**, and resonance is **relationship**.

Everything in this world is interconnected: some things or beings are larger, others smaller. Some connections are very strong, others are insignificant. With certain skills, by influencing an object or subject, one can understand its overall interconnection with the world. Apparently, this is how the phenomenon of clairvoyance can be explained. Their influence / study most likely resembles the influence on a gyroscope. An attempt to “displace” an object will show us its peculiarities — rotation. This is a kind of determination of connections.

A gyroscope does not say, “I store information about direction.” It **manifests direction** through resistance to displacement. In the same way, resonant connection manifests through **reaction to disturbance**.

If two people are connected by resonance (familial, emotional, meaningful, through fear...), an attempt to “displace” one will evoke a response in the other. This is not telepathy in the mystical sense. This is the **physics of coupled systems**.

With certain skills and, possibly, a certain structure of the human body, as well as, most likely, the ability to “tune the frequencies of one’s consciousness,” clairvoyants are “born.” Again, this is not mysticism; it is all a manifestation of the physics of coupled systems.

1. **The body is an interface.** It is capable of entering into resonance with external frequencies.
2. **Skill is tuning.** A person can learn to distinguish resonances, just as a musician distinguishes notes.
3. **Body structure is the hardware.** It is possible that some people are born with a “wider bandwidth” or with particular sensitivity to certain frequencies.

Thus, a clairvoyant is not a magician, but a **human resonator**, capable of picking up connections that most people do not notice.

If the world is a system of coupled resonances, then **it is impossible to strike one node without affecting all the others**. And first and foremost — oneself, because you too are part of this network.

Why is this not a metaphor?

- **Energy has no breaks.** It flows through everything.
- **Resonance knows no distance.** Connection always exists if frequencies match or are harmonically related.
- **Intention** (as a directed frequency) launches a wave. This wave goes toward the target, but **returns to the source**, because the source is also part of the system.

It is like throwing a stone into a pond: the wave goes to the shore, but **reflects and returns**. Only in a resonant network there are no shores — there is only infinite echo.

**“Treat others as you would like them to treat you...” — this is an operating manual.** Of course, people are different, and there is no single recipe for good that applies to everyone. But this does not negate the main point: in a closed resonant system, any intention returns to its source. Therefore, even if you cannot precisely guess what will be good for another, the very vector of your intention — whether benevolent or malevolent — will inevitably reflect back on you. The general principle remains in force.

The Golden Rule of morality is **not a moral precept**, but a **practical recommendation on how not to destroy yourself**.

If I send out an evil wave, it:

1. Goes to the other person.
2. Affects them.
3. Reflects.
4. Returns to me, amplified by the resonance of the entire system.

I receive **the same thing**, but multiplied by all who were in resonance with my intention.

**Love is not a feeling; it is physics.** And the boomerang law is not karmic retribution, but a **principle of energy conservation in a closed resonant system.**

Here is another interesting point that I think is worth noting:

1. The physical world — three dimensions (space, time, mass).
2. The spiritual world — three dimensions (consciousness, subconscious, superconsciousness).
3. The physical world — each dimension has three coordinates.
4. The spiritual world — three coordinates: fear, life values, and striving.
5. The connection between worlds: “Body – Soul – Spirit” — again three components.

If we look closely, all of this together resembles a process of cognition through a “mirror.” Life is a process of Spirit knowing itself in reflection — in “physics.” The soul is the point of reflection. Life is a mirror for the SPIRIT. As representatives of the third dimension, the process of life offers us the opportunity to see our reflection. We are only just beginning to get to know ourselves.

Death merely severs this connection, but does not destroy the essence. In the physical world, form disintegrates, but elements continue to exist. Therefore, the Spirit must also continue its existence. Perhaps death is only a blink of an eye: close your eyes — the image disappears, open them — you are born again.

“Fright” can lead to death, and this is like blinking a little earlier than usual. It is important to remember: this is only an allegory, a philosophical image, not a call to action. “Blinking on purpose,” hoping that everything will change for the better, is pointless — you cannot run away from yourself. Death is not a way out and not a way to improve life, but a natural stage that comes in its own time. This work, as noted in the introduction, does not touch upon religion or morality, since they are very large and very necessary elements. Without them, the “engine” will not go. This view of things does not cover inhumanity and recklessness. To deliberately act to the detriment of life is to destroy the connection with the WORLD — it is losing RESONANCE WITH THE WORLD. That is how the “life” of unstable elementary particles ends — it is just ripples; they pass to a lower level of existence. Apparently, this is how the concept or action of karma can be explained. Life is priceless, and its task is to be lived, to develop, and to know, not to be interrupted in the hope of an easy new beginning.

Our life is merely a cradle. Surely there are those who “watch over” us.

## **The Nature of Consciousness: Model and Mechanism**

The main goal of this work is to attempt to construct a coherent model of consciousness. Ideally, one that does not require invoking unknown entities and, as much as possible, relies on processes understandable in terms of physics.

Previous chapters were intentionally written in simple language, close to colloquial speech. This was done deliberately: complex academic presentation often obscures the essence behind ponderous turns of phrase. The following text will also be simplified. More rigorous versions of these ideas are presented in accompanying works on Zenodo.

## How measurements are born and what the observer has to do with it

The work "[The Birth of Dimensions and the Perception of Fractality](https://zenodo.org/records/19695379)," available at <https://zenodo.org/records/19695379>, presents an academic exposition of the idea of the possible origin of dimensions. The proposed approach is based on the principle of the birth of dimensions as a consequence of the "wave upon wave" phenomenon. If we have a certain base frequency, then its change according to the rule:

$$v_n^{(+)} = v_0^{2^n}, n \in \mathbb{N}$$

or its inverse — extracting the root:

$$v_n^{(-)} = v_0^{1/2^n}, n \in \mathbb{N}$$

generates a new level of perception. This is similar to how a fundamental note generates overtones in music, forming timbre. This is, of course, a distant analogy, intended to simply explain what is happening. Observing this process in sound design is practically impossible because the frequency quickly leaves the audible range. Such dependencies are characteristic of dynamical systems on the complex plane, such as the Mandelbrot or Julia sets.

The key point: the base frequency is, in essence, the observer himself. What he considers "himself" is that reference point relative to which the entire picture of the world is built. At the same time, the wave process itself must be generated by some source possessing energy.

Such a simple design, with feedback via resonance characteristic of wave processes, can explain the possibility of constructing or obtaining a certain picture of what is happening around at the level of the source – the observer. Moreover, since the given sequence is a fractal, each such level is a kind of separate entity, a separate frame, a separate plane. In general terms, this can be called a separate level of perception or a separate physical quantity, a dimension.

Given that the process is a fractal, for a chosen observer, a specific base frequency, this process will have two directions of similarity for the emergence of such dimensions:

- Toward increasing frequency — as if "immersing" into the microcosm, decreasing the scale when speaking of the measurement of space.
- Toward decreasing frequency (extracting the root) — for spatial dimensions, this will be perceived as an increase to cosmic scales.

For the observer, these two directions appear different, although they are based on the same fractal principle. This is precisely why elementary particles and galaxies reveal a striking structural similarity. But for the observer, this similarity is not identity: the processes generating elementary particles and a galaxy are, from the observer's point of view, different because he looks at them from opposite sides of the fractal ladder.

This is the first step towards a physical description of consciousness as a phenomenon that is isolated yet connected to the world.

## Resonance as the source, not the consequence

The ability to obtain a picture of what is happening around, thanks to the peculiarities of wave processes, is a big plus, but as mentioned earlier, it is not enough. A source is needed. Something must create the change itself, generate the frequency. If any process is associated with energy, then the source must be able to redistribute or create it. This question was perhaps one of the most difficult. It all comes down to the habit of ingrained perception.

There are a great many different energy sources, one way or another associated with various processes of energy transition from one state to another. At the same time, they all characterize phenomena somehow related to specific processes linked to matter. They are all not universal and are tied to specifics. But there is one process that stands out among them – resonance. Although it is also very often associated with matter, it nevertheless relates directly to the process – to waves, to frequency, which makes the connection with matter indirect.

Usually in physics, resonance is considered a consequence – a fortunate coincidence of frequencies. At the same time, like a source, it possesses energy and is capable of redistributing it, through frequency entities.

Returning to the second part of the reflections "SETTING THE RECORD STRAIGHT," to the construction of a wave model of the structure of matter, we should recall that standing waves are only possible in a confined space. Without this, the formation of standing waves is impossible. Given that dimensions are only our perception, and the true essence is frequency and the resulting resonance, it is logical to assume that it is resonance that is the boundary capable of forming standing waves.

Thus, by a transcendental attribute, one can say – any material source is a consequence of resonance. This can swap cause and effect. Resonance can be considered as a source of energy. It is not just a coincidence, but an initial condition for the existence of a coupled system. It is resonance that sets the boundaries within which the wave process can be stable. It acts as a source of order, not a side effect.

This idea is no longer purely physical. Resonance manifests everywhere: in acoustics, in quantum mechanics, in social groups, in chemical reactions. Its key characteristic is the ability to accumulate and redistribute energy. That is, it itself can be a "battery." Due to its peculiarity, its connection with the wave process, and not with matter as such, a very important conclusion can be drawn – resonance is not a product of matter. Moreover, from the perspective of this work (the related work "[Model of the Wave Structure of Matter](https://zenodo.org/records/19703486)" is available at <https://zenodo.org/records/19703486>), baryonic matter is formed thanks to it.

## **Consciousness as a resonant structure**

Let's connect these pieces. Consciousness can be considered as an object based on a resonant source. This source:

- Creates a frequency entity – its own "breath," rhythm.
- Through this frequency, it "probes" connections with other similar sources.
- Changing the frequency according to the laws described above generates the illusion (or reality) of perceiving different dimensions of space and time.

How many of these dimensions are there? Mathematically – infinitely many. But today, a person perceives only three. Why?

The answer likely lies in tuning. The development of consciousness is the process of adjusting one's own frequency to the pre-existing resonant structures of the world. We are not born with a perfectly matched frequency, but with some mismatch. The more finely we manage to tune ourselves (through life, experience, reflection), the more dimensions we begin to notice. And the less energy we waste, because a system in resonance is the most economical. One should also expect that an increase in our base frequency can reduce the minimum quantum of energy transferred as an exchange, thereby minimizing energy loss due to incomplete coherence. These two processes of consciousness development can "increase the lifespan of consciousness" as an energy source.

Given the fact that resonance is not a product of matter, we can conclude that consciousness likewise does not belong to matter. But asserting their independence from each other is also not advisable.

### **What then is matter?**

The work "Model of the Wave Structure of Matter" shows that elementary particles have an internal boundary – their own "event horizon," where familiar laws close in on resonance. That is, an elementary particle also has something resembling "consciousness" – internal coherence.

If consciousness is a resonant structure, what about matter, because its structure is also not devoid of a similar construction? A well-known physical phenomenon will help explain what is happening: Lissajous figures. They arise from the superposition of two harmonic oscillations and represent stable closed trajectories. This phenomenon is observed using an oscilloscope – a sweep on a plane. Under certain parameters, we obtain a standing wave on the screen.

At the same time, the frequencies of the participating oscillations during the formation of Lissajous figures exceed the frequencies of the formed standing waves.

We are accustomed to dividing the world into spirit and matter. But this dualism is probably generated by the limitations of our perception. A single process, taking into account the phenomenon of Lissajous figures, can be considered in the form of two projections:

- The high-frequency projection – what we call consciousness, sensations, the inner world.
- The low-frequency projection – material structures that we see, touch, measure.

The resonant connection between them is preserved. High-frequency consciousness is able to "see" the structure of the formation of lower-frequency consciousness. At the same time, their perception of physical dimensions, although overlapping, differs from each other.

If we translate the explanation into the purely intuitive language of physics, we can say that a higher-frequency signal is capable of describing a lower-frequency one through itself. The reverse is impossible. In practice, this is often used, for example, in the connection between the analog world and the digital world. Kotelnikov's theorem (known in foreign literature as the Nyquist–Shannon theorem) is a fundamental statement in the field of signal processing that connects the analog world with the digital one. Simply put: it determines how often you need to measure the level of a continuous signal in order to later restore it from those points without loss.

Each resonant connection of high-frequency consciousness gives birth to an additional dimension in the low-frequency projection, which high-frequency consciousness is able to "see." Thus, Lissajous figures can go beyond the plane, manifesting themselves in space. Three-dimensional consciousness is capable of perceiving three-dimensional matter. Matter is the result of our perception of lower-frequency consciousness, which we perceive as a result of our developmental projection. From our point of view, matter fully obeys the laws of physics – it goes through its own cycle of development. We can observe and study its life path from the point of view of physics.

Thus, matter is not "other." Matter is the lower layer of the same process.



## **The Spiritual and the Material: Two Poles of a Single Process**

### **Formation of macrostructures**

The world is one. Then the processes we observe in physics must have analogues in the spiritual sphere. And vice versa.

As another example, we can draw an analogy between the formation of macro-objects of matter and the formation of hierarchical structures in the realm of consciousness.

In the material world, this manifests as the accumulation of mass and the formation of a center-of-mass region – a stable structure towards which the system strives. A center of energy accumulation.

In the realm of consciousness, a similar process is observed, associated with the formation of stable collective states. In esoteric language, such structures are described as egregors. In a more neutral interpretation, this can be considered as a manifestation of collective behavior or group self-organization.

Drawing a further analogy, we can transfer the force of gravity and its possible outcome between two or more group formations. Much depends on the number of participants, their "weight," and the distance from each other. Absorption, unification, or destruction and restructuring are possible somewhere.

In fact, much can be transferred if the analogies are set correctly and physical quantities are chosen. The main difficulty will be the fact that it is not possible to carry out measurements through matter in the realm of spirit. Matter, being a low-frequency formation, is not capable of recording high-frequency entities. But perhaps over time this limitation will be overcome.

### **Death. Evolution as tuning the resonator**

In the previous chapters, a proposed model of consciousness was constructed. It acquired some of its outlines, but at the same time, the necessity of the existence of some form – a body connected with matter – was not introduced.

Our alignment with matter through resonance creates an exchange process between the two levels. This exchange process creates a certain picture of energy exchange. This is precisely what can be perceived by us as our body. Simplified, we can say that the body acts as a resonator – a device for inter-level energy exchange.

Depending on our tuning relative to the surrounding world – we will create or receive a corresponding form.

What is old age and death? Within this model, consciousness possesses resonance, as an energy source, and its own frequency. When out of tune with the surrounding world, a loss of invested energy occurs. Its decrease is associated with the process of old age. The end – death. But it should be noted that the source itself does not disappear anywhere; there is a rupture of connection – the energy exchange between the level of consciousness and the perceived level of matter. There is a rupture of the connection between consciousness and the body.

The body will change depending on the level of development of consciousness. At the same time, they will always be dependent on each other. A sharp change in the structure of the body is impossible, as it is an object with a certain inertia. This makes the process of rebirth necessary. Life and death can set a smooth process of frequency selection for the development of consciousness.

Darwinian evolution of species is only the external, rough side of the process. The internal, subtle side is the evolution of consciousness through successive incarnations, where the body is a tool that is gradually refined to allow consciousness to perceive more and more dimensions.

The large number of animal and plant species provides consciousness with a wide choice of resonators when deviating from the ideal frequency, preserving its level of materiality. Depending on the final level of development at death, an appropriate form of resonator will be selected for the next incarnation. With increasing development, necessary mutations can be observed – changes in form and capabilities.

Thus, a sharp transition to another dimension, without changing the resonator – the body – is most likely impossible.

Death is not a breakdown, but a function. It is a "blink" that allows consciousness to renew its resonance with reality.

The evolution of life on Earth is the material expression of a process in which consciousness, consistently passing through deaths and births, gradually selecting its frequency, increases the degree of alignment of the overall resonance:

Each new dimension that consciousness begins to perceive requires a corresponding change in the physical carrier (the body). Death is a mechanism for resetting the old, inadequate configuration and launching a new one, chosen by consciousness in the process of its development.

### **Why we don't remember past lives**

Memory is the physical structure of connections in the brain (synapses, engrams). Upon death, this structure is destroyed. But the frequency "trace" – that is, the ability to resonate with certain harmonics – is preserved. We do not remember events, but we remember skills, intuition, talents. A child who learns music easily may have been a musician in a past life – not because he remembers the notes, but because his consciousness is already tuned to the right frequency.

The model can explain why some children exhibit inexplicable abilities or fears related to past lives (phenomena that psychology registers but cannot explain).

### **Conclusion: What does this model change?**

This entire work was an attempt to assemble disparate "pieces" – physics, biology, inner sensations – into a single picture. Not a final one, but coherent enough to yield practical conclusions.

The traditional dualism of "spirit versus matter" generated endless disputes. In the proposed model, the contradiction is resolved by balance. They are different projections of a single process, separated by frequency. By raising or lowering our internal coherence (resonance), we move either towards a more subtle, "spiritual" perception, or towards dense materiality.

This is not a moral choice. This is the physics of coupled systems. If you accumulate material wealth for the sake of peace – that is one path. If you develop the ability for empathy and reflection – another. The external action may be the same, but the internal resonance is different.

And here the key role of what is traditionally called "goodness" or "love" manifests itself. In a closed resonant system, any action returns to the source. Not in the moral sense of karma, but directly: by sending an impulse, you launch a wave that, reflecting off the system's boundaries (from other consciousnesses, from the material world), returns to you. Loving the world is not a commandment, but an instruction for energy saving.

Death is just a moment of "blinking." You closed your eyes – the picture disappeared. You opened them – a new form, a new life. "Blinking" on purpose, hoping for a reboot, is pointless – you cannot run away from yourself. Life is the only opportunity to change the frequency. And it is given to you here and now.

At the very beginning, an important assumption was made: to obtain an overall picture, it is necessary to temporarily abandon details. This applied both to the physical description of the world,

where mathematical apparatus was minimized, and to the consideration of man, where it was necessary to distance oneself from categories of morality, norms of behavior, good and evil.

Such simplification does not mean a denial of these aspects. On the contrary, it is a necessary step to broaden the horizon of observation. The reflections represent a view from the outside – an attempt to see what is happening from a different plane, orthogonal to habitual methods of analysis. Any premature concretization inevitably narrows the picture and returns to particular interpretations, violating the integrity of perception.

Taking into account the related works, certain bridges can be built between the proposed model and recognized physical theories. The situation is much more complicated with religion, morality, and social norms: they are largely similar and have intersections, but are formed on different initial foundations.

Nevertheless, even here interpretation is possible. For example, concepts such as Heaven and Hell can be considered as states of the system. If the life path is understood as a process of frequency tuning, then moving towards a more stable resonance reduces energy loss, increases stability, and duration of existence. In this sense, such a state can be compared to the concept of Heaven. The opposite state – to Hell. Further interpretation remains open.

Similarly, the very fact of the existence of life can be considered. A person appears already possessing some energy resource – he is "charged" for existence. The source of this resource within the framework of this model can be interpreted as a creator.

The reality we observe, given our nature, can also be seen as a result of the action of this source. However, quantum mechanics and the probabilistic nature of observed processes indicate the limitations of our perception. This means that we are in the process of aligning with the surrounding world, and this process is far from complete.

Various aspects of human life – sociality, morality, art, music – can be considered as manifestations of a general process of increasing coherence, growth of the system's resonance.

The destruction of these structures leads to degradation. Human history shows an alternation of ups and downs, a spiral movement, a search for balance. Man strives for a state of equilibrium, gradually increasing coherence with the surrounding world.

Wars, conflicts, and destruction are also part of this process. They can be seen as a consequence of misalignment, a manifestation of states such as fear, greed, pride. An attempt to fix oneself as an absolute point leads to a loss of balance and an inevitable rollback.

Whether this rollback is instantaneous or stretched out over time is not that important. Time in this context can be considered as a sequence of changes, and not as an independent entity. Any action causes a response from the system, associated with its striving to restore equilibrium.

Thus, the proposed model is not a set of rules or a final theory. It is an attempt to translate physical concepts into the realm of perception of consciousness and social interactions. This makes it possible to consider human behavior and his decisions from the point of view of their impact on the stability of the system in the future.

And this is precisely the main result: not in obtaining definitive answers, but in the emergence of a tool that allows one to ask more precise questions and see the possible consequences of one's actions.

In conclusion, one more important caveat should be made. The model of consciousness presented in this work is simplified in nature. This simplification is inevitable, if only because a simpler category—matter as a form—has been used to explain something more complex—Spirit.

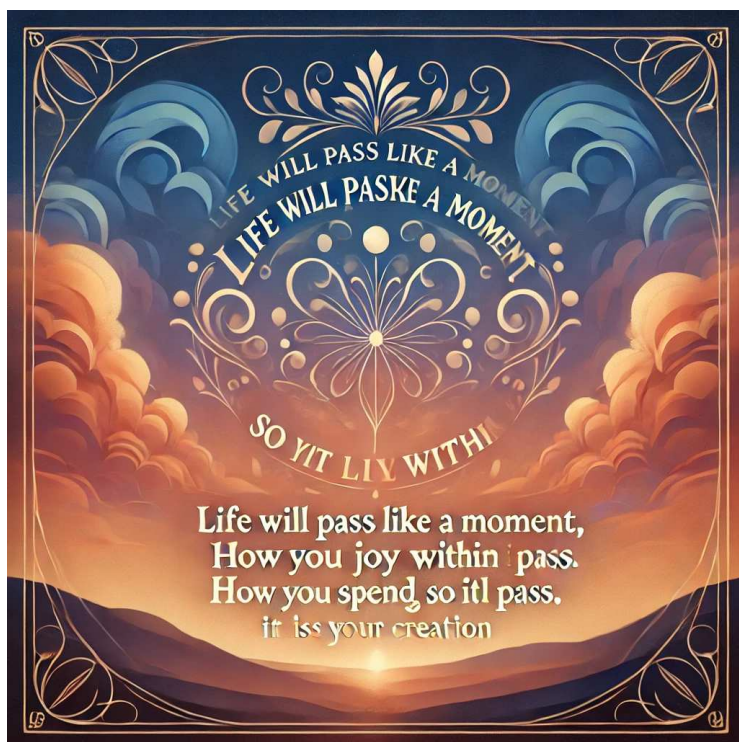
As a result, a certain form of description has been obtained, but not the essence itself. This process can be compared to realizing that what is observed is merely a reflection.

Resonance is undoubtedly one of the characteristics of consciousness. Within this model, it is treated as a mechanism for the accumulation and redistribution of energy. Yet even this does not exhaust its essence.

The essence itself seems to be related to the capacity for analysis and adjustment. However, it is not possible to grasp it directly through reflected manifestations.

Further development of this approach requires moving to a different level of consideration.

Love your life — at least because it is more pleasant to live that way. A life dominated by negative feelings loses meaning. Do not waste your existence on despair, disappointment, or anger. Strive to filter out the bad and retain the good — the Mind is capable of this. Yes, there will always be both good and bad, but it is precisely this duality that allows us to value and love life. The perfection of the world lies in its imperfection. Perfection is a trap. The world is created with great wisdom. There is no good without bad. You yourself are the force that can create a wave through your duality. You change the world around you. Let it be the one you love.



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