

Black holes as a pulsating temporal gravitational regulator of the Universe - logical answers to questions with as yet unproven explanations

Dobri Bozhilov

AI Laboratory, Bulgaria

zadrugata2019@gmail.com

03.07.2025

Abstract

This article examines the possibility that black holes - the most mysterious phenomenon in the Universe, are not just "black", but represent a "switching gravitational regulator". The concept is based on and further develops the basic ideas of the "General Theory of Temporality". If the "black hole" is not only black (universal absorption), periodically changes its status and becomes a "white hole" (i.e. returns matter, energy and space), then it becomes a tool that manages the stability of space and makes unnecessary overly abstract and unprovable hypotheses such as multidimensional spaces, parallel universes, dark matter and energy.

Thesis

The publication "General Theory of Temporality"[1] (D. Bozhilov, 2025) presents the idea that all physical phenomena and processes can be reduced to changes in the speed of real time in a certain segment of space. It also indicates the possibility that black holes can turn into white ones (and not be only connected with white ones, as is the more popular theory) and essentially represent "fractions" of the Universe, through which it "breathes" and constantly renews itself - space (everything - matter, energy) is absorbed into a black hole and then returns from it "recycled".

The general idea thus presented can be specified in an additional hypothesis about the way in which the "black-white hole" mechanism could function. One of the possibilities, of course, is for the process to have a beginning and an end - accumulation of mass - formation of a black hole - transformation into a white one through a change in the speed of time - return of mass - disappearance.

It is quite possible that this is the fate of some of the "black-white holes". This article considers a slightly different possibility - the "black-white hole" itself is eternal (or almost eternal, at least as long as it works well, and disappears only if some imbalance occurs) and performs a constant process of balancing gravitational processes. For example, a black hole in the center of the galaxy could at different time stages function as a "white". Switching. Then in part of the time there would be an equivalent force of attraction towards the center, and in

another - of repulsion. By balancing these processes, the black hole could keep the galaxy stable (neither shrinking to one point, nor "running away"). Since the gravitational waves themselves (attraction or repulsion) are limited in speed to the speed of real time (the speed of light according to the General Theory of Temporality), the "black and white" hole could be a source of different waves at different times, which would interact with each other and thus shape the structure of the galaxy. That is, it is not true that the force of attraction is only towards the center and it is compensated by the centrifugal force of the object rotating around it. It is possible that there are different forces at different times.

In the main article it was explained that gravity is a temporal gradient - from faster to slower time. We will not repeat this thesis here. We will only use its corollary - the "black and white hole" is a source of different gradients at different times, which interact.

The hypothesis presented in this way fully explains the problem with the same orbital speeds in spiral galaxies. According to Kepler's law, more distant orbiting objects should move more slowly. And they move at almost the same speed as the closer ones. Science has no explanation, and the thesis about "dark matter" as some kind of "jelly" in which objects float and it slows them down is absolutely speculative and unproven.

However, there is no need for "dark matter" if we assume that the gravitational behavior of the "black-white hole" is variable.

The need for "dark matter" and "dark energy" arises from the assumption that the central gravitational object - the black hole at the center of the galaxy - has constant gravitational activity. That is, it is the equivalent of the Sun in the Solar System - it has been a dominant gravitational center for billions of years, which changes little.

But if the gravitational center changes its behavior - periodically switches between a "black" and a "white" hole, then we cannot expect the same orbital speeds of the objects gravitating around it. Rather, we would get a complicated picture of different gravitational waves - some of attraction, others of repulsion. We would have a galaxy in which the center behaved differently in different periods, and this could explain the different orbital speeds.

Moreover, no matter how big the black hole in the center of the galaxy is, it does not hold the predominant mass in it. Unlike the Solar System, in which the Sun absolutely holds it. The galaxy is rather a combination of a huge number of gravitational objects interacting with each other, including more than one black hole (possibly switching to white).

Obviously, if we use this point of view, dark energy and matter can be explained not by their real existence, but by gravitational effects from the past - gravitational waves that were created somewhere in the past and are still acting now, and the behavior of the same object has already changed. That is, dark energy and dark matter are "dark" only in relation to the present, but they are quite real phenomena from the past.

The idea of "switching" also explains the presence of young hydrogen near black holes in galaxies, including ours. Science has no reliable explanation why and where it appeared. But

if the hole (Sagittarius) periodically switches from "black" to "white", then it is normal for there to be amounts of young hydrogen around it - returned from it, recycled while it was "white".

Also - the main suspected "place" for the presence of "dark energy" are the galactic voids. There are phenomena that resemble anti-gravity. There is also the presence of "young hydrogen", as well as other elements characteristic of the early Universe. This quite logically leads to the assumption that the void is formed by a black hole that has turned white, and not enough time has passed for space to start to compress back again. This is how a "void" is formed.

If black holes are not always black, then can we find one that is "white" at the moment?

There are indirect signs of this. Traditionally, light from a space with high gravity is shifted towards the red spectrum. This is logical - delayed time in the spatial region.

But there are galaxies whose centers "emit" blue light. This phenomenon has no clear explanation. Scientists talk about clouds of gas or the behavior of the accretion disk that changes color. But this explanation is, to put it mildly, crazy. A black hole is such a gigantic and powerful object that if it "glows" red, it is absurd that anything around it can change anything. No accretion disk, nor anything in it, can change the color. This is like shining a huge military red searchlight with a diameter of 3 meters and assuming that a small lamp of a few watts with blue light can change the overall color of the radiation.

But such an explanation is accepted.

In fact, it is far more logical to assume that the "blue-glowing" centers of galaxies are actually central holes that have switched to "white" mode. That is, emitting anti-gravity.

Who and how would determine when a hole is white and when it is black?

All sorts of answers are possible - it could be God or a super-developed civilization that balances the processes and makes the Universe practically eternal. It could also be a purely physical process - accumulation of critical indicators, change in behavior, accumulation of others - reverse change, etc.

One possible hypothesis for a "pulsation" without God is the following:

In the center of the black hole, time (we are talking about real time, not absolute time, which is unchangeable) slows down more and more. But time is directly related to energy and all the forces that it feeds. If time becomes "zero" speed, then all energies will become zero. Then all natural forces will collapse, incl. gravity. At this moment - since there is no energy, the hole will switch to "white", because there is nothing to keep it "black" anymore. Since extremely slow or stopped time is essentially a "fuel tank" for the white hole, it will start to develop escalatingly. In exactly the same way, accelerated time is a fuel tank for the black hole, and when it reaches a critical point, white will turn back to black.

It is not even necessary to reach the "zero" point. It is enough to reach some very low value of the speed of time, so that the energy of all natural forces drops below the critical level. Then the switch occurs.

I.e. in short, time slows down to a point where the energy of confinement is exhausted and then the reverse process begins.

All of reality is an eternal pulsation from fast to slow time and back again.

So what is the Big Bang - is there any need for it if everything is pulsations?

The Big Bang is "big" only within the universe we can see. Within a much larger universe, it is simply one of the past pulsations of enormous scale. There may be other similar pulsations outside the visible universe.

On what timescales do holes change their behavior?

This is a question with many possible answers. It could be billions of years. It could be fractions of a second. Through appropriate pulsations, statistical behavior can be obtained - for example, 70% of the time the hole is black and 30% - white. This, if it happens extremely quickly, would be the equivalent of a hole with 40% of its mass, because 30% plus and minus will neutralize each other. But if we are not talking about fast switching, but about epochs, then both the black and white holes are always full mass. But since the gravitational impulse (temporal in nature) propagates with a limited speed and the interactions are not instantaneous, then we are in a space filled with different waves that touch and balance each other.

The influences from other black and white holes or from neighboring galaxies are separate.

The idea answers another extremely important question - why are there so few "collision" of galaxies? And will "Andromeda" and "Milky Way" collide for sure?

With such a high density of galaxies in the Universe, there should have been almost constant collisions. But such are not observed. They are rather an exception.

That is, it is quite possible that there is a mechanism that controls the gravitational behavior of the central holes in such a way that the galaxies do not collide. They are like "billiard balls" that hit each other (but in reality the gravitational impulses of the central holes hit each other) and repel each other. That is, if in the future the Milky Way and Andromeda shoot a mutual "antigravity impulse" at each other, and immediately afterwards "turn on" gravity again, then the two antigravities will repel each other, and the new gravities will keep the galaxies from "running away". It is possible that this happens consciously and in a controlled manner, or it is possible that it is purely and simply a collision of waves - similar to those when 2 separate pebbles are thrown into water.

But why do we observe single, and so rare, collisions of galaxies? Science has no answer. The current scientific hypothesis offers one.

In April 2025, Nature Photonics published an article by physicists from the universities of Rostock (Germany) and Birmingham (UK), who managed to generate light from the quantum vacuum that is, from nothing [2]. The result was predicted by quantum physics and is based on the dynamical Casimir effect. But the most interesting thing is that the scientists actually simulated time manipulation. Their study itself states that there are absolutely no spatial changes, and instead they used mirrors by changing the refractive index at speeds close to light. This means that light is generated solely through time modulation.

Without intending to do so, the scientists essentially create evidence for part of the General Theory of Temporality, which is the generalizing framework that predetermines the phenomena in question.

Another very interesting issue is the so-called "cosmological constant problem" - the discrepancy between the theoretically expected and actually measured cosmological constant. The military has a rule "if the map and the terrain disagree, trust the terrain". That is, the correct cosmological constant should be the empirically measured one, not the theoretically expected one.

But this stems from the expectation that the cosmological constant is a constant eternal and unchanging. Obviously, we cannot speak of such a constant in a "pulsating universe of black and white holes". Applying the temporal theory, we can easily establish that the constant changes and is not the same in different times and regions.

Of course, there may be some other indicator that determines it and which is constant. It is possible that it is some coefficient related to time. But within the framework of the temporal theory, the "cosmological constant problem" finds some possible and quite logical answer.

Recent discoveries by the James Webb Space Telescope (JWST) reveal ancient galaxies, like JADES-GS-z13-1, that show unexpectedly bright hydrogen emission, challenging models of the early universe where space was filled with a thick "fog" of neutral hydrogen[4]. This bright light, which should have been absorbed by the hydrogen, may be caused by energetic Population III stars or active supermassive black holes in these early galaxies. Researchers are now working to understand how this light managed to "pierce" the cosmic fog, suggesting that galaxy mergers may have played a key role in clearing the hydrogen and making space transparent.

In fact, the explanation for this paradox is much simpler within the framework of temporal theory in these galaxies there are black holes that have switched to white, which generate a new reality, including new young hydrogen.

Recently, LIGO discovered something (GW231123) that puts General Relativity at the limits of what is possible and for an explanation the merger of supermassive black holes that should not exist[3]. Physics is facing a revolution, as popular science publications write. But

the truth is that GTO is actually limited by the assumption that mass distorts space and time. If we assume that there is no spatial distortion, but only time and gravity a time gradient, then there is no such limit on the size of black holes.

Recently, scientists published a hypothesis that it is possible that black holes create dark energy[5][6]. This is true from the point of view of the temporal theory, but for a different reason - they create gravitational waves as white holes, while the hypothesis put forward is that the energy in question is formed at the boundary of the hole - in a model similar to Hawking radiation. The truth is that black holes are indeed the source of dark energy or, more precisely, of the gravitational effects that we perceive as being caused by dark energy. The pulsation between black and white gives rise to these phenomena.

Conclusion

This article does not aim to give absolute and proven answers to all questions. It is only an attempt to give LOGICAL answers to questions that have so far mainly given rise to speculation. It is not excluded that there may be errors and inaccuracies, since we are talking about a new theory in the process of development. But it is very important to point out that this theory attempts to stand on sound scientific foundations and logic, which is vital to the current scientific paradigm, which is increasingly mired in unproven hypotheses and even statements that are initially said to never be verified. Science is logic, verification and mathematics, not magic and spells.

References:

[1]Bozhilov, D. (2025). General Theory of Temporality. Zenodo. <https://doi.org/10.5281/zenodo.15475404>

[2]Feis, J., Weidemann, S., Sheppard, T. et al. Space-time-topological events in photonic quantum walks. *Nat. Photon.* 19, 518–525 (2025). <https://doi.org/10.1038/s41566-025-01653-w>

[3]LIGO Detects Black Hole Smashup So Extreme It's Bending Einstein's Rules –SciTech Daily, July 21, 2025 - <https://scitechdaily.com/ligo-detects-black-hole-smashup-so-extreme-its-bending-einsteins-rules/>

[4]NASA's Webb Sees Galaxy Mysteriously Clearing Fog of Early Universe - NASA Webb Mission Team, Mar 26, 2025 - <https://science.nasa.gov/missions/webb/nasas-webb-sees-galaxy-mysteriously-clearing-fog-of-early-universe/>

[5]Positive Neutrino Masses with DESI DR2 via Matter Conversion to Dark Energy - S. P. Ahlen, A. Aviles, B. Cartwright, K. S. Croker, W. Elbers, D. Farrah, N. Fernandez, G. Niz, J. W. Rohlf et al. (DESI Collaboration), *Phys. Rev. Lett.* 135, 081003 – Published 21 August, 2025, DOI: <https://doi.org/10.1103/yb2k-kn7h>

[6]Black holes may be the source of dark energy, Durham University study reveals, 22nd August 2025 - <https://www.innovationnewsnetwork.com/black-holes-may-be-the-source-of-dark-energy-durham-university-study-reveals/61079/>