

## On the Simultaneous Creation of Matter and Antimatter Jets

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### Abstract

Astronomers have long been aware of galaxies with active nuclei that eject jets of matter from their black holes to symmetrically opposite sides. For now, spectroscopic studies can only be conducted on their accretion disk. Attention should be paid to the jets they eject; all chances are that one jet is made of matter, of course, that of which the galaxy is made, but that the other jet is made of antimatter. Thanks to the unique magnetic field of these two jets, the jet of antimatter will have a passage even into the distance of hundreds of thousands of light years. The article aims to pique the interest of scientists in the fact that every such galaxy is a potential mini black hole, which, with the proposed  $c^2$ -inertia, could fundamentally alter the scientific picture of the universe.

“Science cannot do without mathematics. But when its subject is cosmology and an attempt to guess the answer to the question How come the World exists, then what is already taught in elementary school is enough from mathematics: that dividing by zero makes no sense, because the result goes to infinity. This mutually relative and symmetrical play of Zero and Infinity is enough to follow the presentation in this book, so mathematical derivations and proofs can be skipped with confidence that they are correct.”

### 1. $C^2 = \text{Const}$ and Affine Theory of Gravity

(In *Space Science Journal*)

This is how my book, **GRAVITY AND  $C^2$ -INERTIA**, was presented to the world scientific community.<sup>1</sup> So, a person with a habit of reading will read this book as beautiful literature in the same way as he reads, for example, the story *Whisper* by Zoran Živković, without having to check whether the fine structure constant is really 0.00729735308, even if he/she has never heard of it before; or without needing to associate Schrödinger's cat with the story *Cat*, it is enough for him/her to know that the title of that collection of stories **SEVEN TOUCHES OF MUSIC**<sup>2</sup> implies the wave motion of either air or light, so that he/she reads with enjoyment and curiosity what will happen to the white cat that remains in the dark, when the lid of what used to be the cardboard box for Oliver's late wife's boots fell after it. Namely, everyone has heard of black holes somewhere in space. But at the moment when Oliver managed to repair the old music box and music

flows from it, one end of the lid lifts and a cat comes out of it, however, a brown-grey cat, not Oliver's Oscar. At the time Zoran published this book, there were already spectroscopic analyses of the accretion disk through which the black hole of active galaxies spirally sucks in matter, but spectroscopy of jets of matter ejected from it symmetrically on opposite sides of a direction slightly offset from the rotation axis, is still not possible today.

The university textbook, **ACTIVE GALACTIC NUCLEUS**,<sup>3</sup> with a foreword by Luka Č. Popović and Dragana Ilić from 2017, for example, on page 8 note: “It should be borne in mind that the nucleus of active galaxies cannot be directly observed, even in the case of the closest AGNs. (...) Estimates are that the size of the accretion disk and surrounding gas is less than one parsec, which for the nearest Seyfert galaxies corresponds to a size on the sky of up to several tens of arc milliseconds. Therefore, it is necessary to observe AGNs with a telescope with a spatial resolution of less than  $10^{-4}$  arc seconds to resolve the structure of the nucleus itself. Such telescopes do not exist at the time of writing this textbook.”

In my article

“Entropy Passage through the Black Hole Singularity in Active Galaxies”<sup>4</sup>

➤ I hypothesised that these two opposing jets of matter, hundreds of thousands of light-years away from the black hole, one of matter of the galaxy in question, and the other of anti-

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matter. In my next article “Why Just One Big Bang? Chance, Causality, and C<sup>2</sup>-Inertia”<sup>5</sup>

- I also proposed a way to test this hypothesis when, in addition to the accretion torus, we have the possibility of spectroscopy of these jets. And until then, we need to listen to human intuition throughout the history of civilization. Despite all our bodily homocentrism, human thought still reaches one way or another, to an endless universe. Even if we turn up Hegel's Science of logic, for example, upside down like Marx or whatever, with the philosophy of science, we are still on the trail of the deepest Logic of nature. The theses of dialectical materialism from the 19th century and the theses of Thomas Aquinas from the 13th one certainly stand in mutual **relativity** and **symmetry** of the **inertia** of Nature from all time and forever, just like such unity, if we are not going to argue about words.

Today, we know about the unity of electromagnetism; we also know about the unity of vacuum and the so-called elementary particles in wave quantum mechanics. Zoran Živković read something about it, so he allowed his artistic intuition to fantasize, playing with the mysticism of the human soul originating from that universe, sometimes, however, with an accurate metaphor. White Cat is white not by chance, but because all visible electromagnetic radiation is seen by humans as white light. If anything falls into a black hole, every single particle's individuality is gradually lost, and in the singularity of infinite thermal energy density, entropy explodes: on one side, matter, along with particles that have not yet reached the singularity, on the other, antimatter, particles that have passed through the singularity, spending some of the thermal energy to recreate mass. The ionized gases in the jet of antimatter are therefore at a lower temperature; the ionized gas of the same chemical element is of a different color than that in the jet on the other side. Iron, for example, heated to a white glow, with cooling, becomes first bluish, then green, yellow, and red, and finally dark and grey like the unknown cat before which Oliver was stunned, his gaze fixed on it as it went through the half-open door into another room—who knows into what galaxy! The jet of matter on one side, namely, and the jet of antimatter on the opposite side form a single jet, creating a magnetic field like a solenoid that repels matter on the side of the jet of antimatter, thus leaving room for the antimatter to pass to great distances without annihilation. Only at its end does the jet of antimatter become somewhat more diffuse and brighter, which could be interpreted as finally annihilating with the last remnants of matter from the galaxy from which it was ejected.

## 2. But what about Oskar?

Only then did Oliver see that Oskar had also emerged from the black hole.

A great story as a metaphor for an astronomical hypothesis that will cause more doubt than acceptance, even in expert circles. Imagine if there wasn't just one “big bang”; however, even the Pope acknowledged it! But can Zoran, a doctor of general theory of literature, be even expected to write in a story how Oskar came out of the box on the opposite side from the unknown cat, no matter

how much science Zoran read when he was already interested in writing science fiction?

Now, look at the following literary text. It is a collection of stories, **THE TROUBLES OF MR. T. OR THE BASEMENT APARTMENT**<sup>6</sup> by Laura Barna, a short story, Whose is my story?

“On the mode how a damn good story begins, no one's life event do not begin, and it's entirely possible to put any noun after the negation no one's—for comfort also just any little word—and, again, this no one's wouldn't begin a completely ordinary story with an unusual way of beginning.” What does this mean? How to understand this?

Somewhere on the threshold of the summer of 2003, a text entitled **THE GOLDEN BUCKLE** came into my hand. It was a literary competition that my friend Miroslav Miša Kostić organized every year under the title *Karadorde*<sup>7</sup> and *the Kradordevićs*, and I had asked him to give me all the works for evaluation, not just those on the topic of the competition. So on 23 IX 2003, I sent Laura Barna my historical and philosophical novel **THE STORY OF THE FATHER AND THE FATHERLAND**,<sup>8</sup> which begins with the sunrise over the Lepenski Vir,<sup>9</sup> with this dedication:

“On the occasion of the **GOLDEN BUCKLE** with the code Lepenski vir. Very good, very beautiful, although, being abstract, it is difficult to follow. It should be modified here and there, precisely for that reason. If I didn't know, for example, what kind of trapezoidal habitats they are, I wouldn't understand. I have ranked it as number one.”

Laura returned the gift with her first novel, **PROTOVIR**, and then took the opportunity to ask me to read her novel, **SANATORIUM UNDER WHITE**, still in manuscript, and write a foreword if I liked it, because a friend of hers had told her that the novel was incomprehensible. I liked it; it is a philosophical novel, in the ontological sense. When it was finally published in 2009, I published a review of the novel online:<sup>10</sup> ► **A NOVEL OF METAPHOR, an invitation to the game of deciphering.**

Reading it, I was, in fact, in awe. Not because the novel requires careful, so also repeated reading here and there, but how is that possible? As an art historian, Laura certainly has not read anything about quantum, let alone relativistic physics. And in the novel, for example, one can read that a certain T. “*with senseless persistence ignores the very certain possibility that nothing is also something.*” Exactly what I, after years of consulting physics and all the necessary science, finally had to formulate in my **ESSAY ON GOD** as an antithesis even to modified causality, that only the total **possibility** of all **something** is the only way of existence of **nothing**. And on the quantum mechanical level, that *all the infinite multitude of so-called elementary particles is the only mode of existence of the vacuum.*

So, *a damn good story begins* in that infinite multitude of omnipotence, as an intuition from the very vacuum and all the

contradicting LOGIC of nature. **WHOSE IS**—and to what extent, perhaps even of that divine vacuum LOGIC itself—MY STORY? And as soon as any **macroscopic** event is put behind the negation, *no one's* – denoted even by just a little word – it becomes our everyday, therefore an ordinary story. “And such a completely ordinary story begins with a general confusion; in a sudden nervous breakdown, words temporarily lose their significance, leaving feelings” the supremacy of intuition or even absolute power—“for a certain time, of course—which is, in fact, indeterminate in duration”—an association with Heisenberg's uncertainty relations—“nor is it graspable by any clockwork mechanisms and, finally, it is unattainable under mathematical speculative ostensibly precision and calculation, and, therefore, practically and immeasurable.” ... “After the first sudden attack, surprise and confusion, the aforementioned nervous disorder of the narrator is alleviated; the story must now be firmly grabbed by the throat, saddled, reined in, given two or three good slaps on the butt and chased on its way”...

The inspiring description of the process of the birth of an idea and its maturation is the art in itself. The biggest scientific fallacy of the 21st century is to say that the World was created by the “Big Bang” and that before that, there was nothing, not even the laws of physics. In my **TRILOGY OF NATURAL PHILOSOPHY**,<sup>11</sup> in the first book, **ESSAY ON GOD**, in search of an answer to the question *How come the World exists*, I started from the thesis of scientific causality: Everything that is particular and definite must have its cause. This led me to the Vicious Circle, what is older, the chicken or the egg; or to Infinity, to the cosmological proof of God already known in the history of philosophy: since this World was not created by our tribal Leader or any GodFather on earth, then God must be somewhere far away in the cosmos. Therefore, I had to modify causality: *There is no reason for anything particular and definite in the Universe*. Does this mean, however, that there is nothing in the Universe? In the search for this nothing, I also had to modify the antithesis: *The total possibility of everything is the only way for nothing to exist*. Hence, the synthesis: *There is no reason for anything particular and definite in the Universe—except that something particular and definite must exist*. And I was satisfied with that condensing of those seven, eight theses, I thought, of **dialectical materialism** into the necessary three, especially since I explained the relativistic  $c=\text{const}$  with the dialectical difference of photons. But! According to the then Ministry of Culture, it was not dialectical materialism, but rather not even a philosophy; it was a religious book. For those six months, they hesitated to give me a decision (that the book was not rubbish), let alone a verbal explanation (why they didn't give it); whether they had read it or what, bookstores refused to take it on sale. So I started reading philosophical books too. Hence, the second book of the Trilogy **PHILOSOPHY AND BELIEF**, with the conclusion that both idealism and materialism, both such philosophies, according to communist ideology, are only philosophies of belief because they believe that existence can be limited only to matter or only to thought, idea. And with that, I was at peace, dedicating myself to mathematics and literature. And then Laura's **SANATORIUM UNDER WHITE** brought me back to the question of “How come

the World exists?” That's how **THE UNIVERSE AS RELATIVE ZERO** was born, the third book in the trilogy, again following the footsteps of **ESSAY**, except that now I could read original works on the theory of relativity, quantum mechanics, and cosmology online.

So little by little, I understood how the “Big Bang” had become a dogma. First, out of pure scientific curiosity, Einstein presented his *Cosmological Considerations with the General Theory of Relativity* to the Prussian Academy of Sciences in 1917. To prevent the World from gravitationally collapsing, he arbitrarily postulated the cosmological constant  $\lambda$ . Then Friedmann showed that Einstein had not found all the solutions to his gravitational field equation—depending on the initial mass and its velocity, some solutions establish an eternal expansion of the cosmos without the  $\lambda$  constant. Then Hubble, by observing the so-called nebulae in our galaxy, concluded that they were moving away (redshift) and that they were other galaxies. This led Lemaître—not coincidentally a doctor of theology too—to declare that the World originated from a single primordial atom. Hoyle found this unacceptable, so he started from the assumption not that the mass of the World is constant, but that it increases uniformly as the Universe expands; therefore, he postulated a C-field, also arbitrary, which creates new micro-masses with the expansion of the space-time metric. All this even though Gamow had already calculated that from infinitely large thermal energy, infinitely compressed at one point, by cooling, and therefore by expansion, exact percentages are obtained, albeit only of light chemical elements, for heavier ones increasingly inaccurately, and the heaviest ones not at all. The path for nucleosynthesis of the heaviest chemical elements was shown by Hoyle, namely, nucleosynthesis in stars. However, his theory of the steady state of the cosmos could not explain the microwave background noise. Again, the human view of the sky prevailed. The background microwave noise is the remnant of that initial thermal energy. No matter where the human being is because Gamow's calculations were shown in a coordinate system with atomic weight on the x-axis and percentages on the y-axis. No coordinates of space and time. Anyone could imagine that the “Big Bang” started right from him. That prevailed, man's innate **homocentrism**, the desire for eternity—the arrogant drive of **inertia**.

Galaxies with active nuclei (Seyferts) and quasars (also with active nuclei) offer us an opportunity to overcome this dogma. All that is needed is for humanity to allocate money and build telescopes powerful enough to spectroscopically observe both jets. My graphical method of passing entropy through a black hole and converting the logarithmic function, via the bisector of **inertia**, into an exponential one<sup>4</sup> will help to determine exactly which strand (patch) of a jet of ejected **antimatter** corresponds to which strand (patch) of a jet of **matter**.

It is recorded that the world-famous mathematician Hilbert stated that physics is too difficult for physicists because they don't know enough mathematics. I would say that it is too difficult because they don't know enough philosophy. If Hoyle had thought of the

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dialectical leap of quantity into quality, he would have replaced his steady-state theory not with the quasi-steady-state theory of 1993, 94, or 98, but with the stationary-jumpy state one. But! When did astronomers realize that distant quasars weren't just odd radio stars here and there with non-thermal emission lines? And when did they realize the ejected jets of matter did not come from the galactic nucleus but from its black hole, mutually symmetrical even if only one was visible from Earth's perspective? Today, Hoyle would certainly announce that active galactic nuclei also eject antimatter; new matter is indeed being created, but in leaps, not continuously. And there wasn't just one big bang, and before that, not even the laws of physics. **Inertia, relativity, and symmetry** are yet laws of physics. The thesis of modified causality from **THE ESSAY ON GOD** is the thesis of relativity. The modified antithesis is already the thesis of symmetry, and the synthesis is the answer that science provides to the question of *how the world exists*; it will be shown that it is the thesis of the mutual **symmetry of chance and causality**, through eternal **inertia**.<sup>5</sup>

Based on the third book of my trilogy, I published an article on the internet called, *The Big Bang and Its Inner Logic, The Universe as Relative Zero*.<sup>12</sup> Out of ten million analyzed research articles on the topic of **How the Big Bang Came from Nothing**, among the ten most relevant according to the Consensus portal,<sup>13</sup> my article was also listed: ► “Big Bang as the start of cosmos and the world in general is an illusion, though an objective one.” Only with the understanding of inertia and relativity without limitations by mass can one comprehend how the world has been coming to exist since forever. Not how it came to be, but how it has existed since forever and always again.

The portal concludes that the Big Bang theory remains the cornerstone of modern cosmology. However, the idea of a universe that emerged from nothing is still the subject of intense debate and reinterpretation. Various scientific models and philosophical perspectives offer alternative explanations and challenge the traditional narrative. Understanding the Big Bang requires not only scientific research but also a willingness to explore abstract and complex ideas about the nature of existence and the origin of the cosmos.

Well, my dears, here is a good idea!

It is necessary to build a telescope with a resolution of less than  $10^{-4}$  arc seconds, as the authors estimate at the beginning of the aforementioned textbook. Moreover, I would say, with a resolution of less than  $10^{-6}$  for spectroscopy of jets. However, this resolution is hardly possible even with the interference of the most powerful telescopes on the far sides of the Earth's sphere. However, scientists would know how to propose, for example, another Hubble telescope somewhere in orbit, in interference with this existing one, so that spectroscopy can prove the simultaneous creation of matter and antimatter. This would allow us to see ourselves in a new way in relation to the Nature around us and our Planet as an insignificant little dot in relation to the Universe, and to get rid of our human homocentrism. This is necessary with such an arsenal of A- and H-bombs that could destroy all civilization. Therefore,

no matter how many billions it costs, astronomers should be able to see the sky.

In my article<sup>14</sup> ► I showed that “There is no coordinate system without mass”. The photon is determined by  $c^2$ -inertia only in interaction with mass, adapting to its units of length and time. Only macro mass creates a curvilinear space-time metric; the simplest example is in the article<sup>15</sup> by K. Shimizu: “Gravitational energy of Schwarzschild black holes”. Supernova explosions align this space-time metric. All space-time metrics of all macro masses are superimposed. Active galactic nuclei, by ejecting matter and antimatter from their black holes, make the World infinite—new sources of mass and charge, a new  $c_{\max}$  in relation to that source. Astronomers already know of quasars that are moving away from us at speeds greater than  $0.9c$ . There are certainly those that eject matter, one towards us and the other away from us. We cannot see this matter from us because it is escaping us at a speed greater than our  $c_{\max}$ , from the cosmos as we see it, which supposedly originated in a single Big Bang.

**Well, our Big Bang is an illusion, albeit an objective one.** We need to know that in the interest of our civilization's survival. In that name, we need to renounce our homocentrism. We need to reject God, who supposedly created that one and only Big Bang. God as the **Logic of Nature** is sufficient: *inertia, relativity, and symmetry*. Therefore, the first mover of everything is the symmetry of chance and causality, a universal human God, so there is room for both human beings and such a God, regardless of whether they engage in any ritualistic practices. Consequently, we need to renounce the epistemological theory of reflection by which the political Party determines for us what a proper reflection is. No, but also the thesis of Thomas Aquinas and dialectical materialism, not matter as reality as Lenin saw it, but matter as every living being sees it by the realization of  $c^2$ -inertia in its eye.

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