

I.K. Asadullaev

**Eighth challenge of the millennium? Part 2.
 “Exhalation” of Black Holes
 as Transition from Light Matter into
 Conditions of Non-Participation
 of Dark Matter
 (On the new philosophical categories
 of participation and non-participation)**

Abstract. In that previous article, emptiness (space) was considered as a state of substance within which other substances are transformed — matter and field. In turn, matter and field form from the emptiness (energy). In the present paper, we consider matter and field (the micro world, macro world and mega world) as existence in our world. Non-existence in our world is existence in another world, for example, «dark matter and dark energy.» This means that, possibly, the «exhalation» of black holes is a transition of existence and certainty of our light Universe into non-existence in the form of non-participation. However, this non-existence is a form of existence of «dark matter and dark energy» which do not participate in the processes of «light matter.» There is a «window» of interaction in the form of gravitation between light matter and dark matter. However, it is possible that there is another «window» — the transformation of the matter-field of the light Universe into non-existence, that is, the existence of dark matter and dark energy. Dark matter is a state of non-participation with light matter — that is, with our light Universe. And vice-versa. The existence of «dark matter and dark energy», which are non-existence in our world, transform into existence in our light universe by birth of a matter-field of emptiness. This means that through the «exhalation» of black holes there is a permanent shrinking of the density of light matter, which at the same time increases the emergence of light matters/ matter-field in the center of the galaxy or through other means. We hope that this can be observed in light matter — that is, in our Universe. The mass and energy of our light universe are both growing and shrinking simultaneously. We hope that this can be observed through scientific observation. To be a phenomenon within this Universe means to be in unity with its distinctness — as manifestation and part of its distinctness. Every thing in this world is in interaction with other things, and in contact and out of contact. This is the general participation all things with each other — in the processes of one another.

ASADULLAEV, Iskandar Kurbanovich — DSc (Philosophy), member of Hegel International Society.
 Dushanbe, Tajikistan, 734064, Apt. 52, 73/2 Ismoil Somoniy Str.
 [dr_asadullaev@mail.ru]

Distinctness of this world in all its unlimited diverse manifestations, is only in this way, not any other way, another distinctness may be nothingness, the non-existence this world. The unity of this distinctness consist in that every thing, every object of this world may come into contact with any other thing.

Key words: *black holes, categories, participation, nonparticipation, «dark matter», emptiness, substance, existence, nonexistence, galaxy, matter.*

The idea of multiplicity of worlds and universes has already existed for decades in physics, astrophysics, mathematics and philosophy: mathematical calculations have been made, the theory of an assembly of universes progresses, and in philosophy and religion these ideas have existed since ancient times. But if these universes exist, why are they silent, and why is their behavior still unobserved, except by keen scholars so far limited to hypotheses, estimates and propositions? However, everything new must begin with a hypothesis, from which one can develop fully provable new scientific inquiries.

Moreover, today cosmology is experiencing a genuine revolution in relation to fundamental changes in how we perceive our universe. Ninety-five percent of our universe consists of invisible «dark substance and dark energy» whose physical behavior cannot be observed and remains unknown¹.

Which is the case: the non-existence of «dark substance and dark energy», or it is just its non-participation in the processes in our light Universe? The question of existence and non-existence originated alongside religion and philosophy and has been addressed in various ways. The meaning of existence and non-existence are interlinked to each other, opposing one another. Our task is not to give the historical background of how different scientists and systems have understood them, but instead to draw attention to the objectivity of their relationship. This approach yields wholly surprising aspects.

We proceed from that point of view that non-existence of our world exists as an existence and certainty of another world, universe or «substance.» This paper is the continuation

of the published article, «The Eighth Challenge of the Millennium? Is Emptiness Matter? Hypothesis on the Incompleteness of the Principle of Conservation of Mass and Energy,» in the Journal «Sentence,» № 1, 2013.

In that previous article, emptiness (space) was considered as a state of substance within which other substances are transformed — matter and field. In turn, matter and field form from the emptiness (energy).

In the present paper, we consider matter and field (the micro world, macro world and mega world) as existence in our world. Non-existence in our world is existence in another world, for example, «dark matter and dark energy». This means that, possibly, the «exhalation» of black holes is a transition of existence and certainty of our light Universe into non-existence in the form of non-participation. However, this non-existence is a form of existence of «dark matter and dark energy» which do not participate in the processes of «light matter.» There is a «window» of interaction in the form of gravitation between light matter and dark matter. However, it is possible that there is another «window» — the transformation of the matter-field of the light Universe into non-existence, that is, the existence of dark matter and dark energy. Dark matter is a state of non-participation with light matter — that is, with our light Universe. And vice-versa. The existence of «dark matter and dark energy,» which are non-existence in our world, transform into existence in our light universe by birth of a matter-field of emptiness. This means that through the «exhalation» of black holes there is a permanent shrinking of the density of light matter, which at the same time increases the emergence of light matters/ matter-field in the center of the galaxy or through other means. We hope that this can be observed in light matter — that is, in our Universe. The mass and energy of our light universe are both growing and shrinking

¹ Internet source: Rubakova V. «Temnaya energiya» (Dark energy) Interview, Senior Research Fellow, Nuclear Research Institute Russian Academy of Sciences, Moscow.

simultaneously. We hope that this can be observed through scientific observation.

Meanwhile, the dialectic of the categories of existence and non-existence (non-existence is a category) is quite diverse, as confirms by the works of philosophers. For example, in Hegel's research, for whom existence and nothingness are inseparable in many aspects. However, speaking of Hegel, it is important to distinguish the two sides of these contradictions: as internal contradictions, and also as divided by space and time. We are interested on second aspect, though in principle we do not divide it from the first. We should mention right away that we are tentatively talking about time and space, as they are the essence of certainty in our universe, though is quite possible that they do not exist in other universes. However, «dark matter and dark energy» exists in space in our Universe. It is necessary to mention more broadly that this refers to the difference between existence and non-existence in the determination of different universes, but also in one distinction of our world. All «matter» in the Universe has its own distinction: the distinction of «dark matter and dark energy» cardinally differs from the distinction of light «matter» in our light Universe. There are two «matters» in our Universe, which do not participate in mutual processes — except gravitation.

On aspects of the correlation of existence and non-existence, it should be said that nothingness as non-existence is a denial a certain existence, that is, nothingness is not an abstract denial of an abstract existence, but a concrete correlation one of with other. Only in this case, as paradoxically it may seem, nothingness really exists. We may not speak in general, but only in a concrete and certain aspect.

However, the problem of non-existence in objective reality is settled in aspect of the concrete certain correlation existence and non-existence one to other only. It can be understood as follows: there is such a thing as existence, and there is such a thing as non-existence of this thing. This relates to matter: there is the existence of matter and there is the non-existence of matter, but there is no general non-existence. That is why, to jump ahead, the non-existence of one thing is the essence of the non-existence of another thing, which was already foreseen

by Aristotle. Non-existence entails the real existence the denial of something's existence. That is, we can speak only about existence and its denial in with respect to the concrete determination of something's existence or non-existence. In this distinction, nothingness, entailing the existence of nothing existence of nothing, is non-existence. Non-existence exists, but in a form of denial of a concrete certain existence, the existence of a concrete certain thing in the form of existence of another thing.

In other words, non-existence exists, there is the existence of non-existence, but only in respect of a concrete denying correlation regarding a particular thing.

Non-existence, the denial of a certain existence, becomes the existence of nothingness — a particular non-existence. It is particularly important in respect to the correlation of the existence and non-existence of multiple universes do not see one another as a result of the radical or absolute difference in qualities between one another. Scientists have written much about this particular divide between worlds².

The attempts of astrophysics and mathematicians to reveal the distinctness of «dark matter and dark energy» through means within our light universe (i.e. experiments, research, astrophysical observations) has not yet yielded results. In other words, it is not «yet» possible to detect dark matter and energy, as they do not enter into contact with light matter. There is only a «window» of interaction of «dark matter» and «light matter,» and that is gravitation. This «window» of interaction will «expand» for scientists if there is success in determining the specific distinctiveness of black matter and energy.

Each Universe different from every other universe and cannot be defined by definitions of another existence.

If we adhere to modern hypotheses on the existence of «dark matter and dark energy» that fill 95% of our universe, then this «dark matter and dark energy» is nothingness for our light matter, as there is no interaction or participation in its processes, with the only exception of existing «windows» — gravitation

² See.: Universe, astronomy, philosophy (Wselennaya, astronomiya, filosofiya) // Izdatelstvo MGU, 1988.

and perhaps something else that has not been identified. That is, it is possible there are other «windows,» for example, through the exhalation of black holes and the emergence of light matter in the center of the galaxy. Or there are other means, as yet unknown to us.

In our point of view, there are dialectical categories in philosophy, and they could assist in understanding the aspects under consideration: the categories of participation and non-participation. The dark universe and light universe, with the exception of «windows,» do not participate in processes of one another. That is what is currently posited by scientists. Dark matter is not detected by the means of qualitative distinction within the light universe (the scientific method, research, experiments, observations).

However, the categories of participation and non-participation covers not only light and dark matter in general, but can be seen everywhere. Things interacting with one another, i.e. participating in the process of each other, do not participate in these processes in the same way in certain aspects when creating new processes.

There is incomplete influence of one object over the other. An influence cannot be totally unlimited, how diverse it may seem, will nonetheless always be limited, leaving certain processes without unaffected. For example, when two metal balls mechanically collide at low speed they will be deformed and will change speed, but one does not change the quality of metal in the other. Alternately, two particles collide. During a collision, a quantum or particle may appear, but their distinctness of belonging to the micro world remains. There is incompleteness in any interaction, therefore there is always a degree of non-participation in processes.

All things include the categories of participation and non-participation.

But non-participation is itself a dialectic influence, when not influencing and not interacting to any object, a non-participating object allows the other to move and develop with its own logic or the logic of interaction with others.

The unity of concrete world is manifested in the existence of things: every thing exists in the distinctness of this world's existence, but all this of this world is at essence nothingness

(non-existence) as distinguished by another Universe. Hence, we can conclude that our world and others, if they exist, have their own specific distinctness. Other worlds at present do not make themselves known, which means that they are not within the distinctness of our world. Alternatively, our world does not exist in the distinctness other universes, which are in turn non-existent in our world. The universes do not participate in the processes of one another, possibly with the rare exception of «windows» of limited interaction. Hence it is fully possible that we do not exist for anyone else or other universes. Existence is manifested in that it is seen by distinctness of own's world existence, within one's own Universe.

Here we have paradox of «silence,» of non-participation of universes with each other, or at least with our world, although theoretically it is possible that the number in existence is unlimited. There are other similar paradoxes. There is also the *astrosociological* paradox, understood as the contradiction between admitting a multiplicity of inhabited worlds and the absence of the real manifestation of activities of alien intelligence (внеземные цивилизации)³. This relates to the non-participation with regard to interaction between possibly existing inhabited worlds. The same can be said of the «silence» paradox, or non-participation with regard to interaction of multiple universes. The non-participation paradox of our universe and others in mutual processes could be called as such.

This paradox came into being on the basis of universes' non-participation in mutual processes by virtue of the fact that they are not defined by distinctness of each other, being for each other nothingness — non-existent. Although, maybe, this relation of existence and non-existence only relates to our Universe, and other universes may have no «silence» with regard to each other; this is unknown to us.

To be a phenomenon within this Universe means to be in unity with its distinctness — as manifestation and part of its distinctness. Every thing in this world is in interaction with

³ Gindilis L.M. (Multiplicity of inhabited worlds) Mnojestvennost obitaemykh mirov // Wselennaya, astronomiya, filisophiya. Izdatelstwo MGU, 1988. P. 93.

other things, and in contact and out of contact. This is the general participation all things with each other — in the processes of one another. Distinctness of this world in all its unlimited diverse manifestations, is only in this way, not any other way, another distinctness may be nothingness, the non-existence this world. The unity of this distinctness consist in that every thing, every object of this world may come into contact with any other thing. However, there is a manifestation of a hard category of necessity: there cannot be a self-will in relations between objects.

In other words, each Universe, dark matter and light, has its own distinction in transitioning the radical divide between them. Dark and light matters have «windows» of interaction, however there may not be such windows between different universes and they to one another nothingness — non-existence.

That is why we, our world, our Universe present a non-existence for others' distinctness — distinctness of other worlds for whom we are nothingness (non-existence).

Aristotle draws an attention to character of nothing — non-existence. He writes:

«This [question] raises considerable difficulties, as the reason for the continuing occurrence, if it can indeed be annihilated, disappears, becoming a non-being and a non-being is nothingness. After all, non-being is neither [a specific] object, nor a quality, nor quantity, nor a place. If things keep disappearing from existence, then why does the Universe still exist, instead of disappearing without a trace, if that which makes up each thing is perishable. But origin does not end not because of its continuity, but certainly because what is made of.» And Aristotle arrives at the notion, that, «And not because of transformation [of one object into another] must be continuous, is destruction of one thing the birth of another, and origin of one is the destruction of another object? This is how we understand the reason for all, equally [explaining] origin and annihilation of any thing»⁴.

The most important thought of Aristotle, in our view, is that that nothingness — non-existence — is not defined by distinctness of

this existence — there is «neither quality, nor quantity, nor a place.» However the disappearance of one existence is the existence of nothingness, and that is the existence of something. That is, Aristotle arrives at the conclusion that nothingness is another existence. If this principle is applicable to the whole universe, then it should be said that nothingness of one universe is an existence of another universe that is not recognized by the first. The nothingness of one existence is another existence; it is a state of non-participation. But it is only one aspect, as there is a dialectical unity of existence and nothingness, what Hegel calls «formation.» Meanwhile, within the unity of existence and nothingness, Hegel demonstrates dialectical participation in the process of formation. It is worth also acknowledging this aspect in the correlation between existence and nothingness, but already in the dialectical participation in one distinctness of one world only.

There are two kinds of non-participation: non-participation in the divide between existence and nothingness, in our case, of the universes, and non-participation with participation with objects within one universe, in which case non-participation is not complete.

Moreover, non-participation is manifested in our world on a larger scale than meets the eye. For example, non-participation of objects within the present. In actuality, we interact with each other not at the present, but with the past of each of us. The light of a far galaxy takes billions of years to reach us. We perceive its past with our eye, our sense, but it is our interaction today with the state of galaxy as it was billions years ago. We do not know what's happening there now. There are billions of years between us. Nevertheless, this example demonstrates a principle: things do not interact with each other now, but with in their past, no matter how close it may seem to us. This is true even if it is a vanishingly short period of time. In this small amount of time, two objects are in a state of non-participation.

That is, if we assume the existence of the present time for all objects, then none of them can interact with one another object at the same time, and at present time they do not participate in processes of one another. In other words, due to the impossibility of instantly in-

⁴ Aristotle. (Essays) Sochineniya w chetyrekh tomakh. M.: «Mysl», Book III, 1981. P. 391.

fluencing one another, during this delay they do not exist for one another. It is this non-existence of things and infinitely small period of time that we call the present.

At the same time it should be said that, aside from the nonparticipation of interacting objects in the present, an interaction can always be seen as an interaction between the present and the past. For example, consider two boxers. A fight is taking place in real time. But at every moment in time there is a present moment where action takes place in quite a short period of time between the present of one and the past of the other. Every interaction is a link between the past influence of one object and the present of the other. A boxer, upon receiving a blow, supposes that it is happening in the present time but nevertheless, is actually receiving a blow from the past with a small time delay to the present. This is ready evident when interacting objects are separated by significant time and distance, for example, in the interaction with a distant galaxy described above.

But in this case, too, without a single wave of present time, the present exists locally, and it is locally that interacting objects experience their state of non-participation. This is a distinctive nonexistence of objects for each other in the present. That is, the world is united and divided. The world is united as an interaction of one's past with another's present. The world is divided by the impossibility of interaction of objects within their present time.

The philosophical categories of participation and nonparticipation relate to ontology,

social philosophy, politics etc., as they are universal. We meet these categories everywhere. There is participation or nonparticipation in every issue and problem, non-participation in political movements or participation and so on. For instance, nonparticipation for whatever reason of an individual in the activities of many organisations and institutions, nonparticipation in criminal cases, or participation at the fate of one's own people and country.

The categories of participation and nonparticipation are manifested in every interaction, and this issue is open-ended for philosophy and other sciences, with important methodological implications.

Our light Universe's «window» of interaction with dark matter and dark energy is one matter. But if we examine the «silence» paradox — nonparticipation of a multiplicity of universes with regard to our Universe — then this paradox can be explained by the existence-nonexistence dialectic with respect to concrete certain relativity — i.e., the impossibility of finding them within the distinctness of our Universe for whom we may be might be nothing — non-existence.

In addition, it is possible there is a hypothesis: «exhalation» of black holes occurs through the transformation of light matter (substance and field) into «dark matter and dark energy» as a manifestation of the dialectic of the categories of participation and non-participation. The reverse also occurs, as «dark matter and dark energy» transition to substance and field.

References:

1. Internet source: Rubakova V. «Temnaya energiya» (Dark energy) (Interview, Senior Research Fellow Valery Rybakov, Nuclear Research Institute Russian Academy of Sciences, Moscow.)
2. «The Universe, Astronomy, Philosophy». Moscow State University Press, 1988.
3. Gindilis, L.M. «Multiplicity of inhabited worlds» (Mnojestvennost obitaemykh mirov) in «The Universe, Astronomy, Philosophy,» Moscow State University Press, 1988. P. 93.
4. Aristotle. (Essays) «Compositions in Four Volumes,» Moscow, Mysl Press, Book III, 1981. P. 391.
5. Assadullaev, I. «The Eight Challenge of the Millennium? Is Emptiness Matter? Hypothesis on the Incompleteness of the Principle of Conservation of Mass and Energy» // «Sentence». № 1. 2013.