

Universe (Geometric Quantum-Mechanical Model)

The Universe is immense and elegant, where all material bodies exist and develop according to the laws of nature mutually coordinated and forever. The State of the Universe – is the Infinity-Gravity – is the Organization of the Universe capable of creating self-organizing, self-regulating, and self-perfecting material systems, from atoms to human societies.

We live in the world not understanding almost anything about its construction. We know little about the matter and the reasons of its existence. Is not known its elementary particle, is not constructed model of the hydrogen atom – the building material of the entire material world. We not even have the idea what energy and how ensures functioning of the atom (matter) – our existence. Is not known structure and mechanism of functioning of the gravity field – of the environment of existence of matter. We, for more than 300 years successfully use the Newton's law of gravity, although we do not know *what is gravity?* Evolution of our Galaxy and other galaxies, clusters of galaxies, black holes, dark matter and other space phenomena not yet explained. Volcanoes, earthquakes, climate change, cosmic threats and other natural phenomena on Earth still remain "dark".

The result of intensive work of scientists-theorists and experimenters over the last century is the many known famous discoveries in physics, astrophysics, chemistry, biology and other sciences. But in fundamental physics tragic situation emerged. [2]

From the history: In fundamental physics it was the task: to quantize point particle of the Standard model (to confirm that dot particle can be used for building of the elementary particle of matter). Physicists-theorists could not quantize the point. In the end of seventies of the last century, some physicists came up with an idea: particles can be constructed from strings, which may fluctuate, resonate and interact with each other. The idea was picked up and thousands of scientists for 50 years trying to "revive" the string, but have not succeeded. Thousands of scientific (doctoral) works could not prove the validity of the theory. The reason for this is the initial fallacy of the idea: a string cannot be used for building 3D material particles. Theorists are working to create the "Theory of everything" – the Final theoretical model of the Universe. They could not fulfill their dream due to the fact that to the basis of their works they put the Einstein's *relativity theory* (RT), which turned out to be dubious.^{7*} Many of the phenomena of nature not have explanation for the same reason (big Bang, black holes, evolution of galaxies and galaxy clusters). One of the main causes of failures in the work of scientists in different fields of science is the lack of consistency. Each of them closed in their circle. Without fundamental physics is impossible to explain space phenomena, without astrophysics and

astronomy is impossible to explain the structure and function of the elementary particles of fundamental physics. We, (quantum) mechanics, do not understand the theorists. For example, RT was designed for "coordinate systems moving uniformly" although in the nature there are not such systems. In their calculations they neglect the gravity due to its smallness, whereas gravity is the only source of driving force and energy of the Universe. In the hydrogen atom, they neglect the electron's mass due to its smallness (and this "smallness" was calculated wrongly due to neglect elementary rules of mechanics). Electron can be taken as a natural constant particle.^{6*}

The book *Universe* – description of the Final model of the Universe – second edition of the *Geometric Quantum-Mechanical Model of the Universe*. This Model reveals and explains all natural phenomena and the reasons of existence of matter, as well as opens a new look on the natural phenomena on Earth and in the space. The discoveries and original conclusions of the Model will allow launching new targeted researches of the environment and space to continue research in different scientific areas, which have not yet been completed and require new research methods. In addition, they offer to stop some of the theoretical and experimental works which are carried out without sufficient substantiation of the subject of the research (for example, it is necessary to stop the theoretical and experimental works related to the theory of superstrings, to the so-called "New physics", because this theory has proved to be questionable.)

Here are some of the discoveries and conclusions of the Model, and their possible practical applications: Black hole is the source of the building material and energy of the Galaxy (Knowing of the "behavior" of the Black hole, it will be possible to study the current and ancient climate changes and conditions of life on Earth); the "fusion reactor" of the Sun runs on hydrogen from the BH (The mass of the Sun increases. Outer layer with a temperature of 6000K – the boiling point of the refractory element, tungsten, – is "protective reactor housing", its thickness increases due to the formation of the new chemical elements from hydrogen and falling celestial bodies.); Lava layer of Earth is formed at a certain depth due to the slowing of rotation of the atoms in the cramped conditions, which leads to rising of temperature and melting of the surrounding rocks. (This same mechanism explains the temperature rise of gases and metals when they are compressed.); Volcanoes – is the main cause of climate warming. (During the ice age the flow of energy from the Black hole was not large – volcanoes were rare, the heat from the Sun was not enough); Stars, the Sun, Earth, planets, the Moon, asteroids, comets, "star rains", exoplanets and other celestial bodies, located at the same distance from the BH, have the same age. (There is no need to send an expedition to Mars in search of the origin of life, risking their lives, spending billions, when you can find the answer on Earth, spending a million. Life was formed and is formed on Earth. Over time on Mars life will be formed.); Quantity of air and water on Earth is increased. (Increasing of water quantity in the warm atmosphere leads to increasing in precipitation,

causing floods, mud flows, landslides. The overall water level is increased. Big problem arises about relocation of human settlements from hazardous areas. The increased amount of air increases the force of the winds and hurricanes. It will require an adjustment of the aerometers' scale, that so the aircrafts with the aerometers not crashed into the ground when landing.); Geological layers were formed and is formed from cosmic dust ejected from the Black hole. The dust in the streets and fields – is the cosmic dust.

A brief summary of the main provisions of the book

Gravitational field – is the environment of the existence of matter – is the spatial supersymmetric structure consisting of densely packed gravitons.^{1*} *Graviton* – is the Planck particle – it pulses – changes its mass (solid) and massless (hollow, energy) states by the Planck frequency - quantized.^{2*} Therefore, the infinite space of the Universe – is the pulsating gravitational field – i.e. changing their mass and massless state by the Planck frequency ($f_{\nabla} = \nu_P = 1,8549 \cdot 10^{43}/s$). Gravity field – is the energy source of the Universe.

Matter consists of gravity (substance – *gravina*), existed by gravity energy and operates according to the laws of gravity.^{3*}

Elementary particle of matter (biser) has double mass of the graviton, existed by gravitons' energy, but operates independently of them. Biser pulses by twice lower frequency than the gravitons. Time of massless (hollow) state of the biser two times more than mass (solid) state of the graviton. Therefore, biser (material bodies) is moving in the environment of gravitons (in the pulsing crystal gravitational field) without any resistance. All elementary particles of the Universe (bisers) are in mutual attraction to each other with the help of necklaces by force $F_u = 1,09 \cdot 10^{-25} \cdot D^2$ N constant and eternal, regardless of which physical processes and chemical reactions they participate. This force is constantly collects all the material particles of the Universe together, creates hydrogen atoms → atoms of the chemical elements → celestial bodies → organic and inorganic world → origin and evolutionary development of man.

Vacuum exists in two forms: atmospheric (space) and quantum. Atmospheric vacuum is the vacuum of space (the maximum vacuum is at an altitude of over 700 km) and the vacuum, created artificially in a vessel. The quantum vacuum state of the gravity field and matter is the result of addition of pulsing vacuum state of the environment of gravitons (supersymmetric crystalline space), pulsating with the Planck frequency, and matter particles (biser), pulsating with the $\frac{1}{2}$ Planck frequency. The quantum vacuum is pulsing with the Planck frequency. We see the Universe as not pulsating vacuum state, because we are part of this state – we pulsate synchronously with the frequency of the gravity field. Pulsating solid and vacuum states of space occurs at the time (for $t_p = 5,391 \cdot 10^{-44}$ s), when we ourselves and Earth, the Sun, stars and galaxies are in the vacuum state, i.e. when we are not. The vacuum state of the gravity field is the energy state of the Universe.

Hydrogen atom is self-organizing, self-regulating particle of matter, that converts antigravity energy to movement, – is constructed from bisers.^{4*} (Figures 2 and 3).

In the galaxy – in the elementary area of the Universe – going on forever repeating cycle of matter, consisting of expansion and contraction periods.^{8*} (Fig.4). The expansion period begins with explosion of the Black hole (BH), known as Supernova. At the beginning, the explosion scatters into space of the future galaxy fragments of crust of the BH – centers of the future stars, the Sun, Earth, planets, asteroids, dust, and other celestial bodies. Then "evaporation" of the Black hole begins with releasing of the hydrogen atoms and emission of antigravity energy. BH – is source of the building material and energy of the Universe.

The expansion period of the galaxy is continued 6-7 billion years, during which in the galaxy from the fragments of the crust massive celestial bodies of different sizes are formed. These bodies, spreading radially from the center, increase in size due to mutual gravitation (clusters). The large fragments attract more small ones – are growing faster than the fragments with smaller mass. So, for example, the Sun is larger than Earth, Earth is larger than Mars and the Moon, although they are all the same age. Celestial bodies, located at the same distance from the BH, have the same age.

The increasing size of the celestial body reaches to the point where chemical elements under static pressure at a certain depth from the surface are melted (because of difficulty of rotation of the atoms in cramped conditions). Temperature is raised to 6000K (this is the layer of lava). The size of the heavenly bodies continues to increase. From the incoming hydrogen atoms are formed chemical elements, including radioactive elements. Radioactive decay is started, then thermonuclear reaction – the synthesis of helium from hydrogen coming from the Black hole. Temperature rises $>10^6$ K. Stars (the Sun) appear ("light"). At a certain depth static pressure increases up to a value at which atoms collapse compacted, lose ability to rotate, thermonuclear reaction fades. In the center of such stars (the Sun) the density of matter reaches to maximum value – $7.05 \cdot 10^{72}$ kg/m³, the temperature drops to 2.72 K. (Fig. 6)

During expansion of the galaxy on some planets organic life is formed. Life begins on a single planet and not transferred from one planet to another. The expansion period of the galaxy continues until complete "evaporation" of the BH. At the end of this period the whole mass of the galaxy rotates around its center. Then period of contraction begins. Stars burn out, on the planets organic life ceases due to cessation of income of hydrogen and antigravity energy out of the BH. The "dark" and "cold" period of contraction of the galaxy starts. Atoms of chemical elements cease to function due to the lack of antigravity energy flow; the charges of the electron and proton disappear, atoms are self-compressed collapses by internal gravity. [Electric charge – is the effect of interaction (of elementary particle) of matter (biser) and antigravity energy flow]. All the celestial bodies turn into "dead" black holes regardless of their size. Diameter of such BH may be <1 mm or >1 km.

That is so called Dark matter consisting of the atoms-lumps and collected by mutual gravity. They do not radiate electromagnetic waves, so they are invisible. In this period gravity dominates, which continues to collect the celestial bodies into larger BH, to Stellar BH-s (SBH). These SBH-s revolving in decreasing orbits, with acceleration are approaching closer to the center of the galaxy. At the time of contacting of all the SBH-s – pulse termination increasing of rotation, part of the kinetic energy of the galaxy, not converted to potential energy, goes into another form of energy – into antigravity energy. This energy impulsely blows the top "loose" crust of the BH and scatters its fragments into space of the future galaxy. There is another kind of energy that blows up the BH. The SBH-s fall to the Central Black hole (CBH) with acceleration, that was started at the beginning of the contracting of the Galaxy. The power of collision

$EY = Mbh1 \times Mbh2 \times Vc$. (where Mbh1, Mbh2 – masses of BH; Vc – collision's speed). This unimaginably high power blasts the CBH. Powerful gravity wave propagates in the moment of contact. Expansion of the galaxy is started – another cycle of matter's circulation in the galaxy. All rotating celestial systems have a flat disc shape.

In an expanding and contracting galaxies observed also emergence of the Stellar Supernova. This occurs when several SBH-s merge together and explode in the galaxy in the same way as described above.

How goes *circulation of matter in the galactic clusters*? Earth rotates around its axis at the speed of 1670 km/hour or 464 m/sec, around the Sun – 30 km/s. The Sun revolves around the center of the Galaxy GI (the Milky way) at the speed of 220 km/s. The Sun is from the galactic center at the distance of 26000 light-years (9.5 billion km) and makes one rotation for 240 million years. Galaxy GI revolves around the center of galactic cluster GII at the speed of 630 km/s. Limiting number of magnitude of clusters is their form. Last Hypercluster system Gc is spherical and not rotating. This is due to the alignment of centrifugal and centripetal forces in clusters with the large diameter. Diameter of the Galaxy GI is 10^5 light years, diameter of the clusters GII 10^7 l.y., diameter of the Supercluster GIII 10^{10} l.y., diameter of the Hypercluster GIV 10^{12} l.y. etc. Duration of one cycle of matter Galaxies GI 12-14 billion years. Organic life on Earth lasts 4-5 billion years, of which 1-1.5 billion years intelligent life is continued. In the galactic cluster GII are thousands (?) GI of galaxies, including our Galaxy (Milky Way). They rotate around the Central gravitational field II (CGFII). (CGF – is the stress state of necklaces drawing of all rotating masses through the center of rotation). Galaxies GI revolving are falling to this field and immersed in it alone. Atoms in such intense field breaking down to the bisers. As a result, galaxies GI, stars, SBH and BH, i.e., all the chemical elements fall to the last particles – to bisers. After the collapse of all galaxies GI in this region of the Universe (GII) remains a Cloud (potential energy) that is filled with bisers under influence of mutual gravitation (with necklaces). Then, in the Cloud GII hydrogen atoms out of bisers are formed, out of hydrogen atoms chemical

elements are formed simultaneously in the entire volume GII, i.e. occurs a so-called "Big Bang" without the Bang.

The Last Hypercluster higher order G_c , where processes of energy-mass circulation in the clusters of all orders going on: GI, GII, GIII GIV... – has the shape of a sphere by diameter of $D_c < \infty$, does not rotate. It is the Local Universe. Universe uniformly filled by supersymmetric structure consisting of spherical stationary Local Universes. In the infinite Universe, every point, every Local region is its center. The number of Local Universes G_c and evolutionary cycles of the Universe equal to infinity. Diameter of the Universe $D_u = \infty + \nabla$. (Fig.5)

* * *

Only God (Gott, Dieu, Dio, ٱل, भगवान, 神, אלוהים, Tanrı...) could create his Own – Infinity-Gravity – the Organization of the Universe, able to create self-organizing, self-regulating and self-improving material systems from atoms to human societies. In the Infinity-Gravity every particle, every person is its center, i.e. the center of God's attention. Everything in the Universe belongs to God.

¹*Geometric spatial supersymmetry – is a geometric form, consisting of densely Packed spheres of equal diameter and quality, where each sphere contacts with 12 neighboring spheres – i.e. each sphere is surrounded by 12 spheres.

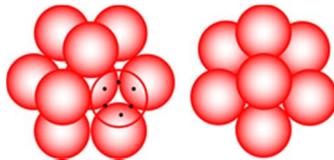


Fig.1

The contact points lie on the three imaginary planes with the same properties. Three lines of mutual intersection of the planes form a spatial angle of 120° and are intersected at the single point in the center of the sphere, i.e. the three planes are intersected at one point. Imaginary line connecting centers of the spheres form tetrahedral (diamond) crystalline skeleton. *Quantization of the gravity field is possible only in the supersymmetric structure. The spatial supersymmetry is the main tool of knowledge of the Universe.*

²*Each graviton in spatial supersymmetric structure is surrounded (touch) by 12 the same gravitons. This graviton with its pulse mass (gravity) pulls the 12 concerning gravitons with the same mass, i.e. the 12 gravitons attract the central graviton. The substance of the graviton (gravina) under action of these forces flows to the periphery of the graviton, and in the center a vacuum (clot of energy) is created. The mass (drawing power) disappears – turns to (potential) energy. Gravina, after reaching of this vacuum to the

maximum, impulsely fills (decreases) the vacuum. The mass appears – energy is converted into mass. Cycle of quantization – Mass↔energy – occurs for the Planck time.

³*Mass and energy are two states of matter. Quantitatively, they are equivalent. Without energy, no mass, without mass, no energy. Energy-mass is one concept of the essence of matter – it is *matter*. Matter appears and exists by pulse-quantum transition of these two states into each other. Mass manifests itself in the accelerated movement.

⁴*Hydrogen atom is the self-organizing, self-regulating particle of matter, converts antigravity energy into motion. Hydrogen atom is a rotating with the frequency of $n_H=3.29 \cdot 10^{15}/s$ disk consisting of concentric rings of electromagnetic fields. The outer ring – is the electromagnetic field of the rotating electron's charge (-), the inner ring – is the electromagnetic field of the rotating proton's charge (+). Neutron rotates around its center.

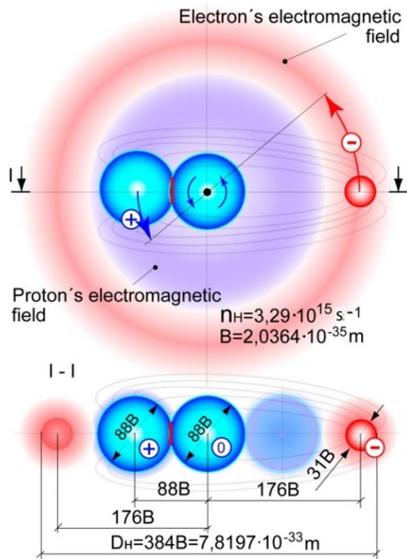


Fig.2

Hydrogen atom consists of proton, neutron and electron. Proton and neutron have a hollow spherical shape with a single-layer shell of 28000 bisers, the electron is a spherical conglomerate of 28000 bisers, packed supersymmetric. Nucleons are connected by Siamese contact (the gluon). Quarks of the proton and neutron are carriers (antigravity) energy, and govern functioning of the atom. The nucleus and electron are rotated as a single system and synchronously. They are bound by forces of electromagnetic, gravitational and centrifugal interactions: $F_{c.f.} = F_{gr.} + F_{e.m.}$. The mass of the proton, neutron and electron are the same. Proton and neutron in the depths of the black hole are compressed to the size of the electron. Electron has constant diameter; it is stored in the compressed and free atom. Electron revolves in the orbit wavelike.

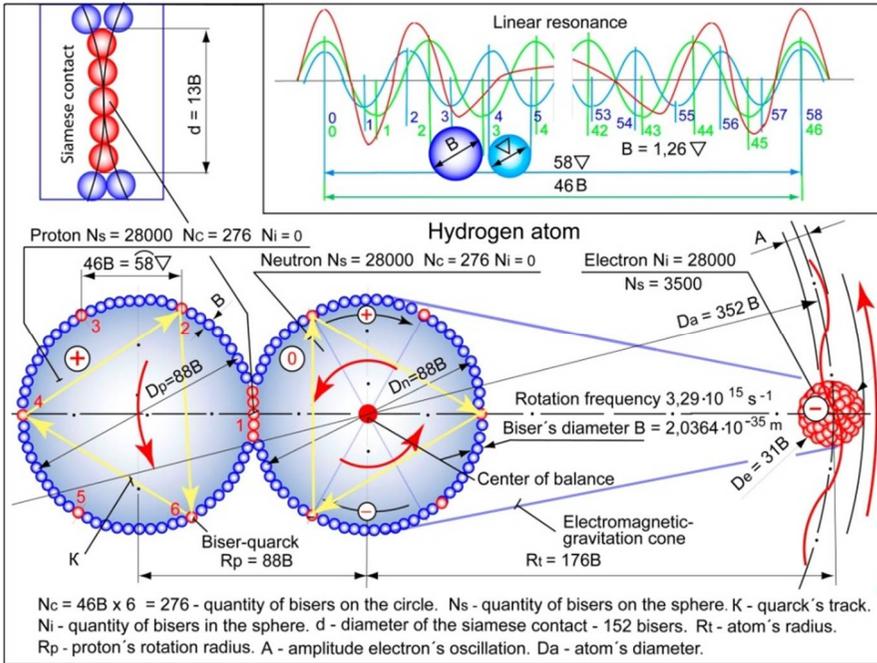


Fig. 3

Hydrogen atom has unique properties: it can be in three states: compressed (in the depths of the black hole), loose (in the void) and united in chemical elements. It has all the 6 degrees of freedom, has ability to selectively connect with other atoms: by end, by side surfaces with 6 contacts, to connect simultaneously with other protons and neutrons also with those contacts, to change roles of the proton and neutron depending on their location in the newly formed atoms of chemical elements. Hydrogen atom – the smallest atom – has unique diffusion-penetrating ability. The evolutionary development of matter was possible only thanks to the original properties of the hydrogen atom.

Atoms of all chemical elements were constructed and are built by combination of hydrogen atoms. Quantity of hydrogen atoms in an atom of the chemical element equal to its ordinal position of this element in the Periodic table. Relative atomic mass of the hydrogen atom 2,016 (but not 1,008).

^{5*} Hydrogen atom in the BH, compressed to the superdense state, freed from the captivity of gravity, straightens up, emitting a quant antigravity energy equal to the energy expended in its compression. Antigravity propagates at the speed of light (from the black hole reaches Earth for 26000 years), and hydrogen atoms according to the law $1/R$ (reach the Earth for 35000 years). Atom, when straightening – when its electron (mass) comes off out of the proton (mass) to the radius of the atom, – emits a quant of antigravity energy.

^{6*} Electron is a composite particle with the diameter of $32B$ may be taken as a *natural constant particle* due to its unique properties. All the chemical

elements' atoms, black holes, neutron stars are composed to these particles. Electron has an absolute hardness 10^{64} kg/s^2 , can withstand enormous pressure of the massive celestial bodies, does not change its properties, does not come into contact with other particles. Electron interacts with the electromagnetic field operates only in the atom, decay of the atom is converted into neutrinos by diameter 32B (B – diameter of the elementary particle of matter – Biser. Electron consists of 28000 supersymmetric packed bisers.)

^{7*} Albert Einstein proved the Theory of relativity (RT) by "idealized experiments created by thinking", i.e. without physical experiments. In idealized experiments, some elements of the experiment can be not noticed, and, as a result, conclusions can be erroneous. We have conducted physical experiments and found the following: In the idealized experiments RT mistakes were made that are not compatible with the main provisions of RT. Thus, it was found that idealized experiments of RT have not been properly performed and Einstein's conclusions, made according to their results and were laid to the base of RT, were doubtful.

^{8*} Diagram of matter circulation in the Galaxy.

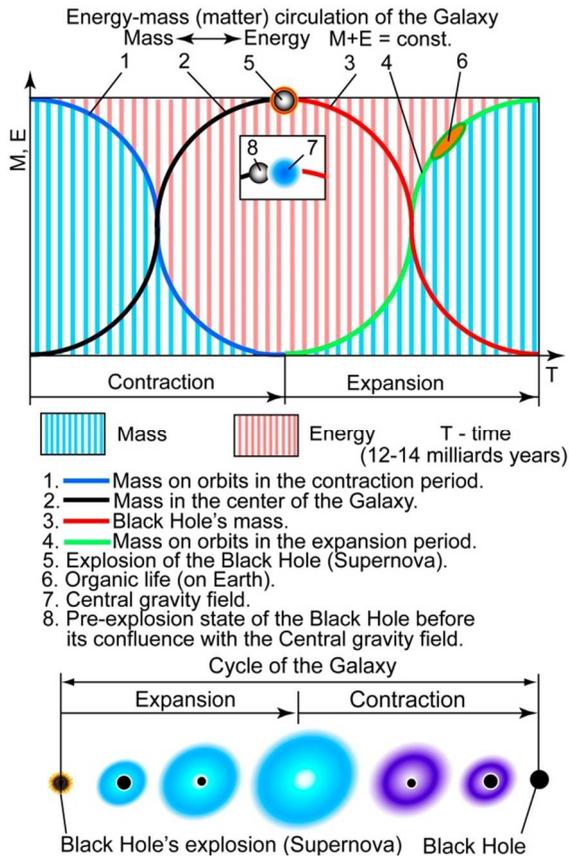


Fig.4

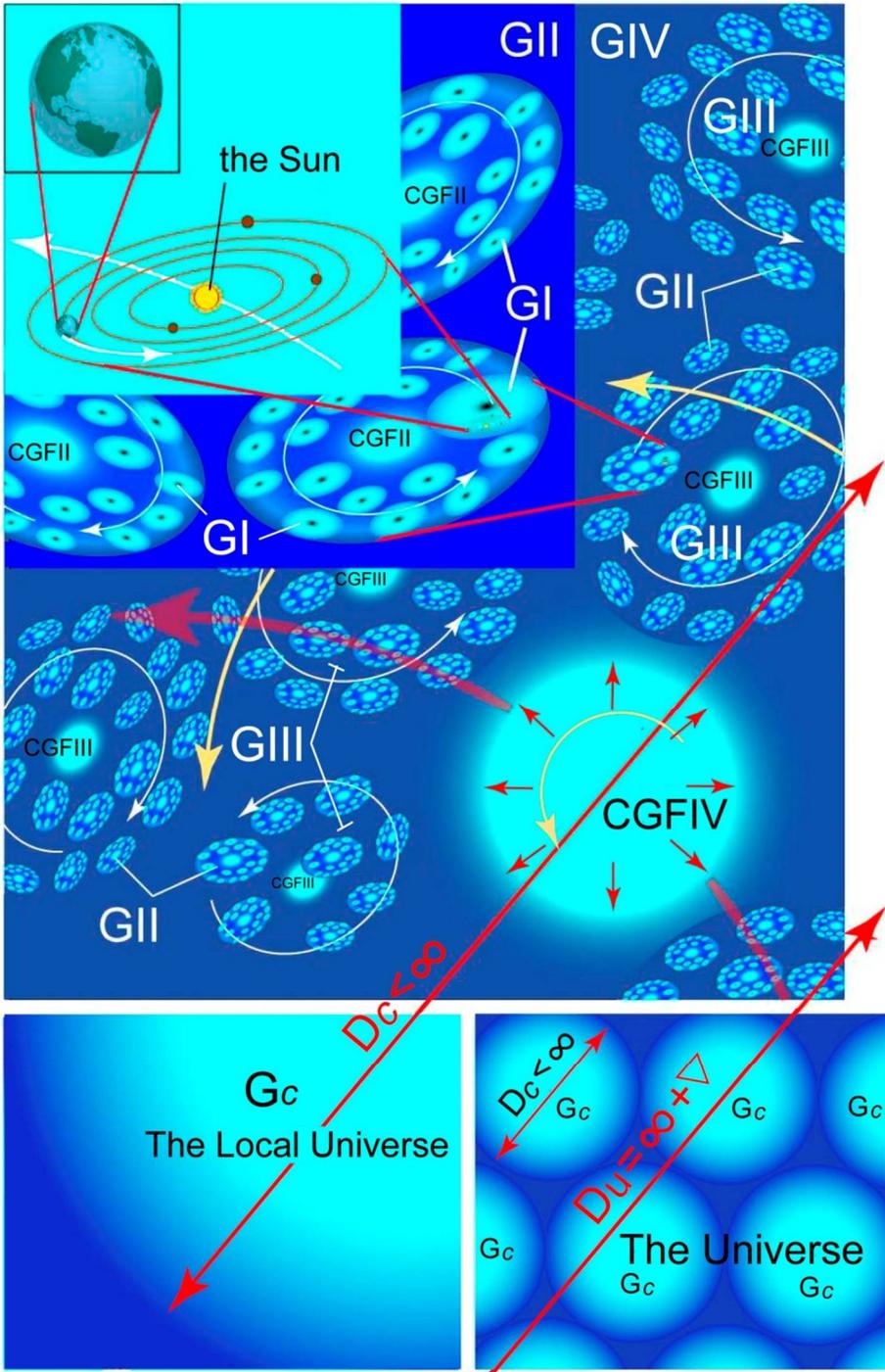


Fig.5. Evolution of the Universe. G I – Galaxy (galaxies); G II, G III... Gc – Galactic clusters; D_c – diameter of the Local Universe; D_u – diameter of the Universe.

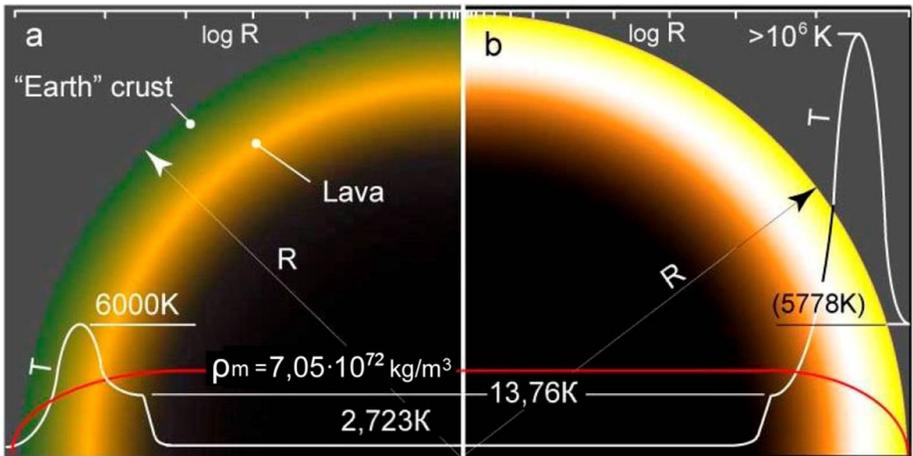


Fig. 6. a – Structure of the non-luminous celestial bodies (BH, SBH, planets) in the expanding galaxy. **b** – Structure of the luminous celestial bodies (stars, the Sun). T – The curve of temperature; ρ_m – maximum density of matter in the celestial bodies.

References

1. A.F.Zhdanov at all. “Geometric Quantum-Mechanical Model of the Universe. ISBN: 978-5-88469-790-4, State University of Economics and Service. Ufa, 2016.
2. A.F.Zhdanov at all. “Relativity Theory is doubtful? ... and Superstring Theory?” ISBN: 978-5-98755-221-7, Publishing house «Oil and gas», Printed by LIC-TM, Ufa, 2017.

PDF copies of books can be downloaded from the blog
<http://zhdanov.trinitas.pro>

Authors

Afzal F. Zhdanov, Mikhail A. Zhdanov,
 Mikhail M. Zhdanov, Felix M. Zhdanov

Bremen, Ufa, August 2017

This article is an introduction of the book *Universe*, which is under compilation. It will help you better understand the book *Geometric Quantum-Mechanical Model of the Universe*, published previously.