

## FORMATION of GALAXIES and STARS

Vladislav Konovalov

### Abstract

In the article some features of formation of galaxies and stars are considered

Apparently, that star-formation happens simultaneously to formation of galaxies from those rotated with miscellaneous velocity and clouds of matter, possessing by own peculiar velocities, which one are thrown out at decay of supernuclei. "As to age, we have continuous sequence: star-formation was prolonged in all times. But that fact, that the majority of stars in our neighborhoods has arisen, apparently, in very early times, allows, I think, approximately to divide stars into two populations: it would be possible to term one, relevant to a flash star-formation in the beginning, and another, which one as the dieing away end of this flash". W. Baade, Evolution of stars and galaxies, "World", M., 1966, page 296.

In further activity of a core of a galaxy can be supported by continuous dropping of a material on it with periodic revertive outbreaks on the mechanism of decay of a supernucleus or of gravidynamic object. It is confirmed by the efflux of hydrogen from center of our Galaxy out. "Density of hydrogen is non-uniform, it will forms singular spiral sleeves. The expansion of hydrogen from center of a Galaxy is watched". N.I. Kariakin etc., Brief manual on physics, "Higher School", M., 1962, page 355.

In the chapter "Formation and constitution of a solar System" enough mechanism of formation planetary and satellite system around of a star explicitly was described. The similar approximately fashion happens also formation of galaxies. Thus on a periphery them the large masses of invisible matter not only as particles by the size more than 0.8 mms [1], but also large celestial bodies of the meteoritic, cometary and planetary sizes should place. Therefore calculations of motion of stars in galaxies find out invisible missing mass in them. At the same time motion of separate galaxies in congestions displays as though missing mass that the motion of galaxies is a corollary of spraying of matter from a supernucleus, and the time past from "birth" of the Universe has not enough for a full congruence with the law of world attraction. "In an astronomy there are some "of a white spots", in particular bound with a problem "of latent mass". Watching motion of stars in galaxies, we should explain their dynamics in view of mass of the galaxy and mass distribution inside it. However, attempting to make it, we discover that the results of theoretical calculations do not converge with the observational data; the business looks how if in a galaxy was more than mass, than till now it was possible to find out. Similarly at the analysis of motion of galaxies inside congestions there is an impression that the part of mass misses". Fundamental structure of a substance, "World", M., 1984, page 82.

That can be asserted and for stars which are included in a structure of galaxies. If from birth of a Galaxy the solar System has made only 20-30 revolutions around of center, it is completely not enough of it, that the Sun has taken stationary orbit, by losing an exited state. Therefore excess of mass in galaxies as a matter of fact it is even more, than it is supposed. Knowing an orbital velocity of a star in a galaxy and distance it from center is easy to count up mass of a galaxy inside orbit of a star. It is necessary still to allow and mass of planetary systems around of each star, though the common contribution from them is absolutely insignificant. Now about planetary systems of stars there is not enough of information, but in due course compulsion of a planetary system for each star will be demonstrated. "The key concern introduces a problem, whether other stars entering alongside with the Sun a huge sidereal system a Galaxy have planetary systems. Unfortunately, to see in a telescope for any star a planet, even so large as Jupiter, while it is impossible. But the presence of a massive planet should call oscillating motion of a star of

rather common center of mass of both bodies. Such oscillations are detected already for several stars. In particular, it was possible to measure oscillation amplitude for one of most close to us of stars (star of Bernard in constellation Ophiucus) and to establish, that it has a dark satellite - planet, mass by which one only in 1.5 times more weight of Jupiter. Thus, it is possible now to consider presence of other "solar systems" in the Universe demonstrated". Physics of space, "Soviet encyclopedia", M., 1976, page 63.

In spite of the fact that developmental stages of development of the Universe practically go in parallel, all of us can point provisional duration of each of them. Apparently, the most long-lived stage of evolution of the Universe as a whole is termination its expansion and beginning of a collapse. It, certainly, does not eliminate expansion and collapse in "microsegments" of the Universe at any stage of its development. Similarly, how the comet on a high-eccentric orbit a main body of life carries out far from the Sun, and the Universe in a condition of transition from expansion to a collapse carries out, probably, about 10 billions years. Now we can not with confidence tell, whether the expansion of the Universe is prolonged or already about 4 billions years back it was replaced with a collapse. The business in that maximum intensity of a gravitational field of the Universe is on its periphery, therefore expansion is replaced by a collapse not at once on all space of the Universe, and in the beginning only in outside areas, while the internal areas prolong to be dilated on inertia. In result the Universe gains the form collapsing of a hollow orb and the formation of supernuclei in "shell" can happen long before full collapsing. The observation of horizon of the Universe can not confirm a begun collapse on that to the simple reason, that the horizon of the Universe we apparent more young on 10 billions years. The age of planets and meteorites is determined in 5 billions years. The age of the majority of stars should be by a negligible margin more, since the formation of stars and their planetary systems happens simultaneously. "Began starformation in all galaxies approximately simultaneously, as it is possible to judge on presence at them of classic spherical congestions and variable stars of a type RR Lyra". P. Hodge, Galaxies, "Science", M., 1992, page 152.

The time, past from formation of elements (decay of supernuclei) before condensation of matter in meteorites and comets being a building material of stars and planets, under the data about died out radioelements, makes of the order 0.3-1 billions years. "To the present time the great many of experimental data on properties of natural and artificial isotopes - atomic nuclei of different masses was accumulated. These data indicate that the natural synthesis of atoms was completed shortly before formation of a solar System". G.V. Voitkevich, N.E. Fedorova, Chemical elements in a solar System, "Knowledge", M., 1973, page 45.

"The special concern is introduced by positive anomaly of heavy isotopes of xenon in a sample of a meteorite Pasamonte. The age of this meteorite (under the contents  $Xe^{136}$  and  $U^{238}$ ) is determined per  $2 \cdot 10^{10}$  years. This value is unusual is overstated, as actually age of a meteorite Pasamonte (under the data strontium and argon methods) does not exceed  $4.54 \cdot 10^9$  years. Enabling, that the excess  $Xe^{136}$  in a meteorite Pasamonte has taken place from spontaneous division died out  $Pu^{244}$ , it is possible to calculate, that the time interval between the termination of a nuclear fusion and formation of a meteorite will make 300 millions years". Ibidem, page 50.

Thus, formation of elements in the Universe in basic (they and now will be formed at flashes of supernew stars) was completed not less than 6 billions years back. "The estimation of age of a Galaxy can be given also on the strength from time indispensable for formation of quantity, apparent in it, of heavy elements. Their synthesis was stopped, apparently, in our region of a Galaxy with formation of a solar System (i.e. 4.7 billions years back). If the synthesis has taken place suddenly, for rather short time, for formation of a modern ratio  $U^{238}$ ,  $U^{235}$ ,  $Pu^{244}$  and  $Th^{232}$  it should take place for 4-6 billions years before origin of a solar System, i.e. 9-11 billions years back. The relative brevity of a period of intensive synthesis is confirmed both analysis of relative composition of the indicated elements, and the astronomical data - starformation in a Galaxy was especially intensive in an initial stage. Thus, the age of a Galaxy, defined on synthesis of elements, makes from 9 up to 13 billions years". Physics of space, "Soviet encyclopedia", M., 1976, page 174.

It is necessary to concern to these results is cautious, since they can characterize not age of our Galaxy, and time, past after its last explosion (from a series those) at the expense of decay of a central supernucleus.

The official cosmology considers, that there were stars of a first generation, and then second, therefore dates of formation of elements for it is removed on 10-20 billions years back. "Now conventional is the point of view, that elements, from which one the solar System consists, was formed 10-20 billions years back, when the clouds of primary matter consisting predominantly of hydrogen and helium, have begun to be condensates in stars of a first generation. The squeezing of sidereal matter at the expense of gravitational forces results in temperature rise in center of a star, that condition for the beginning of thermonuclear reactions". Subatomic physics, The Moscow university, M., 1994, page 112. These views contradict presence on the Earth of radio-isotopes, which one for the indicated time for a long time should dissolve.

The notion about decay of supernuclei explains approximately identical age of galaxies, since decay has explosive character and flows past rather fast. "As soon as the astronomers have understood process of sidereal evolution and were learned to determine of age of stars (it it has become possible in the 50-th years), has appeared, that the galaxies of all types have approximately identical age. At each galaxy there are even some stars with age some billions of years. From here follows, that neither elliptical, nor the improper galaxies can not be upwards remaining". P. Hodge, Galaxies, "Science", M., 1992, page 18-19.

"The theory of formation of galaxies should explain a lot of the facts: distinction of galaxies on mass, form, brightness, value of a torque, activity of kerns etc. Now any of the theories does not give unequivocal and satisfactory throughout answer". Physics of space, "Soviet encyclopedia", M., 1976, page 131. The author hopes, that the further enunciating will give such answer.

The clouds, scattering in all sides, together with general expansion of the Universe will forms galaxies of the different form depending on an angular momentum, mass and other parameters of motion and this problem rather is detailed by a modern cosmology. Depending on mass which has stayed in a central part of clouds and velocity of its rotation drop of matter on a central body results in secondary formation of supernuclei and repeated outbreaks. To the present time in short-range galaxies the drop of matter to a central core of a galaxy and outbreaks of original matter is approximately balanced. For distant galaxies (quasars) the outbreak of matter exceeds drop to center, i.e. they are in stage of general own expansion and have not reached the yet not equilibrium sizes. That concerns and to galaxies with active cores. The form of galaxies first of all is determined by presence and power of a gravidynamic body in center organizing a degree of order of motion of the terms of a galaxy. If the gravidynamic body is not present, the galaxy will be bastard with the rather large contents of dust and gas, therefore at it there are young stars (such galaxies is numbers about 5 %, and they are meant by a figure *Ir*). Alone organizing by a gravidynamic start in such galaxy, which one promotes creation of a flat system, is the spin of a galaxy as a whole (for example, of a Magellan Clouds). As the very feeble rotation of galaxies is improbable, such type the improper galaxies make the majority in this class. If such body is, and it is insignificant and practically is not gyrated, the galaxy of the spherical form will be formed. In it is impossible to organize orbital motion of stars in one plane; therefore orbit of each star lies in the plane and has not the tendency to turn it in any certain position because of absence considerable aggregate of the gravidynamic moment of all system as a whole. In a solar System in the same way moves recently captured asteroids, such, as a Icarus, Eros, Hermes, Apollo, Adonis and them similar. Naturally, that at such motion of stars, they rakes out original matter from all volume of a spherical galaxy, and the new receipt it from center practically misses, therefore in similar galaxies there are no young stars, dust and gas. If in center of a galaxy the gravidynamic body is insignificant, but is gyrated, there is some general the gravidynamic moment making formed from of an original material stars in some degree to deploy orbits approximately in one plane. We shall watch elliptic galaxies down to almost flat systems, if the gravidynamic body in center is enough fast gyrated. Elliptical and spherical galaxies up to 25 % from number learnt are numbered. "The expansion of lines in spectra of elliptic galaxies indicates that stars in them moves in the most arbitrary directions with high speeds (order of 200 kms/sec). In these conditions the distribution of stars in all radial directions from center of symmetry should be almost equality probability, as explains the almost spheroidal form of such sidereal systems. Depending on a degree of visible squeezing, the elliptical nebulas are subdivided on 8 subtypes: from spherical systems *E0* up to lentiform *E7* (numeral indicates compression ratio)". Physics of space, "Soviet encyclopedia", M., 1976, page 101.

If central the gravodynamic body of a galaxy is great on mass and fast is gyrated, the life it is permanently accompanied by periodic large outbreaks (and practically to constant by the efflux) of original matter from center, which one shapes gas-dust sleeves being a medium for formation of new stars. In this case we apparent spiral flat galaxies (such galaxies include about 50 % from learnt) with mandatory presence of a active core at center.

In chapter 22.2 [1] the evolution of orbits of space bodies are described at gravodynamic interplay. Is applicable these notions to evolution spherical and elliptic galaxies and gradual transformation them in spiral galaxies. Apparently, what even powerful the gravodynamic object in center of a galaxy can not simultaneous marshal orbits all of its members in one plane. The mechanism of progressive spontaneous increase common of the gravodynamic moment of a galaxy from center to peripherals therefore is most verisimilar at the expense of series turning about in that a direction orbital of the gravodynamic moments of separate stars. This process resembles domino theory. In this case spherical congestions in a halo of a spiral galaxy can be esteemed as more small-sized «sparks» of Large fireworks, entrapped galaxy as satellites.

"It is a lot of new to comprehension of structure of nuclear area of a Galaxy (Milky Way - V.K.) have given radio astronomical observations on a wave 21 cm. Directly to a large core of a Galaxy formed by stars, the spiral hydrogenous sleeve flanks. It is apart 4 kps from a core and has received a title four-kiloparsec of a sleeve. From center of a Galaxy in a direction of the Sun the sleeve is dilated with velocity of ~53 kms/sec. Till other side from a core a branch also is detected, but less exact structure, it is deleted from center with velocity of ~135 kms/sec. Total of hydrogen in these branches is estimated as  $10^6$ - $10^8$  masses of the Sun. The gas efflux makes of central area of a Galaxy ~1.5 masses of the Sun per one year. The similar phenomena of expansion, outbreak of matter from central areas are detected and for other galaxies. So, near to center of a nebula Andromeda the considerable deviations from circular motion take place. In a galaxy M51 the powerful flows of matter, directional both to center, and from center are detected. Apparently, the complex motions of matter about of kerns of galaxies represent a rather often phenomenon. It is possible, that by a power source of matter escaping center, are the explosive processes in cores of galaxies... The core of a Galaxy is coincided with a powerful radio source Sagittarius A. This source is non-thermal. Till both sides from it there are some sources of heat radiation. The problem on structure and power sources of a core of a Galaxy is not still finally resolved. The study of a core is prolonged. Probably, the role of kerns in life of galaxies is more significant, than before this time guessed". Physics of space, "Soviet encyclopedia", M., 1976, page 97-98.

"These sidereal systems have two or several ragged spiral sleeves forming flat area "of the disk", and in center of a galaxy the spheroidal core is arranged. Them term as spiral galaxies and mean by a figure *S*. The spiral sleeves, as a rule, are rich by bright gas nebulas ambient hot stars - supergiants, and also clouds dark gas-dust of a substance. Approximately for half of spiral galaxies of a sleeves start at once from a core (it is normal spiral galaxies), for remaining galaxies the core is as though intercrossed by a bright strip (bar - B.K.), going far beyond a core (it - intercrossed spiral galaxies). From ends of a strip also start to be torque spiral sleeves... Both normal and the intercrossed spiral galaxies are subdivided for subtypes *Sa*, *Sb*, *Sc*, *Sd* - on the relative sizes of a core and disk (the sizes of a core descend from *Sa* to *Sd*). Some of spiral systems are visible in a profile as thick (in a case *Sa*) or thin spindle usually intercrossed by a band of dark matter... Our Galaxy, as is known, also is spiral, is more interquartile than everything, type *Sb*". Physics of space, "Soviet encyclopedia", M., 1976, page 101-103.

The spiral galaxies have the rotary characteristics, from the first view, mismatching law of gravitation on two segments. In immediate proximity from a core and up to distance approximately in 1 kps from it the galaxy is gyrated as a solid body and on distances from 1-3 kps up to approximately 10 kps there is a second segment, where the line speed of motion is incremented with distance from center of a galaxy. As a whole, the velocity distribution from center of a spiral galaxy has *M*-figurative kind. I did not manage to find official explanation of this phenomenon, adventure to give own. Similarly to law Hubble for the Universe, the outbreaks of matter from a core of a galaxy should obey to those to rules not only concerning radial velocity, but also orbital, in view of proximity of huge nuclear mass. Then two areas of increase of an orbital velocity will correspond to eject able matters

of two miscellaneous compounds, for example, meteoric - cometary matter. The more plausible explanation allows for repeated explosions of a core.

The solid-state rotation of galaxies seems to orthodox physics by a violation of law of a universal gravitation for the reason, that it, as against new physics, enables an arbitrary position of orbit while new physics from an infinite set of orbits indicates only on one,

defined formula  $r_0 = \frac{\alpha^2}{GM}$  [1], whence velocity of orbital motion (allowing, that  $\alpha = V \cdot r$ ):

$$V = \sqrt{\frac{GM}{r}} \quad (1).$$

Therefore, the alteration of speed inversely proportional to a root square from distance corresponds to a law of gravitation in requirements, when mass  $M$  remains invariable in a volume  $4/3\pi \cdot r^3$ , i.e. for a practically blank space, for example, for a solar System. At transition to galactic scales  $M$  in the formula (1) it is impossible to consider a stationary value:

$$M = 4/3\pi \cdot r^3 \cdot \gamma \quad (2),$$

where  $\gamma$  - mean density of matter in a volume of a ball of radius  $r$ .

Substituting (2) in (1), we shall discover:

$$V = 2r \sqrt{\frac{\pi G}{3} \cdot \gamma} \quad (3).$$

If density of matter is constant (central areas of galaxies), we shall watch solid-state rotation pursuant to the formula (3). If density of matter varies inversely to a square of distance, that is necessary to expect on a periphery of galaxies (allowing, that the galaxy represents oddments of the blown up supernucleus), the velocity of orbital motion pursuant to (3) remains to a stationary value. From the formula (3) it is easy to find density of matter of a central part (having solid-state character of rotation) such galaxies, as a Milky Way and Nebula Andromeda. Under the literary data (for example, Physics of space, "Soviet encyclopedia", M., 1976, page 86 and P. Hodge, Galaxies, "Science", M., 1992, page 108) on one kiloparsec is necessary incremental velocity of rotation approximately on 100 kms/sec in these galaxies. By substituting these data in (3), we shall discover  $\gamma = 3.76 \cdot 10^{-23}$  g/cm<sup>3</sup>. The received value is higher than mean density of the Universe a million times. For an illustration of validity of enunciated above notions, we shall put curves of rotation of central areas (fig. 37) of a galaxy M31 (Nebula Andromeda) and its circumferential areas (fig. 24) from the book: P. Hodge, Galaxies, "Science", M., 1992, page 63 and 108.

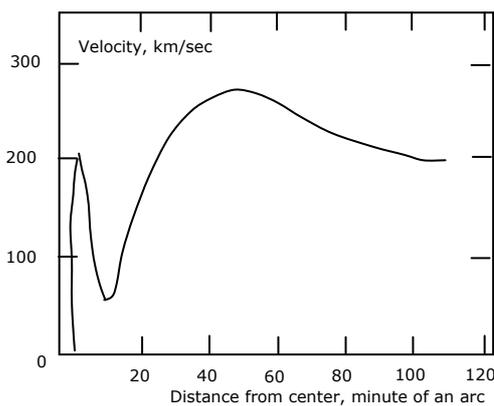


Fig. 37

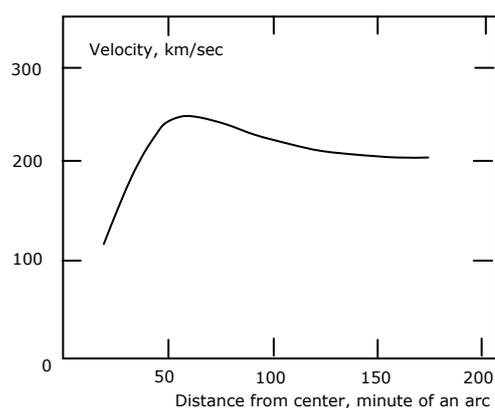


Fig. 24

The graph of a fig. 37 is received under the data of optical observations (visible part of a galaxy), and in a fig. 24 - under the data of radio observations (invisible part of a galaxy). Both graphs display, that the circumferential areas of a galaxy are gyrated with constant speed, i.e. density of matter in them descends in inverse proportion to distance from center. It, in turn, indicates that the galaxy was formed as a result of single-pass or repeated explosions in center it.

Apparently, that probability of formation suffices the large supernucleus and subsequent "explosion" of a spiral galaxy is very great in matching with other types of galaxies. In this sense our "house" - the galaxy a Milky Way is so dangerous, as well as its proximate neighbour - Nebula Andromeda. It is understandable, that are watched (about 20 %) and transition types of galaxies between elliptical and spiral, them mean by a figure *S0*. If the new cosmological notions which are set up here consider presence of dust and gas in galaxies as result, both remainder original of matter, and their continuous formation owing to a constitution of galaxies, an official cosmology dust and the gas in galaxies considers only as oddments original of matter. "These results have directed the explorers on thought that the sequence of Hubble's types ranks galaxies on a degree of preservation by them of gas and dust: the improper galaxies have saved up a majority of the gas and dust for gradual birth of all new and new stars, while the elliptic galaxies have expended almost all initial gas for the first explosive flash starformation". P. Hodge, Galaxies, "Science", M., 1992, page 19.

The enunciated notions allow understanding structure of galactic congestions. If progenitors the supernucleus has blown up is centrally symmetric, and the congestion, formed by it, will be spherical. And, apparently, that most far scattered debris will form spiral galaxies, and in center of congestion there will be elliptical and spherical galaxies, since an impulse and angular momentum received by a central part of a supernucleus small. "How there were congestions of galaxies? Why in spherical congestions the elliptical and lenticular systems predominate? On these and other problems the extragalactic astronomy while has not given yet definite answer". Physics of space, "Soviet encyclopedia", M., 1976, page 113.

Here full analogy to quasars and internal parts of the Universe. If the explosion of a supernucleus - grandparent of congestion - is not symmetrical, the improper congestion with predominantly spiral galaxies will be received. They are arranged along a trajectory of a supernucleus accelerated under activity of a jet thrust of eject able debris. This trajectory can be as chaotic and more or less prolate in space. The relevant form will be had also a congestion as a whole. "The equable congestions of the exact form consist, in basic, of elliptic galaxies and galaxies of a type *S0*, and shapeless ungeometrical congestions contain many spiral and improper galaxies... In congestion in a Berenice's Hair (exact congestion - V.K.) there are not enough of spiral galaxies and the majority them is arranged in external areas of congestion. The concentration of elliptic galaxies in center very high, and in process of removal from center density drops sharply". P. Hodge, Galaxies, "Science", M., 1992, page 114-115.

The growth of galaxies at the expense of intergalactic matter (and latent mass in all a volume and periphery of galaxies) is basic by nothing differs from growth of a solar System at the expense of interstellar matter. Therefore in galaxies we should meet a small amount of stars with a backward motion (similarly to external satellites of Jupiter). The spherical congestions and separate stars component a galactic corona of spiral galaxies, in all visibility, are captured intergalactic objects, therefore had no time to lose an exited state and to pass in fixed in a plane of the disk of a galaxy. "The objects of a galactic corona circles around of center of a Galaxy on very prolate orbits and consequently predominantly are on a periphery of a Galaxy". Physics of space, "Soviet encyclopedia", M., 1976, page 81.

"The spherical congestions, for example, though circles around of center of a Galaxy, but on very prolate, almost radial orbits chaotically oriented concerning a plane of a Galaxy. Apparent dispersion of velocities for the terms of spherical subsystems is great, it reaches tens and even of hundreds km/sec". Ibidem, page 85.

On the other hand, allowing scales of galaxies, it is difficult to hope that they will have time to pass in a stationary state in one period oscillations of the Universe. Similarly to solar System, is closer to center of galaxies heavy elements, and on a periphery and outside a visible part of galaxies - hydrogen as bodies of the cometary and planetary size "jupiter" of group. "By the first indication of approaching breakthrough on was recent research of neutral hydrogen in M31. When was detected and is measured the gas on very large distance from a core, the curve of rotation has refused to be bent downwards and to become Keplerian. Far behind that place, where according to the optical data the recurvature of a curve was reached the new results for neutral hydrogen testified that the velocity remains almost too stationary value. It is possible, only if the large masses are in far areas any of an invisible halo around M31 far outside visible parts of a galaxy... The

majority of matter in galaxies is rare places within the limits of the visible images. On the contrary, the main body of mass of a galaxy is arranged behind those by limits, where, as it seems, it terminates... In a new course of development of events pitiable that if the new large measured values of masses are correct, at modern astronomical researches the majority of the Universe is not watched. The majority of matter in space is made in any unknown form in massive halos of galaxies and that we apparent as a galaxy, - only vertexes of very large icebergs. Grandiose of spiral galaxies are only skeletons of huge mysterious ghosts, the nature which one all still remains unknown... We have remained with a rather small list of improbable objects, any of which one, similar, us does not approach. In this list there are all objects, which one only can be invented, having mass and thus invisible in galaxies. For example, the planets like the Earth which is not followed with a luminous star will have mass and to radiate thus not enough light to be detected. Will approach as well more small-sized objects - block or small-sized stones. The problem with similar objects that nobody can invent a way of their production in sufficient quantity. It is possible rather unhesitatingly to assert, that the planet can not be formed, if at around there is no star, and that correctly for rock blocks. The alone worthy considerations objects are black holes, massive and nothing radiating, which one somehow can be formed in external parts protogalaxies. But what it was - black holes, rock blocks or exotic subatomic particles - capability that the majority of the Universe from us is latent, calls concern. We live in vast and inhibitory a dark space cloud, only here and there by lighted candles". P. Hodge, Galaxies, "Science", M., 1992, page. 63-65.

New physics categorically objects to impossibility of formation of rocks and space bodies without a central star. On the contrary, origin of a star is a phenomenon which is growing out of condensation of a significant amount of hydrogen in protosidereal a planetary system with a massive body in center. With that by success and even is more interquartile, that the central massive body can be formed from a material of "earth" group of planets, instead of "jupiter", and "jupiter" of a structure of a planet in this system place, as and it is necessary, on a periphery of a similar unobservable planetary system.

As shown earlier [1], for particles by the size are more 0.8 mms the Universe is transparent. Even in congestions of galaxies the concentration of meteoritic matter to center and cometary - to a periphery should be watched, that is to straight lines a corollary of formation of a congestion from one progenitors of a supernucleus.

"Invisible (and huge) mass is detected recently in far congestions of galaxies. It affects light of farther galaxies, garbling their form, and on these contortions it was possible to establish, that this mass is concentrated to center of congestion. Its reality, thus, is established outside of any doubts, there is it and at coronas of galaxies of early types (i.e. *E, S0, Sa*), and here in double galaxies, as we mentioned, it, apparently, is not present. The nature of carriers of this mass remains by a riddle". P. Hodge, Galaxies, "Science", M., 1992, page 7. "The observations displayed, that of latent mass in congestions of galaxies should be of times in 20 more, than visible mass, concentrated in galaxies". I.D. Novikov, Evolution of the Universe, "Science", M., 1983, page 149.

In connection with existence "of latent mass" and guess that it represents planetary systems around of a cold central body, it is necessary closely to analyze behavior of stars or quasars with irregular and rather fast changes of brilliance. Quite can appear that it is connected with eclipses by similar systems of far luminous objects. It is uneasy to count up, that a body dimensioned of Jupiter located on purlieus our Galaxy capable to overlap light from object by the size in a solar System apart 5 billions light years, and star by the size about the Sun on tenfold distance from the Earth up to this body. As density of stars is more than density of planets - giants, on a periphery of galaxies behind the sidereal population should be present at an even lot, than star "latent" masses representing dark objects such as planets - giants. These "jupiters" are obturated in process of growth and move closer to center of a galaxy, where are transformed into stars.

It is necessary to affect one more problem, which one in this section are notions of an official cosmology about two breeds of stars. It is considered, that the heavy elements will be formed at the end of evolution of stars of a first generation and the presence them in atmospheres of stars of a second generation serves "proof" that they were formed of the matter which has arisen after a first generation of stars. Otherwise to not explain in any way formation of elements is heavier of iron. Allowing constant receipt of space matter at planetary systems and stars (see chapter "Formation and constitution of a solar System"),

apparently, that in spectra of atmospheres of stars we should watch lines of elements, not entering initially in a structure of a star, and continuously going from the outside. Even moreover, is serious of the basis to consider, that the thermonuclear reactions flow past not only inside a star, but also on it "surface" at dropping on a star of clouds of hydrogen. In this sense the motion of matters about a star is similar to motion them about kerns of galaxies, when the flow of matter on a star is intensive, than flow from a star not less. Thus, the spectra of stars display not so much compound of the star, how many compound of ambient interstellar matter. Then the stars about of center of a spiral galaxy and in a corona of a galaxy, and also star of elliptic galaxies will be introduced us "old" - with the large contents of heavy elements, and star of a periphery - "young" - in basic hydrogen-containing. On the present the new stars also will have spectra depending on a compound of a surrounding medium from which one they are formed and in which one are in the present moment. "But in the 60-th years has appeared that of a Magellan Clouds put before us a problem. At first, these galaxies, apparently, contained spherical congestions, which one were young, than old faster. Moreover, in Clouds many young stars were revealed, which one at in-depth spectroscopic research have appeared poor heavy elements. Thus, for these two galaxies the separation into the population I and II is unsuitable. Besides per the last years was shown, that many elliptic galaxies, which one were guessed consisting only from the population II, have appeared surprised rich heavy elements, - the same as also central bulkheads of spiral galaxies. Even in our Galaxy has a place violation of the scheme: in the most external parts of a galactic disc the contents of heavy elements in young stars is unexpected low, while in spherical congestions near to a galactic centre and in stars bulkhead of heavy elements it is a lot of, despite of their large age". P. Hodge, Galaxies, "Science", M., 1992, page 43.

**Comments of the author:**

**1. Formation of spiral galaxies.**

*Detonating the suffice large debris of a supernucleus will forms a spherical galaxy the further evolution by which one is determined by gravidynamic interplay. The gravidynamic moments of stars orbits incidentally arranged in space are step-by-step marshaled in one direction. The galaxy is flattened, central bulge step-by-step decreases in the sizes, and in center of a galaxy the supernuclei are repeatedly reshaped ejecting at detonatings a sprays of matter, forms a helical sleeve of a galaxy.*

**2. Formation of spherical galaxies.**

*When the large debris of a supernucleus surrounded by a thick layer of a neutron liquid loses metastability, the detonating of a supernucleus takes place practically instantaneously and the spherical galaxy despite of a huge running speed of a mother supernucleus will be formed. The most small-sized debris at detonating at once will formatives stars, which one consist predominantly of Hydrogenium. Formation of these stars do not need contraction of a hydrogenous cloud, temperature at once is sufficient for thermonuclear processes. Thus, the firstgeneration of stars will be formation at once. At repeated explosions of larger debris of a supernucleus mini-spherical «galaxies» - spherical flocks of stars will be formation in the same way. Naturally, that these spherical flocks will move on high-eccentric orbits inside a galaxy and will become appreciable at formation of a spiral galaxy in its halo. The splashes of a neutron liquid at initial explosion will take peripherals of a galaxy and step-by-step will become the supplier of comets and asteroids for epicyclic systems around of each star. The jets of matter from center of a galaxy will forms helical sleeves with clouds of Hydrogenium at gravitational contraction which one takes place subsequent sluggish formation of stars.*

**Influence of absolute speed on deceleration of stars and galaxies.**

The star, being moves in space with absolute speed  $V$ , radiates forward photons with the greater energy, than back. Therefore body radiating photons is brake, losing energy on two radiated photons:

$$\Delta E = h\nu_f - h\nu_b \tag{4},$$

where  $h\nu_f$  - energy of a photon radiated forward, and  $h\nu_b$  - radiated back. From (15.1.3) [1]:

$$h\nu_f = h\nu_0 \left(1 + \frac{V}{C}\right), \text{ and } h\nu_b = h\nu_0 \left(1 - \frac{V}{C}\right) \tag{5},$$

where  $\nu_0$  - frequency of a photon which is radiated a fixed light source,  $V$  - absolute speed of a source,  $C$  - speed of light. Substituting (5) in (4) and allowing, that the source radiates in a current of traffic all 1/3 photons (radiate 2 sides from six sides of block), we shall discover full power loss of a source in unit of time (apparently, that it is loss of a kinetic energy of a source):

$$\Delta W = \frac{2LV}{3C} \quad (6),$$

where  $L$  - radiated power of a source (its brightness).

If in the first crude approximation to accept, that neither mass, nor brightness of a source continuous time do not vary, it is possible to count up time of full exhaustion of a kinetic energy of a source:

$$t = \frac{W}{\Delta W} = \frac{3MVC}{4L} \quad (7).$$

Substituting in (7) particular numerals for the Sun ( $L = 3.86 \cdot 10^{26}$  watts,  $M = 1.99 \cdot 10^{30}$  kgs), we shall discover, that its orbital motion around of center of a Galaxy (250 kms/sec) will be stopped through 9.2 billions years, and motion of a Galaxy as a whole (600 kms/sec) - through 22 billions years. These numerals approximately display an interval between Big Bangs of the Universe as a whole (20-25 billions years) and (allowing, that the Sun is on a periphery of a Galaxy) interval between large explosions of our Galaxy (9-10 billions years), therefore blasted out galaxies (for example, M82) are watched extremely seldom. Is for the same reason watched all about 5 % of so-called improper galaxies, which one, apparently, grow out of large explosion of a galaxy. Not enough their large mass had no time to create the organized motion of the terms of such galaxies. Allowing, that the distribution of orbital velocities of stars in spiral galaxies has  $M$ -figurative kind, it is possible to tell, that the whole hierarchy of explosions is substantially implemented (itself  $M$ -figurative distribution is a corollary of this hierarchy). The main mass of matter of a Galaxy is gone with an orbital velocity of the order of 100 kms/sec, the interval between large explosions of this matter will make already 4 billions years. Apparently, that the matter near to center of a Galaxy permanently is in a condition of often explosions. As a whole, the gradual drop of stars to center of galaxies in spiral galaxies is represented, in connection with enunciated, rather to composite.

References:

1 <http://www.new-physics.narod.ru>