Effects of Rotation Arund the Axis on the Stars, Galaxy and Rotation of Universe[*]

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Abstract: The article analyzes the blueshift of the objects, through realized measurements of galaxies, mergers and collisions of galaxies and clusters of galaxies and measurements of different galactic speeds, where the closer galaxies move faster than the significantly more distant ones. The clusters of galaxies are analyzed through their non-zero value rotations and gravitational connection of objects inside a cluster, supercluster or a group of galaxies. The constant growth of objects and systems is visible through the constant influx of space material to Earth and other objects inside our system, through percussive craters, scattered around the system, collisions and mergers of objects, galaxies and clusters of galaxies. Atom and its formation, joining into pairs, growth and disintegration are analyzed through atoms of the same values of structure, different aggregate states and contiguous atoms of different aggregate states. The disintegration of complex atoms is followed with the temperature increase above the boiling point of atoms and compounds. The effects of rotation around an axis are analyzed from the small objects through stars, galaxies, superclusters and to the rotation of Universe. The objects' speeds of rotation and their effects are analyzed through the formation and appearance of a system (the formation of orbits, the asteroid belt, gas disk, the appearance of galaxies), its influence on temperature, surface gravity, the force of a magnetic field, the size of a radius. The processes related to low temperatures and their relation with the objects' chemical structure and their atmospheric compositions, dependent on the decrease of temperatures, are also analyzed, opposite to the processes related to high temperatures. The satellites' rotation around the planets is also determined; lower temperatures reduce the distance between planets (and other smaller objects) and satellites, which rotate around their axis. The effects of polar cyclones to the speed of rotation, the formation of Novae, the appearance of stars and galaxies are also analyzed.

Keywords: Blue Shift, Disintegration of Matter, Rotation Speed, Chemical Star Composition, Degradation of Elements

1. Introduction

The goal of this article is to relate blue shift and different galactic and larger systems' movement speeds with the rotation of Universe. [1] Today there are more than a hundred of registered galaxies that have a blue shift and are relatively close, the article, with the reference to larger systems, is going to point out that a blue shift is of the similar significance as a red shift. A similar quantity of systems approaches and distances themselves from an observer. [2]

The article will present evidence for the circular processes inside the Universe, from the particle formation, growth, disintegration of complex atoms, the formation of objects and systems to the explosions of stars, i.e., the disintegration of visible matter. [3] I am going to prove the influence of the star rotation speed around their axis on: color, temperature, radius, surface gravity, magnetic field, [4] chemical composition and the atmosphere of an object, [5] the formation of the belt of asteroids, gas disks and particles around the objects, [6] the legality of a satellite rotation around its axis and the ability to have its own satellites. [7] I will also prove the influence of temperature on the chemical structure of objects and their atmospheres. [8] The analysis of rotation will encompass small objects, brown objects, small and large stars, main stars and the objects in the orbit.

The tables in the article are the text (and the core of the discussion).

2. *The Processes of Star Systems Related to Rotation*

2.1. *Rotation Forms Gas Disks, Asteroid Belts and Orbits of the Smaller Objects Around a Central Object*

Besides forming orbits and the objects' speed in the orbits, rotation creates the asteroid belts and gas disks.

Around 900 stars with asteroid belts or disks around them have been discovered until this time; some of the most famous are Beta Pictoris , 51 Ophiuchi, Tau

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Ceti, Fomalhaut, Epsilon Eridani, Zeta Leporis, Vega, the Sun, …). The data from our system make the basis of the knowledge, but if the existing data for 900 stars and the majority of galaxies are included, these facts become clear:

1. The rings occur only around the objects, which have their own independent rotation around their axis;
2. The size of a ring is directly correlated with mass, the speed of rotation, the temperature and the quantity of matter around an object;
3. The existence of a ring is not related with the mass of an object and its speed of rotation.

Bigger objects (such as stars and galactic centers) and faster rotation produce bigger rings and a very fast speed of rotation produces a disk (elliptic galaxies and so-called protostars[6]).

The rings, asteroid belts and disks have their own orbits and an orbital speed, that is no different to the other objects' orbits. The faster rotation of an object and an orbital speed, measured closer to the object, is higher and it decreases with the distance from the main object. [6]

It needs to be pointed out that asteroid belts can be and are formed also by those objects, which rotations are a bit slower (Sun, Epsilon Eridani, AU Microscopii, HD 107146, HD 92945, Tau Ceti, HD 207129, HD 207129 etc.). The asteroid belt is not a result of collision between two or more objects, but rather a typical product of rotation of a central object around its axis; it is formed on the same principles like the orbits of planets and other objects. "Gaseous" planets (objects with impressive atmospheres) in our system have rings and fast rotations, unlike Pluto, which has a slow rotation (6,4 days). [9]

2.2 *Natural Satellites and Rotation*

There are satellites that are tidally-locked and the others that have an independent rotation.
There are five known satellites of Pluto, out of which only Charon is synchronous, while the others have their own rotations. Their distance from Pluto is from 17% of the Moon's orbitof 384.399 km (Hydra 64.738±3 km, rotation period 0.4295 ± 0.0008 d) to 11% (Styx 42.656±78 km, rotation period 3.24 ± 0.07 d) (Nix 48.694±3, rotation period 1.829 ± 0.009 day; Kerberos 57.783±19 km, 5.31 ± 0.10 day). Neptune's satellite Triton is (in its semi-major axis) 354.759 km away and has a synchronous rotational period; Oberon (Uranus) 583 520 km, synchronous; Titan (Saturn) 1.221.930 km, synchronous; Callisto (Jupiter) 1.882.709 km. The distance of the tidally-locked satellites does not allign with mass and the rotational speed of a planet. Uranus can lock the

satellites at 583 520 km and Neptune at only 354.759 km.

When the mass of a planet is not taken into consideration, it is obvious that the maximal distance of the tidally-locked satellites decreases with the increase of distance from Sun, i.e., with the decrease of spacial temperature.

When there is an independent rotation, a satellite controls the processes of capturing its own satellites and particles. [10]

2.3. *The Processes That Lead to the Acceleration and Deceleration of an Object's Rotation Around Its Axis*

The goal of this text is to point out the processes that lead to the acceleration and deceleration of a star's or a galactic rotation around the axis in the process of the constant growth and gathering of matter in the Universe.

Due to rotation, stars and gaseous planets, as well as the centers of galaxies, create cyclones and whirlpools on their poles. The difference between a cyclone and a whirlpool is in the speed of rotation.

A slower speed of an object's rotation creates whirlpools, which are relatively shallow and don't go deep into an object as cyclones do. Due to a very fast rotation, a lesser quantity of cyclones create one cyclone that has openings on the poles. Slower rotations of objects create lower speeds of rotation on their poles, compared to the speeds in the equatorial region. The opposite situation is when there is a very fast rotation. Only a very small quantity of stars, compared to their total quantity, have very fast rotations and they are mostly found in areas rich with matter (nebulae, etc.). Acceleration and deceleration of the objects' rotation take place in two separate manners. The first one is caused by the constant influx of objects to the equatorial plane. A part of the objects that have retrograde orbits slow down a central object. A fair quantity of exoplanets have retrograde orbits. In the beginning of discovering the exoplanets, the astronomers have concluded that the ratio of normal and retrograde orbits is similar. It needs to be particularly mentioned that the change in the speed of rotation of a central object is more affected by the objects with prolate elliptical orbits and the objects that hit central objects, than the objects with steady circular orbits, which have already achieved orbital balance and the balance of a central object's rotation.

The acceleration of objects from whirlpools into cyclones is a constant, but very rarely existing process for gaseous planets, stars and the centers of galaxies. That can be concluded from a very low quantity of fast-rotating stars, O, B and A type

0,73003% [1], if F type is also included, then their quantity amounts up to 3,73003% of the total quantity of the main-sequence stars in the Milky Way (Harvard spectral classification). The process of rotation acceleration through cyclones is more important in the galactic centers, where one third of galaxies are fast-rotating (elliptical ones,...). The reasons for such a disproportion depend on that very large cyclones "devour" large objects with high temperatures (stars), while smaller cyclones mostly suck smaller and colder objects in, after they have been attracted by gravity. Smaller objects heat up by passing through the atmosphere of a star and through a cyclone, but, when entering a cyclone, stars bring very high temperatures that are further affected by forces, which cause the temperatures to be even higher (acceleration, friction,...). It is similar with the cyclones on Earth. When cyclones (typhoons,...) suck warmer matter in (water,...), they grow stronger and accelerate and when the influx of warmer matter is reduced, they grow weaker. It only lasts much longer in the Universe, because the conditions are different (unlike the cyclones on Earth, outside the atmosphere of a star there is no visible matter to slow down the rotation).

It needs to be pointed out that stars with their masses are not sufficient to trigger the explosion of a galaxy center (explosions of galaxies have never been recorded). In order to explode, stars firstly have to achieve very fast rotations around their respective axes and the arrival of a smaller object of an appropriate mass and structure, which would go deep inside a star and trigger the event that results with different ways of a star's destruction.

Independently of their mass, red, orange and yellow stars don't produce Novae, therefore we can be relaxed as our Sun will not turn into a Nova (and neither will the other ~99,15% of slowly-rotating stars of M, K, G, F types), but Sun can accelerate and decelerate its rotation, which can negatively or positively affect the planets and other objects in its orbit. Very small quantity of events results with classical explosions of a total destruction. Many events have been recorded, in which a star rejects smaller or more significant part of its matter. In a part of an event (in a nebula), a star's core remains and it may become brighter (i.e., warmer), but also turn into a cold star of M type. These objects get detected after a star has exploded in the form of pulsars, "neutron" stars,... A reason for the change in the speed of rotation of the remaining part of an object is in the place of the event: whether a shock wave has started off in the direction of rotation or opposite to it (depending on the object's angle of entering into a cyclone or a whirlpool; including all other variations).

It should be mentioned here that a merger of stars, collisions of smaller stars with the larger ones and the collisions of other objects with stars, but outside cyclones, does not cause explosions, but these can significantly affect the speed of rotation of a central or a new object. It is seen from the already mentioned ratio of fast-rotating stars that they are constant and omnipresent at all stars and objects, but very intensive events are only one of the outcomes that has extreme consequences and it exists only in a small percentage (from a total of 200 – 400 billion of stars in the Milky Way, there have been only 3 star explosions in the last 1000 years). To date it has been discovered (total number) just over 400 Novae in the Milky Way. [16] A daily influx of matter is detected on Earth (the estimates are around 100.000 tons per year). A constant matter influx is dependent on mass, the speed of rotation and the position of an object inside its system. The objects that are in the orbit within an asteroid belt and the gaseous belt are faster-growing and faster-rotating objects. The ratio may be different in a vast quantity of combinations and events, especially because the orbiting objects can extremely slowly migrate towards their main object or away from it. It depends on the changes in the orbital balance, due to more important matter influx (when there is a process of distancing) or less important matter influx (when there is a process of approaching) to an orbiting object. A merger of two planets or satellites will distance the orbit of a new object (as in a pendulum, the ratio of bob and rod weight and the speed of swinging).

2.4. *The Rotation Speed of the Objects with a Melted Core and a Magnetic Field*

Table 20. The bodies, rotation speed/magnetic field and mass/radius

	Body	Rotation speed	magnetic field G,	Mass	Radius
1	Sun	25,38 day	1-2 G (0.0001-0.0002 T)	1	696.392 km
2	Jupiter	9.925 h	4,2 G equ. 10-14G poles	0,0009	69,911 km
3	PSR J1745-2900	3,76 s	10^{14} G	1 – 3	>20 km
4	SGR 1806-20	7,5 s	10^{15} G	1 – 3	>20 km
5	Neutron star	many times a sec.	$10^4 - 10^{11}$ G	1,1 – 3	~20 km

Table 20. The bodies, relationship: rotation speed/magnetic field and mass/radius.

Mars current magnetic field is very weak, with strengths of at most about 1500 nanotesla. Earth magnetic field is around 65.000 nanotesla, or more than 40 times stronger than Mars.

Solid objects that lack a core have no global magnetic field, which leads to the conclusion that pulsars have no solid structure. Their dynamo is very strong, the fact which is directly related to extremely fast rotations around their axis.

The objects with no or extremely slow rotation don't create internal magnetic fields, whether they lack a core or not. Venus has no internal magnetic field, although being considered "a twin sister of Earth".

Quote: It has been known for a long time that Ap/Bp stars are usually found to possess strong large-scaled organized magnetic fields. Current spectropolarimetric data give us new insights about main-sequence A-type stars. First, it is found that all Ap stars are magnetic [6]. The observed field is always higher than a limit of 100 G for the longitudinal field, which corresponds to a polar field of about 300 G.. Weak magnetic fields among O and B-type stars Among O and B-type stars, there is the extension of the Ap stars, i.e. stars with a typical polar strength of the order of kiloGauss ("strong" fields). In addition, evidence for fields with polar field of the order of hundred Gauss ("weak" fields) is increasingly being observed. So far, such weak fields seem to be observed in HD 37742 (ζ OriAa) [20], τ Sco [16], CMa [21], β CMa [21], and ζ Cas.. end quote [11] [12] [13]

2.5. ***The Research of Relation Between Temperature and Mass of Stars***

At this time, the opinion that a temperature of a star is determined by its mass is dominant. In tables 6 – 19 there is a real outlook of the influence of mass on the temperature of stars and the direct influences of rotation around an axis to the temperature level are also supported with evidence. The influences of the effects from the objects' binary relations, which can be observed inside our system (Sun-Venus-Earth, Pluto-Charon, Jupiter-Io-Europe..) are not analyzed here.

Table 6. Star,mass/temperature

	Star	Mass, Sun=1	Temperature °K
1	TVLM 513-46546	0,09	2.500
2	Theta Sculptoris	1,25	6.395
3	Alpha Pegasi	4,72	9.765
4	Spica secondary	10,25	22.400
5	AB7 O	44	36.000
6	Melnick 42	189	47.300
7	R136a1	315	53.000 ± 3000

Table 6. Star,mass/temperature, the growth of the mass follows the temperature rise

These data are a strong evidence to support such claims, i.e., that mass and temperature are strongly related. More mass means higher temperatures and more radioactive decay of matter by fission and fusion.

Table 7. Star,mass/temperature

1	NML Cygni	50	3.834
2	WOH G64	25	3.200
3	Antares	12,4	3.400
4	UY Scuti	7-10	3.365
5	Beta Andromedae	3-4	3.842
6	HD 220074	1,2	3.935
7	Lacaillea 9352	0,503	3.626
8	Wolf 359	0,09	2.800 ± 100
9	SCR 1845-6357A	0,07	2.600-2.700
10	2M1207	0,025	2550 ± 150

Table 7. Star,mass/temperature, cold stars, mass growth is not followed by temperature rise

A total absence of relation between mass and temperature of a star is presented in the second part of the table.
"Cold" red stars of M class, with a very wide range of mass, are presented here.

Table 8. Star,mass/temperature

1	HD 149382	0,29-0,53	35.500±500
2	NSVS 14256825	0,528	42.000
3	HD 74389	0,69	39.500
4	Z Andromedae	0,75	90.000-100.000
5	RX J0439.8-6809	~0,9	250.000
6	HD 49798	1,5	47.500
7	μ Columbae	16	33.000
8	S Monocerotis	29,1	38.500
9	AB7 O	44	36.000
10	Plaskett's star A	54	33,000 ± 2,000
11	HD 93403 A	68,5	39.300

Table 8. Star,mass/temperature, hot stars, mass growth is not followed by temperature rise

It is presented in this part of the table that, just as super-giant stars, the stars possessing a tiny mass can also have high temperatures (the examples given here deliberately state higher temperatures on smaller stars). The stars with a very wide range of mass can have either low or very high temperatures. Small stars have high temperatures, but they also may have very low temperatures; the same fact is valid for large stars and the other stars that are between these groups.

2.6. **The Types of Stars with Similar Mass and Temperature**
A bit of a remark: the author of this article disagrees with the current estimates of the stars' mass, as he claims they are the product of old hypotheses which lacked enough evidence to support them. The author suggests that a radius be equal to a mass when discussing slowly-rotating stars and that the mass decrease up to 100% with fast-rotating stars. For example, Melnick 42, 21,1 R of Sun, its mass should be around 30 M of Sun (currently, 189 M of Sun).
That would give the option to avoid these illogicalities:

Table 9. Star, type / mass / temperature

	Star	Type	Mass Sun=1	Temperature °K
1	EZ Canis Majoris	WN3-hv	19	89.100
2	Centaurus X-3	O	20.5 ± 0.7	39.000
3	η Canis Majores	B	19,19	15.000
4	HD 21389	A	19,3	9.730
5	Kappa Pavonis	F	19 - 25	5,250 - 6,350
6	V382 Carinae	G	20	5,866
7	_S Persei	M	20	3.000-3.600
8	DH Tauri b	Planet; dist. 330 AU	12 M Jupiter	2.750
9	HIP 78530 b	Planet; dist. 740 AU	24 M Jup.	2.700 (2.800)

Table 9. Stars, similar mass (except No 8, 9,), different classes (type) and temperatures.

A same or similar mass should produce the same or similar outcome, given other conditions are the same. These days, scientific community totally undervalues the rotation of objects and its effects. [14]
The stars with the same mass may have completely different temperatures and be classified in all types of stars. It is particularly important to point out that planets can have high temperatures in very distant orbits, where the influence of their main star on their temperature may not be considered at all.

Table 10. planets, large distance orbits, mass/temperature

	Planet	Mass of Jupiter	Temperature K	Distance AU
1	GQ Lupi b	1-36	2650 ± 100	100
2	ROXs 42Bb	9	1,950-2,000	157
3	HD 106906 b	11	1.800	~650
4	CT Chamaeleontis b	10,5-17	2.500	440
5	HD 44627	13-14	1.600-2.400	275
6	1RXS 1609 b	14	1.800	330
7	UScoCTIO 108 b	14	2.600	670
8	Oph 11 B	21	2.478	243

Table 10. Planets at a great distance from the stars with high temperatures and different mass.

2.7. *The Temperatures of Planets and Brown Dwarfs Below 13 M of Jupiter*

It is particularly important to point out those planets and brown dwarfs, the masses of which are below 13 M of Jupiter, which have temperatures above 500°K without the influence, i.e., independently, from their main stars. Contrary to the claims that such objects cannot start fission or fusion, the objects that are below 13 M of Jupiter can have significantly high temperatures (a part of these objects have the temperatures higher than large and very large stars) (table 12).

Table 11. brown dwarfs and planets, mass/temperature

	Brown dwarf & planets	Mass of Jupiter	Temperature °K	Planets orbit AU
	mass up to 15 Mass of Jupiter			
1	CFBDSIR 2149-0403	4-7	~700	
2	PSO J318.5-22	6,5	1.160	
3	2MASS J11193254-1137466 (AB)	~5-10	1.012	3,6±0,9
4	GU Piscium b	9-13	1.000	2.000
5	WD 0806-661	6-9	300-345	2.500
6	HD 106906 b	11±2	1.800	120
7	1RXS 1609 b	8 (14)	1.800	330
8	DT Virginis	8.5 ± 2.5	695±60	1.168
9	Cha 110913-773444	8 (+7; -3)	1.300 -1.400	
10	OTS 44	11,5	1.700 - 2.300	
11	GQ Lupi b	1 - 36	2650 ± 100	100
12	ROXs 42Bb	9	1.950 ± 100	157
13	HD 44627	13 - 14	1.600 -2400	275
14	VHS 1256-1257 b	11,2 (+9,7; -1,8	880	102±9
15	DH Tauri b	12	2.750	330
16	ULAS J003402.77-005206.7	5 - 20	560 - 600	
17	2M1207b	4 (+6; -1)	1.600±100	40
18	2M 044144	9.8±1.8	1.800	15 ± 0.6
19	2MASS J2126-8140	13,3 (± 1,7)	1.800	6.900
20	HR 8799 b	5 (+2; -1)	870 (+30; -70)	~68
21	HR 8799 c	7 (+3; -2)	1.090 (+10; -90)	~38
22	HR 8799 d	7 (+3; -2)	1.090 (+10; -90)	~24
23	HIP 65426	9,0 ±3,0	1450.0 (± 150.0)	92

Table 11. brown dwarfs and planets (at a great distance from the star) with a temperature above 500 ° C.

2.8. *The Relation Between Mass, Radius and Temperature*

Due to the quantity of mass, stars can have a certain level of temperature.

Table 12. Cold stars, mass/radius

	Star	Mass Sun 1	Radius Sun 1	Temperature °K
1	R Cygni	Cool giant	/	2.200
2	R Cassiopeiae	Red giant	263-310	2.812
3	CW Leonis	0,7 – 0,9	700	2.200
4	IK Tauri	1	451-507	2.100

5	W Aquilae	1,04-3	430-473	1.800 (2250-3175)
6	R Doradus	1,2	370±50	2.740±190
7	T Cephei	1.5-1.8	329 +70 -50	2.400
8	S Pegasi	1,8	459-574	2.107
9	Chi Cygni	2,1 +1,5 -0,7	348-480	2.441-2.742
10	R Leporis	2,5 – 5	400±90	2.245-2.290
11	La Superba	3	307-390	2.600-3.200
12	R Leonis Minoris	10,18	569±146	2.648
13	S Cassiopeiae	loss at 3.5 x 10^{-6} MSun per year	930	1.800

Table 12. Cold stars in relationship: mass/radius Sun=1).

A few more examples cool Stars: RW Lmi 2.470; V Hya 2.160; II Lup 2.000; V Cyg 1.875; LL Peg 2.000; LP And 2.040; V384 Per 1.820; R Lep 2.290; W Ori 2.625; S Aur 1.940; QZ Mus 2.200; AFGL 4202 2.200: V821 Her 2.200; V1417 Aql 2.000; S Cep 2.095; RV Cyg 2.675 etc. [15]
There are examples of large stars in this table.

If all other factors that influence the temperature, such as smaller or larger binary effects, a significant rotation, dynamic processes caused by the influx of matter to a star and its polar cyclones, etc., are not considered, the stars reach the temperature of about 1 800°K by the pressure force.

Contrary to large stars, there are similar parameters at stars with small masses.

Table 13. Small stars, mass/temperature

	Star	Mass M Sun	Temperature °K
1	2M1207	~0,025	2550 ± 150
2	Teide 1	0,052	2600 ± 150
3	VHS 1256-1257	0,07-0,015	2.620 ± 140
4	Van Biesbroeck's star	0,075	2.600
5	DENIS 1048-1039	0,075	2.200
6	Teegarden's Star	0,08	2.637
7	DX Cancri	0,09	2.840
8	TVLM 513-46546	0,09	2.500
9	Wolf 359	0,09	2,800 ± 100

Table 13. Small stars with low mass and low temperatures.

2.9. *The Temperature Related to Surface Gravity, Mass and Star Radius*

When a star, within a relation of mass / radius (Sun=1), has a significantly bigger radius than mass , its temperature is low, its color is red, its magnetic field is relatively weak, as well as its surface gravity.

Table 14. Stars, temperature/surface gravity; mass/radijus

	Star	Temperature °K	Surface gravity cgs	Mass, Sun 1	Radijus, Sun 1
1	WOH G64	3.400 (3.008-3.200)	-0,5	25	1.540±77
2	UY Scuti	3,365 ± 134	-0,5	7-10	1.708 ± 192
3	KY Cygni	3.500	-0,5 (-0,9)	25	1.420 (2.850?)
4	6 Geminorum	3,789	0,0	20	670
5	Beta Andromedae	3.842	1,52	3-4	100
6	Polaris	6.015	2.2	4,5	46±3
7	ζ Cyg A	4.910	2,41	3,05	15

Table 14. Stars, low temperature, low surface gravity; mass<radijus

On the contrary, when in the same relation a star's mass is more important than its radius, the star has a high temperature, its color is white or blue, its magnetic field is strong, as well as its surface gravity.

Table 15. Stars, temperature/surface gravity; mass/radijus

	Star	Temperature °K	Surface gravity cgs	Mass, Sun 1	Radijus, Sun 1
1	Denebola	8.500	4,0	1,78	1.728
2	Fomalhaut	8.590	4,21	1,92	1,842
3	Sirijus A	9.940	4,33	2.02	1,711
4	BPM 37093	11730 ± 350	8,81 ± 0,05	1,1	0,45
5	Albireo B	13.200±600	4,00	3,7	2,7
6	η Aurigae	17.201	4.13 ± 0.04	5,4	3,25
7	Sirijus b	25.200	8,57	0,978	0,0084
8	S Monocerotis	38.500	4,5	29,1	9,9
9	R136a	53.000±3.000	4,0	315	28.8 -35.4

Table 15. Stars, high temperature, high surface gravity, radius<mass (Sun=1).

2.10. *The Temperatures on Brown Dwarfs and Planets*
When masses of brown dwarfs and planets are compared, a negation of statement that only mass, through forces of pressure, determines the temperature of an object (a star) is confirmed.

Table 16. Brown dwarf and planets, mass/temperature

Mass up to 15 MJ/(vs) Mass above 15 M

	Brown dwarf (& planets)	Mass of Jupiter	Temperature °K	Planets orbit AU
1	ROXs 42Bb	9	1.950 ± 100	157
2	54 Piscium B	50	810±50	
3	DH Tauri b	12	2.750	330
4	ULAS J133553.45+113005.2	15 _31	500 -550	
5	OTS 44	11,5	1.700 - 2.300	
6	Epsilon Indi Ba and Bb	40 – 60 (28±7)	1.300-1400 (880-940)	1.500 (between 2,1)
7	2MASS J2126-8140	13,3 (± 1,7)	1.800	6.900
8	Gliese 570	~50	750 - 800	1.500
Mass vs Mass				
9	2M 044144	9.8±1.8	1.800	15 ± 0.6
10	DT Virginis	8.5 ± 2.5	695±60	1.168
11	Teide 1	57± 15	2.600±150	
12	Epsilon Indi Ba and Bb	40 – 60 (28±7)	1.300-1400 (880-940)	1.500 (between 2,1)
13	B Tauri FU	15	2.375	700
14	DENIS J081730.0-615520	15	950	

Table 16. Brown dwarf and planets (at a great distance), relationship: mass up to 15 MJ/(vs) mass above 15 M and Mass vs Mass and temperature.

The temperatures are different, regardless of whether some objects have similar masses or not. An object with a larger mass than another one can have lower temperatures and vice versa. Two objects with a similar mass and similar other conditions can have very significant differences in temperature.

2.11. *Main Stars and the Objects in their Orbits*
An object orbiting around a central object can have lower, similar or higher temperature.

Table 17. Multiple star system, mass/temperature

	Star	Mass Sun 1	Temperature °K
1	Zeta Reticuli A	0,958	5.746
2	Zeta Reticuli B	0,985	5.859
3	Alpha Crucis α1	17,8+6,05	24.000
4	Alpha Crucis α2	15,52	28.000
5	Sirius A	2,02	9.940
6	Sirius B	0,978	25.200
7	Epsilon Aurigae A	2,2-15	7.750
8	Epsilon Aurigae B	6-14	15.000
9	Antares A	12± 20%	3.570
10	Antares B	7,2	18.500
11	KQ Puppis A	13-20	3.662
12	KQ Puppis B	17	30.000
13	Procyon A	1,499	6.350
14	Procyon B	0,602	7.740
15	Castor A	2,76	10.286
16	Castor B	2,98	8.842
17	Castor C	0,5992	3.820

Table 17. Multiple star system, relationship: central object / body in orbit, mass and temperature.

This is a confirmation there is a force directly influencing the temperature of a star, its color, radius, surface gravity and magnetic field, as well as of the objects in its orbit.

2.12. *The Rotation of Objects*

Table 18. Fast rotating stars, rotation speed/temperature, mass>radius

	Star (pulsar)	Temperature K	Rotation speed in s; ms	Mass Sun 1	Radius Sun 1
1	PSR J1748-2446ad	/	0.00139595482 (6) s	<2	16 km
2	PSR J1614-2230	/	3.1508076534271 ms	1,97	13 ± 2 km
3	PSR J0348 + 0432	/	39.1226569017806 ms	2,01	13 ± 2 km
4	PSR B0943 + 10	310.000	1,1 s	0,02	2,6 km
5	PSR 1257 + 12	28.856	6,22ms	1,4	10 km
6	J0108-1431	88.000	0,808 s	/	/
7	PSR J1311-3430	/	2,5 ms	2,7	/
8	AR Scorpii	/	1,95 minuta	0,81 do 1,29	/
9	Cen X-3	39.000	4,84 s	20,5 ± 0,7	12

Table 18. Display of fast rotating stars, temperature and relation mass> radius.

A fast rotation means a high temperature and a small radius in a relation of mass / radius (Sun = 1).
A star's speed of rotation causes its temperature (its temperature only partially depends on the mass of a star), its radius (ratio: the mass of a star / the radius of a star; Sun = 1), surface gravity and the color of a star. The stars with a slow rotation are "cold" stars (with the exclusion of binary systems effects), independently of the mass of a star and its radius. Their color is red and they are dominant in Universe (M type of stars, 0.08–0.45 masses of Sun; ≤ 0.7 R of Sun; 2,400–3,700°K; 76,45% of the total number of stars in Milky Way (Harvard spectral classification); all red stars above 0,45 M of Sun are

also included here, as well as the largest red (and other) stars in our galaxy). The stars with fast and very fast rotations are mostly present in nebulae, i.e., in the space which is rich with matter. Their total quantity in Milky Way makes 3,85% (O class ~0,00003%). [16]

A radius, related to mass (Sun =1) is negative, when stars with a fast rotation are the subject matter, while it is completely opposite with cold, red, slowly-rotating stars. [14]

There is a review of stars with low temperatures, the speed of rotation around their axis, mass, radius, surface gravity and finally high temperatures with the same parameters in the following table. If more significant binary effects on a star's temperature are not considered, one can find in the table that cold stars in the mass / radius relation have the radius bigger than mass, small rotation speeds and low surface gravity. Hot stars have all of these to the opposite.

Table 19. Stars, temperature/rotation speed/ surface gravity, mass/radius.

	Star	Temperature K	Rotation speed km/s	Mass Sun 1	Radius Sun 1	Surface gravity cgs
1	Betelgeuse	3.590	5	11,6	887 ±203	-0,5
2	Andromeda 8	3.616±22	5±1	/	30	1±0.25
3	β Pegasi	3.689	9,7	2,1	95	1,20
4	Aldebaran	3.910	634 day	1,5	44,2	1,59
5	HD 220074	3.935	3	1,2	49,7 ± 9.5	1.3 ± 0.5
6	Beta Ursae Minoris	4.030	8	2,2	42,6	1,83
7	Arcturus	4.286	2.4±1.0	1.08±0.06	25.4±0.2	1.66±0.05
8	Hamal	4.480	3,44	1,5	14,9	2,57
9	Iota Draconis	4.545	1,5	1,82	11,99	2,5
10	Pollux	4.666	2,8	2,04	8,8	2.685±0.09
11	ζ Cyg A	4.910	0.4 ± 0.5	3,05	15	2,41
12	Capella	4.970	4,1	2.5687	11,98	2,691
13	Alpha Pegasi	9.765	125	4,72	3,51	3,51
14	η Aurigae	17.201	95	5,4	3,25	4.13 ± 0.04
15	Eta Ursae Majoris	16.823	150	6,1	3,4	3,78
16	Spica secondary	20.900±800	199	7.21±0.75	3,74±0.53	4.15±0.15
17	λ Scorpii	25.000±1.000	150	14,5	8,8	3,8
18	Gamma Cassiopeiae	25.000	432	17	10	3,50
19	Zeta Puppis	40.000-44.000	220	22,5 – 56,6	14-26	3,5
20	LH54-425 O5	45.000	250	28	8,1	4,07
21	S Monocerotis	38.500	120	29,1	9,9	4,5
22	LH54-425 O3	45.000	197	47	11,4	4,0
23	HD 93129	42.500	130	110	22,5	3,71
24	HD 5980 B	45.000	400	66	22	/

25	BI 253	50.100	200	84	10,7	4,20
26	HD 269810	52.500	173	130	18	4,0
27	Melnick 42	47.300	240	189	21,1	3,90
28	WR 2	141.000	500	16	0,89	/
29	WR 142	200.000	1.000	20	0,40	/

Table 19. Stars, relationship: temperature/rotation speed/ surface gravity and mass/radius. No 1-12 cold stars, 13-29 hot stars.

The influence of rotation is more significant with stars that possess larger mass, because warming up and pressure are the result of friction, occurring between layers of a star. These stars that rotate faster will have higher temperatures than small stars, with the same or slower rotation (binary effects excluded). Slowly-rotating stars have less significant surface gravity than the fast-rotating stars. [17]

Quote: The temperature of stars is directly related to the speed of its rotation. Those with slower rotation are red, while with the increase of the rotation speed, also increases the glow and temperature of a star. As a consequence, it turns white and blue. If we consult the Hertzsprung-Russell diagram, it is obvious that both very small and super giant stars can have the same glow; they can be white, red or blue. The mass and quantity of so-called fuel that they supposedly burn is obviously an unacceptable answer – there are stars of the same mass, or sizes, but with a completely different glow. If we were to try to explain that by the presence of different elements, it would make no sense. Diversity of elements depends exactly on the temperature heights: the higher the temperature, the lower the diversity and order of elements.

The lower the temperature, the higher are diversity and presence.
If stars were to burn some fuel, they would lose their mass, which is not the case. On the contrary, they constantly gain mass with the outer mass incoming from the system (comets, asteroids, planets). Furthermore, it is wrong and opposite to the evidence to claim that stars shine because of the radioactive processes deep inside them. Beyond any doubt, they are not radioactive.. end quote [17]

3. *A Permanent Circular Process*
3.1 The Disintegration, Formation and the Constant Growth of Matter and the Objects in the Universe

The particle colliders have shown that particles disintegrate if affected by a force that is strong enough. [9] Before particle colliders were discovered, scientists were able to discover in laboratories some atoms that were incoming to the laboratories from the outside of the Earth. These were named muons. They were found again in the particle colliders in the process of particle disintegration. Their life span is very short (2,2 x 10-6) – they break into an electron and neutrino; they were never found anywhere outside the particle colliders. A process similar to the one in the particle colliders must have existed outside Earth, because muons had been found in laboratories before the existence of particle colliders. Some quantity of particles gets disintegrated in the collisions of radiation (waves) and the atmosphere. The disintegration of particles takes place during the collisions of objects or the smaller objects with the greater objects that have no atmosphere. There is another event in the Universe, in which particles get disintegrated. These are the explosions of stars. The forces within these explosions are similar or larger than in the Large Hadron Collider (LHC). [17]

Because the matter of an exploded star is missing, the scientists have been filling these gaps with the black holes, neutron stars and dwarf stars, to which supernatural (impossible in the physical terms) density has been ascribed. After the results from the particle colliders have been presented, there should be no more need for hypothetical objects. Most of the visible matter gets disintegrated (destroyed) in a star explosion. [18]

The next example presents the disharmony of the nebulae mass and current theories.

The nebula IC 4628 has a diameter of about 250 light years and consists of numerous large shiny stars, which have very high temperatures (type O) and there are also two white-blue giants (type O) of the impressive size.
Except for the very large quantity of stars that are created in the nebula and are inside it, the nebula has enough of gas and dust to create another circle of new stars. It should not be forgotten that such a large explosion needs to have a maximal black hole. [19]

Three supernovae have been sighted with a naked eye in the last 1000 of years in the Milky Way (to date it has been discovered (total number) just over 400 Novae in the Milky Way). [20] There are ~100 billion of galaxies in the Universe. If the intensity of

star explosions is similar for all galaxies, there are 3 (3,170979) stars exploding in the Universe every second (and 273.972,60 stars daily, etc.). A dominant opinion today is that only those stars explode, which mass is no less than 8 M Sun (Chandrasekhar limit 1,44 M Sun). [21]

(The author of the article relates the explosions to very fast-rotating stars, independently of their mass, and they occur when their cyclones on the north or south pole get hit by an object of a sufficient size. The cyclone makes it possible for the incoming object to go deep inside a star, where that object explodes, due to the friction. [21])

If stars had an average mass of 8 M Sun (and this is the lowest quantity), during the period of 13 billion of years, most of the matter, which is 10,96 x 1018 (10.096.000.000 billion of M Sun), has been disintegrated (or (real data) ~400 x (factor 3) = 1200 x ~100 billion galaxies in the Universe x min. 8 M Sun > 8.493 galaxies of the Milky Way size). (I have to point out that there is a constant process of growth and the size of 13,7 (8) G light years is used as a distance that is not to be used to determine the age of the Universe.) The total star mass of the Milky Way is estimated to be between 4,6 x 10 10 M Sun and 6,43 × 10 10 M Sun.

Although the Universe is losing enormously large quantities of visible matter in the star explosions, objects' collisions and the collisions of radiation and visible matter, it increases its mass, a fact which scientists have been trying to explain by the expansion of the Universe.

Sir Fred Hoyle suggested the formation of a single particle per a star system. Billions of particles are lost daily only in the collisions of waves with the particles of our atmosphere. During the 1980s, the physicists of the subatomic physics suggested that they had been observing the formation of particles from a field. A majority of particles were unable to complete the process and were returning to the field.

Independently of the validity of these claims (or evidences), matter is being formed and it successfully replaces the disintegrated matter and contributes to the increase of the visible matter in the Universe. That can be supported by the fact that a visible part of the Universe consists of hydrogen (~75%). The most of nebulae consists of ~90% of hydrogen. It can be concluded, at what speed and at what ratio are other elements in the space created, from the relation hydrogen/helium/other elements. Hydrogen is in the molecular state on Earth, while the majority of interstellar hydrogen is in the atomic state. [19]

The higher density of an element (hydrogen) connects its atoms into molecules of H2, as a contrary to the lower density, where the atomic hydrogen has no possibility to create molecules.

The connection of hydrogen atoms into H2 shows that hydrogen has two sorts of charge + and – (a weak hydrogen bond) and that in such a dominantly positively charged particle there is a significant quantity of a negative charge. If that were not so, hydrogen would have been satisfying its need with smaller particles, electrons and neutrino.

H2 is the beginning of a permanent ascending process inside the visible part of the Universe and higher systems. Here it is necessary to point out that the results from the particle colliders suggest that hydrogen consists of a large quantity of electron and neutrino (the author of the article estimates it to be inside the relation of ~1.800 x 1.800) and it looks like a thread, curled up into a ball. The thread opens up in various processes and creates the next lines of atoms.

That is the way how an interwoven structure of more complex atoms is created. It gives a simple answer to the question, why two or three atoms with the same atomic mass differ utterly (argon, potassium and calcium, etc.) and exist in different aggregate states. The same goes for any pair of the neighboring elements (fluorine – neon, tellurium – iodine, etc.). The isotopes of elements also need to be mentioned here; they additionally confirm this way of creating the particles. Joining and growing of particles goes on even when a particle reaches its upper limits of natural sustainability, due to which a particle rejects the surplus of matter together with radioactive radiation. The same goes for the lower elements (who have irregular structures or the irregular ratio of protons and heavy protons), whose structure can not bear further growth (the system undergoes self-adaptations to achieve the sustainable state). [20]

Growth doesn't stop with atoms; on the contrary, joining goes on. Through joining, chemical reactions and combined, gas, dust, sand, the rocks named asteroids and comets, etc., are all created. Even further, planets are created the same way. Then, when planets grow to the 10% of Sun's mass, they become stars, which can be really gigantic (super-giants).

Millions of craters scattered around the objects of our Solar system are the evidence of objects' growth. Constant impacts of asteroids into our atmosphere and soil are the evidence of these processes being uninterrupted today, just the same as it used to be in any earlier period of the past. It is estimated that 4 000 – 100 000 tons of extraterrestrial material falls yearly to Earth. [21]

3.2. *The Disintegration of Complex Atoms*

At the beginning of the permanent ascending process of the visible matter is hydrogen, after it helium and only then, other elements (generally less complex atoms), which are registered only in traces. It can be concluded from the chemical composition of the different types of nebulae. The differences in the chemical composition are the result of the density of a nebula. More dense nebulae (molecular clouds,...) give more possibilities for particle connection than less dense, thin nebulae. (Their chemical composition, however, is fairly uniform; it corresponds to the composition of the universe in general in that approximately 90 percent of the constituent atoms are hydrogen and nearly all the rest are helium, with oxygen, carbon, neon, nitrogen, and the other elements together making up about two atoms per thousand. [22])

The more frequent the contact between atoms is, the higher is the complexity of a chemical composition. The objects with a melted core that still have a crust are chemically more diverse objects (Earth). Diversity is a result of the complex geological processes, particularly in the interaction of the magma and the crust of an object.

Complexity depends mostly on the rotation of an object. If an object does not have an independent rotation, its chemical composition is less diverse. The same goes for the objects with monotonous conditions, i.e., if there are only high or low uniform surface temperatures, which do not serve the formation of more complex atoms. Their formation is better served by the existence of temperature amplitudes on a surface.

The chemical composition of a star is on the opposite side of the diverse chemical composition. Stars consist of hydrogen (Sun: ~75%), helium (~24%) and ~1-1,5 % of the other elements (oxygen, carbon, iron (0,16%), neon, nitrogen, silicon, magnesium, sulphur (0,04%).

Chemical composition change becomes dramatic when matter becomes hot and melted. It is seen from the chemical composition of the Earth and Sun.

Table 5. the chemical composition of the Earth (crust and s mantle) and Sun

	Melting point °C	Boiling point °C	% crust of the Earth	% mantle of the Earth
SiO_2	1.713	2.950	60,2	46
Al_2O_3	2.072	2.977	15,2	4,2
CaO	2.613	2.850	5,5	3,2
MgO	2.825	3.600	3,1	37,8
FeO	1.377	3.414	3,8	7,5
Na_2O	1.132	1.950	3	0,4
K_2O	740	-	2.8	0,04
Fe_2O_3	1.539 –1.565	Not Available	2.5	
H_2O	0	100	1,4 (1,1)	
CO_2	-56	Sublimation -78,5	1,2	
TiO_2	1.843	2.972	0,7	
P_2O_5	sublimes	360	0,2	

Sun   He 24,85 %, H 73,46%, O 0,77%, C 0,29%, Ostalo 0,53%

Table 5. comparison the chemical composition of the Earth (crust and s mantle)/ Sun

Lava is mostly created by compounds that are in the solid state on the temperatures of lava "(K Al Si 3 O 8 - Na Al Si 3 O 8 - Ca Al 2 Si 2 O 8 (Feldspars), respectively MgO Melting point 2,825 °C, boiling point 3,600 °C, Al_2O_3 2,072 °C/2,977 °C; SiO_2 1,713 °C/2,950 °C; TiO_2 1,843 °C/ 2,972 °C, CaO 2.613 °C/2886 °C, FeO 1.377 °C/3.414 °C, Na_2O 1132 °C/1.950 °C etc.

Here, the following discussion should not take place: that, due to stronger force of pressure, matter becomes melted at lower temperatures, because there are many volcanoes that maintain the melted matter during an extremely long period on the surface and with the pressure of one atmosphere.

Quote: Volatile elements and compounds (the boiling points of which are below the temperature of lava) evaporate from lava, but, because of low temperatures that are lower (for example, lava is 1 200°C, air is 15°C, melting point of magnesium is 648,85°C and boiling point is 1 090°C; instead of evaporating into atmosphere, magnesium particles get cooled down by low temperatures and they stay on the lava surface (which affects the level of lava viscosity: lower temperatures have smaller quantity of elements and compounds that change their state from liquid into gaseous and vice versa; with the increase of temperature, that quantity increases and viscosity decreases)) and the process goes on until a particle of magnesium becomes a compound of MgO, with the melting point of 2 825°C and boiling point of 3 600°C (or it only stays as Mg, in the process of hardening and cooling down the lava).

Due to the long-term exposure of more complex atoms and compounds to the temperatures above their boiling points, they get dissolved into atoms of hydrogen, helium, oxygen (~74/25/<1/<1). [5] end quote

As the temperature of the star is higher, the chemical composition is less varied.

M type of stars (fraction of all main-sequence stars 76.45% in Milky Way), due to temperatures of 2 400–3 700°K can have on their surfaces, the majority of oxides, existing in lava nad magma on Earth, are in a liquid state. The expected diversity of chemical compounds will be lower, but the readings of compound presence will be lower, because the layer above a star is colder than the boiling points of atoms and compounds; here they get crystallized and fall on the surface.

Inside stars (melted objects), hot matter constantly tends to move towards the surface.
The processes of hot matter dislocation towards the surface and atmosphere are a good sign that a star's atmospheric and photospheric chemical composition reflect the complete chemical composition of hot objects. The temperature of Sun, 5.772°K, turns all elements and compositions into a gaseous aggregate state. The same happens with all stars with high temperatures. Red stars (with the temperatures ranging from 1.800–2.900°K and all red stars above 0,08-0.45 M Sun) have lower temperatures than the boiling point of many compounds: SiO_2, 2.950;

Al_2O_3, 2.977; CaO, 2.850; MgO, 3.600; FeO, 3.414; TiO_2, 2.972°K and some elements. Their processes and surface (chemical composition) are unlike the processes and surfaces of hot stars. In the long term, high temperatures inside "cold" stars will impoverish the chemical composition of their surfaces, but never as the hot stars will. Chemical composition of an atmosphere should be distinguished from a photosphere (surface) of a star. Due to a constant growth, stars generally create atmospheres from the gathered material, which is found in the relation: hydrogen/helium/other elements (~90/10/to 1%), which is another reason, why larger objects have poor chemical composition. Higher temperatures do not serve the formation of more complex atoms and compounds.

3.3. *The Distance from Stars Adapts the Processes*
The temperature of space and objects (planets and smaller objects) is decreased with the increase of distance from the radiation source (except the thermal deviation from 1 to 5,2 AU (Sun)). The decrease of temperature is directly related to the "working" temperature of atoms and compounds. The elements have the points of melting and boiling. It is impossible to talk of the oxygen atmosphere if the temperatures on an object are below the melting point (-218°C); oxygen atmosphere appears if the temperatures of an object and its space have the temperatures above -182,96°C. By observing the atmospheric chemical composition of the external planets, a lack of oxygen is obvious. The internal objects lack hydrogen. The internal atmospheres mostly consist of N_2, CO_2 and the external ones of N_2, CH_4, H_2. A good example is Mars, which has no hydrogen in the atmosphere or on the surface. The lack of hydrogen makes the hydrogen-based compounds impossible.

The minimal temperature on Mars is -143°C, while the average and maximal one are -63°C and +35°C respectively. The chemical composition of its atmosphere is: carbon-dioxide 95,97%; argon 1,93%; nitrogen 1,89%; oxygen 0,146%; carbon-monoxide 0,0557%, which in total makes 99,9917% of the elements and compounds, present in its atmosphere.

The geological composition of the Mars surface: Mars is a terrestrial planet, consisting of the minerals of silicon and oxygen, metals and other elements that usually form rocks. The plagioclase feldspar NaAlSi3O8 to CaAl2Si2O8; pyroxenes are silicon-aluminium oxides with Ca, Na, Fe, Mg, Zn, Mn, Li replaced with Si and Al; hematite Fe2O3, olivine (Mg+2, Fe+2)2SiO4; Fe3O4 .. [25]

A chemical composition of an object can partially be detected from the composition of atmosphere. Titan

moon: Stratosphere: 98.4% nitrogen (N_2);1.4% methane (CH_4), 0.2% hydrogen (H_2); that indicates the lack of oxygen and oxygen-based compounds. "Working" temperatures of oxygen are from -218 to -182,96°C and are lower than the average temperatures – Titan moon, -179,5°C. All oxygen from a surface would end in the atmosphere, because Titan has no temperatures that go below the points of melting and boiling for oxygen. Knowing these processes contributes to the new awareness of the chemical composition of objects and atom behavior, due to temperature levels.

The occurrence of atmosphere is directly related to different geological processes: volcanoes; ejection of cold matter; attraction of new particles of matter; activity of intensive radiation; activity of gravitational forces among two or more objects on each other; rotation of objects (when different temperatures of day and night occur); constant bombardment of other, lesser or larger objects; inclination and form of an object; the change of calendar seasons; etc. The age of an object deserves to be particularly singled out here, although it will not be discussed now.

When a formation of atmosphere on the internal objects takes place, aside from a quantity of geological processes, the following needs to be taken into consideration: Nitrogen does not burn nor it supports combustion. It is a bit easier than air and poorly soluble in water, chemically unreactive. ... 99,8% of all carbon on Earth is found combined in minerals, mainly carbonates... Only 0,01% of carbon exists in living beings. ... After hydrogen, carbon creates more compounds than all the other elements put together.

Although CO2 is mutual for all of the three planets with atmosphere, the differences among them occur due to the distance from Sun, rotation, mass; they caused different geological processes. The proximity of Sun and the lack of rotation – notwithstanding the similar masses – created the atmosphere of Venus: CO2 96,5% and nitrogen 3,5%. The rotation of Earth, the change of calendar seasons, binary relations between Earth and Moon and colder environment (related to that of Venus) are suitable for the creation of water, which in the form of rain removes CO2 from the atmosphere in the favor of nitrogen (78%) and oxygen (21%).. [26]

3.4. *The Density of Smaller Objects and Stars*
The density of objects can be analyzed within our system. If other conditions remain similar, the objects closer to the main object have a higher density, due to more significant tidal waves.

Table 21. Sun system, density, radius, semi-major axis.

	Central Object	Body in orbit	Ø Density g/cm^3	Radius km	Semi-major axis km
1	Earth		5,514	6.371	
2		Moon	3,344	1.737,1	384.399
3	Mars	Phobos	1,876	11,27	9.376
4		Deimos	1,4718	6,2	23.463,2
5	Jupiter	Io	3,528	1.821,6	421.700
6		Europa	3,013	1.560,8	670.900
7		Ganymede	1,936	2.634,1	1.070.400
8		Callisto	1,8344	2.410,3	1.882.700
9	Saturn	Enceladus	1,609	252,1	237.948
10		Dione	1.478	561,4	377.396
11		Rhea	1,236	763,8	527.108
12		Iapetus	1,088	734,5	3.560.820
13	Uranus	Ariel	1,592	578,9	191.020
14		Umbriel	1,39	584,7	266.000
15		Titania	1,711	788,4	435.910
16		Oberon	1,63	761,4	583.520
17	Neptune	Proteus	~1,3	210	117.647
18		Triton	2,061	1.353,4	354.800
19	Pluto		1,86	1.187	
20	Charon		1,707	603,6	19.591
21	Sun		1,408	695.700 eq	
22		inner planets	3,9335-5,514		57,909,050-227,939.200
23		external planets	0,687- 1,638		5.2044 AU- 30.11 AU

Table 21. Sun system Ø density bodies, radius bodies, semi-major axis.

Quote: The objects that are closer to the central object possess a higher density (due to the higher tidal force effects), as well as the objects with bigger masses and higher temperatures of space (Ariel/Umbriel; Titania/Oberon; Proteus/Triton; Rhea/Iapetus; Galileo's satellites; Phobos/Deimos; internal/external planets; etc). Of course, it does not mean that all objects belong to this group. The very division of asteroids into S, M and V type suggests a dramatical deviation. One part of objects becomes more dense in the beginning of their approach to the Sun (because volatile matter disappears and higher temperatures help the creation of the more complex elements). The other part of objects was created during the disintegration of objects (the internal – the higher density, and the external – the lower density), due to the collisions. In both cases a continuation of growth must be taken into consideration, as the lesser objects keep arriving to their surfaces. A certain portion of satellites also does not abide the strict law (density, mass, space temperature and distance to the central object), which implies the different past of these objects before they got captured by the central object. A part of it definitely belongs to the different composition of objects that constantly bombard satellites and other objects. It is unlikely that more dense asteroids from the asteroid belt would hit the outer objects, unlike the interior ones, because the gravitational force of Sun is dominant.

The conclusion would be that it is a very complex and dynamic pattern related to the processes of objects' creation – it is constantly moving and growing. The complexity of objects is related to the space temperature, the mass of an object and the total sum of tidal forces. Furthermore, the complexity is influenced by the position of an object related to the planet, Sun, as well as the asteroid belt. The important role also belongs to time when object got captured, for how long the object had been near Sun (perihelion) and at what distance. [30] end quote
White dwarves: Sirius B, Procyon B, LP 145-141, Gliese 223.2, Stein 2051 B etc. have the same ratio: mass / radius / temperature as well as large blue stars R136a1, Melnick 34, WR 25 , R136c etc.

Red Dwarfs are small stars of the "M" type, HIP 12961, Lacaille 8760, Proxima Centauri, Barnard's Star, Teegarden's Star etc. and they follow other red stars in the relationship of mass / radius / temperature NML Cygni, WOH G64, Mu Cephei, VY Canis Majoris etc.

It should not be recommended to reduce the analysis of the influence of factors to the stars on mass, radius, temperature and the rotation of object around the axis in this reassessment of the old theories, because an inexact impression of the statistical analysis of the other objects may occur. This article should be used only as a quick approximate tool of star positioning, as a kind of control when determining a measurement and, if there are deviations, the cause of deviations must be determined or the measurement should be repeated.

Temperature and radiance are also affected by the tidal forces from the bigger or smaller binary effect, environment, the density of gas (layers) between the observer and a star, the speed of outer matter influx to the object, especially into a whirl or cyclone on the poles of a star (over 140 tons of space matter is falling daily to the surface of Earth), different sums of the mass and rotation effects to the small and big stars.

If we check the data of the objects' masses, we can see that independent objects with a bigger mass have a higher temperature, but the level of temperature is limited (S Cassiopeiae Radius 930 R Sun, Temperature 1.800 K) and it is more notable in smaller objects, which are in the phase of melting and changing into a star. [31] ..

The objects with a melted core and with a crust have the most complex chemical composition. A melted core is created with the object's mass growth and with the action of all tidal waves and the speed of rotation. Independent small objects create a melted core with the increase of mass. A quantity of mass is determined by the speed of rotation around an object's axis; if binary effects are not considered, a melted core can be created with a higher speed of rotation even with a smaller mass, compared to the slowly-rotating objects.

Elements and compounds are disintegrating without a more significant radioactivity into lower order elements with the increase of mass and other factors that cause the creation of a star and the temperatures higher than the boiling point. Cold stars (brown dwarfs and small stars of M class) have more complex chemical composition than hot stars because their lower temperatures are lower than the boiling points of the part of elements and compounds. When determining density, the data should be observed within identical parameters to avoid the following speculations: the density of Earth at the depth of 5 100-6 378 km (the core of Earth) is 12,8-13,1 g/cm^2, the density of Sun at the depth of 552 000 km is 0,2 g/cm^2 (radiative zone). A chemical composition of magma (Ultramafic (picritic) $SiO_2 <$ 45%; Fe-Mg >8%; MgO ~32%; Temperature: up to 1500°C; viscosity: Very Low; type Density Magma [kg / m³] Basalt magma 2650-2800; Andesite magma 2450-2500; Rhyolite magma 2180-2250) [5] [32] which is approximately similar to scientific research: molten

silica exhibits several peculiar physical characteristics that are similar to those observed in liquid water: negative temperature expansion, density maximum at temperatures ~5000 °C, and a heat capacity minimum. Its density decreases from 2.08 g/cm^3 at 1950 °C to 2.03 g/cm^3 at 2200 °C. [33]

4. *A Blue Shift, Different Speeds of Galactic Movements and Expansion*
4.1. *Local Group of Galaxies*
The expansion is related to a red shift because a Hubble constant (and unavoidable Big Bang) determined the distancing of galaxies in the details. The first to damage the ideal image was the local group of galaxies, in which there is a similar quantity of galaxies with a blue and red shift. [2]

Table 22. Blue and red shift i rotacija

	Galaxies, local groups	Redshift km/s	Blueshift km/s
1	Pegasus Dwarf Spheroidal		-354 ± 3
2	IC 10		-348 ± 1
3	NGC 185		-202 ± 3
4	Canes Venatici I	~ 31	
5	Andromeda III		-351 ± 9
6	Andromeda II		-188 ± 3
7	Triangulum Galaxy		-179 ± 3
8	Messier 110		-241 ± 3
9	NGC 147 (2.53 ± 0.11 Mly)		-193 ± 3
10	Small Magellanic Cloud	0.000527	
11	M32		-200 ± 6
12	NGC 205		-241 ± 3
13	IC 1613		-234 ± 1
14	Carina Dwarf	230 ± 60	
15	Sextans Dwarf	224 ± 2	
16	Ursa Minor Dwarf (200 ± 30 kly)		-247 ± 1
17	Draco Dwarf		-292 ± 21
18	Cassiopeia Dwarf		-307 ± 2

Table 22. Blue and red shift and rotation within our local galactic group.

There is no expansion of the local group of galaxies. The data suggest a classical rotation. There is a similar quantity of galaxies that are approaching and those that are distancing themselves from us.

4.2. *Rotation of Virgo Cluster*

Table 23. galaxies, distance 35 - 60 M ly and their speed of movement

	Galaxies	Distance M ly	Redshift, Blueshift km/s (z)
1	NGC 7320c	35	5,985 ± 9
2	NGC 7320	39 (12 Mpc)	786 ± 20
3	NGC 2541	41 ± 5	548 ± 1
4	NGC 4178	43 ± 8	377
5	NGC 4214	44	291 ± 3
6	M98	44,4	-0,000113 (-142)
7	Messier 77	47,0	1137 ± 3
8	NGC 14	47.1	865 ± 1
9	Messier 88	47 ± 8	2235 ± 4
10	IC 3258	48	-0,0015 (-517)
11	NGC 3949	50	800 ± 1
12	NGC 3877	50,5	895 ± 4
13	NGC 4088	51,5 ± 4,5	757 ± 1
14	NGC 1427A	51,9 (+5,3, -7,7)	2028 ± 1
15	NGC 1055	52	994 ± 5
16	M86	52 ± 3	-244 ± 5
17	Messier 61	52,5 ± 2,3	1483 ± 4
18	NGC 4216	55	131 ± 4
19	Messier 60	55 ± 4	1117 ± 6
20	NGC 4526	55 ± 5	448 ± 8

21	Messier 99	55,7	2407 ± 3
22	NGC 4419	56	-0,0009 (-342)
23	M90	58,7 ± 2,8	-282 ± 4

Table 23. galasies distance, which should be worth the Hubble constant (~700 (32.6 M ly) -1400 km / s (65.2 M ly))

Here are some examples of galaxies that are 35 to 60 M light years away. The speeds of the galaxies' distancing away, according to the theory of expansion, should be 700 (32 M light years) to 1400 (64 M light years) km/s, at this distance (Objects observed in deep space - extragalactic space, 10 megaparsecs (Mpc) or more - are found to have a red shift, interpreted as a relative velocity away from Earth [2])
instead, we have the image, which is similar to the one in our local group.

A few more examples of galaxies that have a blue shift from the Virgo Cluster at the distance 53,8 ±0,3 M ly (total 65 galaxies): IC3105 -284; VCC322 -323; VCC334 -350; VCC501 -224; IC3224 -100; VCC628   -540; VCC636 -113; IC3258 -593; IC3303 -427; VCC788 -3; VCC802 -318; IC3311 -287; VCC810 -470; VCC815 -866; VCC846 -845; NGC4396 -215; VCC877 -212; NGC4406 -374; VCC892 -784; etc. [9]

Except for a blue shift, it is equally important to notice that the other speeds of movement are not in line with expansion (and Hubble constant). At the distance of 35 M light years NGC 7320c has the speed of 5,985 ± 9 km/s. NGC 127 has z = 0.0137 at the distance of 188 M light years, which equals the speed (helio radial velocity) of ~ 409 km/s (the radial velocity is the component of the object's velocity that points in the direction of the radius connecting the object and the point, that is does not represent expansion), a similar speed is present on Messier 59 z = 0.001368 of 410± 6 km/s at the distance of 60± 5 M light years.

The most of data is collected from many sources and their data are very different and prone to frequent changes. However, independently of the data source, similar data that support the stated claims can be found inside any of these individual source or data base or in the scientific magazines' pdf-format papers.

4.3. *Blueshift and Mergers Galaxies and Cluster of Galaxies*
Several examples of mergers of the cluster of galaxies:

Table 24. merger clusters of galaxies

1	Abell 520	galaxy cluster possesses an unusual substructure resulting from a major merger.
2	Abell 576	two clusters in the process of merging
3	Abell 665	is composed of two similar-mass clusters which are at or very close to core crossing
4	Abell 754	formed from the collision of two smaller clusters
5	Abell 2142	has attracted attention because of its potential to shed light on the dynamics of mergers between galaxies.
6	Abell 2744	s a giant galaxy cluster resulting from the simultaneous pile-up of at least four separate, smaller galaxy clusters
7	MACS J0025.4-1222	created by the collision of two galaxy clusters
8	Musket Ball Cluster	This cluster is further along the process of merger than the Bullet Cluster

Table 24. merger clusters of galaxies, process permanent system growth

Using the Chandra and Hubble Space Telescopes we have now observed 72 collisions between galaxy clusters, including both 'major' and 'minor' mergers. [10]

Several examples of galaxy mergers: Arp 87, Arp 104, Arp 107, Arp 220, Arp 240, Arp 256, Arp 272, Arp 299, Arp 302, NGC 4194, NGC 4567 and NGC 4568, NGC 4618, NGC 4625, NGC 4627, NGC 4633, NGC 4634, NGC 4647, NGC 5090 and NGC 5091, etc. [11]

Besides the forces of attraction that cause mergers and collisions among them, the objects in the Universe have different speeds of movement. An object, named Einstein Cross, which is at the distance of 8 G light years, is moving faster than the object named Lynx Supercluster, which is 12,9 G light years away. A few examples are given in the following table.[12]

4.4. *The Uneverse and Rotation*

Table 25. system rotation within the Universe, distance/red shift

	Space objekt Clusters, superclusters, galaxy	Distance Mly	Red shift (z)
1	The Laniakea Supercluster centre	250	0,0708
2	Abell 400	326	0,0244
3	Abell 1656	336	0,0231
4	Horologium_Supercluster the nearest part	700	0,063
5	Abell 754	760	0,0542
6	Abell 133	763	0,0566
7	Corona Borealis Supercluster nearest part	946	0,07
8	CID-42 Quasar	3.900 (3,9 Gly)	0,359
9	Saraswati Supercluster	4.000	0,28
10	Abell 2744	4.110	0,308
11	Einstein Cross	8.000	1,695
12	Twin Quasar galaxy	8.700	1,413
13	TN J0924-2201 galaxy	12.183	5,19
14	EQ J100054+023435 galaxy	12.200 (12,2 Gly)	4,547
15	Lynx Supercluster	12.900	1,26 & 1,27
16	EGS-zs8-1	13.040	7,73
17	z8 GND 5296 galaxy	13.100	7,51
18	GN-z11 galaxy	~13.400	11,09; +0,08; −0,12

Table 25. The system, rotation within the Universe, distance 250 M ly- 13,4 G ly

In the whole area of the Universe, from the local group and the local cluster, to the most distant objects, the astronomers register the existence of the blue specter (system mergers), different speeds (closer objects are faster than the objects that are significantly further from them), which indicates there are identical processes in the local group and in the Universe.

Here it must be taken into consideration that, the further an object is, the lower the radiation intensity gets (which our instruments detect as the increase of red shift, although in reality, those objects are in the phase of collision, merger or are on the move towards an observer).

4.5. *Rotation vs. Expansion*
A simple check of these claims can be made. If we place our Earth as a point inside the volume of the whole Universe some 300-400 thousand light years after the Big Bang, when the first radiation (cosmic microwave background) starts to appear (BD + 17 ° 3248 is a cluster in the Milky Way, only 968 light years away and the estimated age of 13,8±4 G years) and check the progress of expansion.

Our location within the expansion has the same direction with the closer and more distant neighboring galaxies and a red shift with more significant quantities is impossible in that direction. The astronomers have found nothing similar in their observations.

We have a claims, „The universe is spreading", then there should be a small universe (with a small diameter) 300-400 thousand years after the so-called Big Bang, and a big universe, in which „...the most distant objects in the universe are the galaxies GN-z11, 13,39 G etc.

If an emission of light happened 13,39 light-years ago (EGSY8p7, 13,23 G ly, etc.), one could ask: did light travel at all through these 13,39 bilion ly, since we can see it now? [10]

Our Universe is created inside a whole that has started to brighten up ("when photons started to travel freely through space" Wikipedia), which is in total accordance with "the radiance (CMB, cosmic microwave background) is almost even in all directions".

CMB (according to Big Bang theory), the photons started traveling freely into space, which is not our Universe. It is an area outside the whole, from which the radiation starts and inside which stars and galaxies (our Milky Way included, too) were created.

The radiance (CMB) is even in all directions and, according to Big Bang theory, it should mean that CMB and other radiations return back into the whole, from which they started 13,7 billion of years ago, because the radiance (CMB) is almost even in all directions and they don't originate from a single

point, which should represent a starting whole, from which photons (CMB and other radiations) started.

Radiation is coming from all directions of the Universe, which is contradictory to the expansion of the Universe.

Table 26. the direction of the farthest galaxies within the Universe

	Galaxy	Right ascension	Declination	Red shift	Distance G ly
1	HCM-6A	02h 39m 54.7s	−01° 33′ 32″	6,56	12,8
2	SXDF-NB1006-2	02h 18m 56.5s	−05° 19′ 58.9″	7,215	13,07
3	TN J0924-2201	09 h 24 m 19,92 s	-22 ° 01 '41,5 "	5,19	12,523
4	UDFy-38135539	03h 32m 38.13s	−27° 45′ 53.9″	8,6	13,1
5	A2744 YD4	00h 14m 24.927s	−30° 22′ 56.15″	8,38	13,2
6	BDF-3299	22h 28m 12.26s	−35° 09′ 59.4″	7,109	13,05
7	SSA22−HCM1	22h 17m 39.69s	+00° 13′ 48.6″	5,47	12,7
8	EQ J100054+023435	10h 00m 54.52s	+2° 34′ 35.17″	4,547 (280.919 km/s)	12,2
9	ULAS J1120+0641	11h 20m 01.48s	+06° 41′ 24.3″	7,085	13,05
10	ULAS J1342 + 0928	13h 42m 08.10s	+13h 42m 08.10s	7,54	13,1
11	GRB 090423	09h 55m 33.08s	+18° 08′ 58.9″	8,2	13
12	IOK-1	13h 23m 59.8s	+27° 24′ 56″	6,96	12,88
13	A1703 zD6	13 h 15 m 01.0 s	+51° 50′ 04′	7,054	13,04
14	Q0906 + 6930	09h 06m 30.75s	+69° 30′ 30.8″	5,47	12,3
15	MACS0647-JD	06h 47m 55.73s	+70° 14′ 35.8″	10,7	13,3

Table 26. the direction of the farthest galaxies within the Universe distance 12,2 -13,3 G ly

There is no significant red shift in only one direction – a similarly significant red shift is found in all directions. There is nothing that would imply that something different from the other directions is happening in any particular direction (the possibility that we are in the very center of the Universe and that everything is distancing itself from us is disputed by collisions, smaller and larger mergers and the different speeds of the observed objects (blue and red shift) (table 1, 2, 3 and 4).

A following result can be concluded from these data: there is no expansion, but a rotation of the Universe and all the objects within it. Similarly to any spherical cluster of stars or galaxies, the speeds of the objects inside it are lower than the speeds of the objects outside such a cluster. The Universe is no exception either.

7. Conclusion
A rotation of the Universe can be observed: from the rotation of the local group of galaxies, the rotation of the Virgo Cluster; the different galactic speeds – while the closer galaxies have many times higher speeds from the significantly more distant galaxies; from the gravitational connection of: galaxies, clusters, superclusters that rotate around some center. The rotation is visible from the omnipresent merger and collisions between objects and systems, which have a blue shift between themselves and occur in the whole volume of the Universe, in all directions and at all distances. These uninterrupted and permanent processes that confirm a constant matter growth from the smallest particles to mega systems. The rotation of objects around their axis creates orbits of stars, planets, smaller objects, asteroid belts, gas disks. Lower temperatures make possible for the natural satellites to create an independent rotation – the lower the temperature, the closer the rotation gets to a planet or some smaller object. Independently of rotation, all rotating objects create their own systems with objects in the orbits.

The processes of disintegration, degradation of elements and matter take place inside the Universe, with the permanent growth of matter. An atom (or proton) is a complex, bipolar particle, made of a large quantity of electrons and neutrino, a thread curled up

in a ball (like DNA) has an existing positive and negative charge (negative charge is >5%, i.e., it is larger than 90 electrons). This is a basic reason why a proton enters the relation with another proton, instead of realizing the relation with electrons (H_2, etc). The different working temperatures of particles and compounds (melting and boiling point) determine a chemical composition of the objects and the atmosphere.

By these days scientists astronomers have gathered enough evidence which can relatively easily detect, name and define the processes inside a body, system and universe without the need for assumptions or theories.

All objects in universe rotate around their axis (except the objects that are tidally locked), travel in the orbits around central objects, around their also rotating systems and universe. Furthermore, all objects grow, as well as systems, which can be concluded from the millions of craters, scattered on the surfaces of the objects in our system. Systems grow, a fact which is obvious from their mutual collisions, small and large mergers.

The forces of pressure, rotation and the forces of attraction create high temperatures, create and determine the systems' appearance, determine the size of radius, surface gravity, the force of magnetic field, chemical composition and the color of objects and a star. Larger objects disintegrate complex compounds and atoms into hydrogen and some helium, due to temperatures above the boiling point of elements and compounds. The rest (approximately 1-1,5%),

Sun photospheric composition (by mass): 0.77% oxygen; 0.29% carbon; Iron 0.16%; Neon 0.12%; Nitrogen 0.09%; 0.07% silicon; 0.05% magnesium; Sulfur 0.04%) are also less complex atoms. A sum total of an object's mass, the forces of attraction and the speeds of rotation determine the conditions when a small orbiting object turns into a star. The mass of an object and the speed of its rotation determine the limit when an independent object starts emitting radiation (i.e., starts radiating). More significant magnetic fields are connected to a partially or completely melted objects, where the layers of an object have different speeds of rotation. In supporting the magnetic field of an object, its mass is not as important as its rotation. Significantly smaller objects can have more significant magnetic field, because, besides a faster rotation, they also have a more complex chemical composition (Jupiter/ Sun).

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