

## When Occurring Conditions for the Emergence of Life and a Constant Growth, Rotation and its Effects, Cyclones, Light and Redshift in Images

Weitter Duckss (Slavko Sedic)<sup>1</sup> 

<sup>1</sup>Independent Researcher, Zadar, Croatia

Project: <https://www.svemir-ipaksevrta.com/> (*Universe and rotation*)

**Abstract:** In this article, it is discussed about the conditions, needed on an object to support the appearance of life. The evidence are presented to support the idea that, due to the constant growth of the objects and the rotation around their axes, such conditions are attainable even to the orbiting objects outside the Goldilocks zone, no matter how far their orbits may be. The same goes for the conditions to support the appearance of life on the independent objects. At all distances there are objects with more or less expressed high temperature, i.e., with the increased radiation emission. Before they become stars (i.e., completely melted objects), objects have a thinner or thicker crust with very active geological processes that create complex elements and compounds, which are the key factors that, during a longer period of time, lead to the appearance of life. The appearance of life is not related to zones, but to the relatively short period of an object's transition from an object with a melted interiority into the object that is completely melted and not suitable for life to appear. Except the processes of growth and rotation, all parts of the system are also discussed, in terms of the places and ways in which matter is presented, as it dictates the pace of the objects' growth and the conditions on an object, when hydrogen, H<sub>2</sub>, and helium, He, stop migrating towards the central or another larger object. Second part of the article is about a constant growth of objects and systems in the Universe, based on: the forces of matter attraction (gravity), rotation and its speed with their effects, too, the creation of whirls and cyclones as a result of the rotation of objects, systems and the Universe. The creation of light is related to the effects and force of waves (radiation) in their collision with visible matter. It is proven here that a redshift is directly related to the weakening intensity of waves to the distant objects. Instead of being over-intellectual, this text, as a form of evidence, also introduces images, created by the direct observation (NASA, ESA, etc.) or based on the observations of the other astronomers and their published findings.

**Keywords:** Habitable Zone, Constant Growth, Effects of Rotation, Cyclones in Space, Light, Red and Blueshift

### 1. Introduction

The processes of the constant growth, the rotation around an axis, the influences of tidal forces (binary effects), a melted interiority of objects, very active geological processes, the existence of working temperatures for elements and compounds (melting and boiling points), the temperatures of space, a migration of H<sub>2</sub> and He towards the central or another object with a larger mass, the fact whether an object is placed before, after or in the area, where gas disks and asteroids appear – these are the conditions that determine when and on what objects would the conditions to support life appear.

The article about the appearance of life will discuss the conditions to support the appearance and the progress of life; extreme conditions in which microorganisms can survive will not be discussed here, because these conditions are not suitable to

support (more complex forms of) life appearance and its progress.

The main goal second part of the article is to document a visible matter's constant growth, ranging from the smallest particles to the largest systems. The creation of systems, from small objects, stars and the most complex systems, is analyzed through the forces of attraction, the rotation around their axis and the processes that are a consequence of the rotation and gravity. Some accent is also placed on the whirls and cyclones that occur on the poles of gaseous objects, stars and the centers of regular galaxies, which themselves are a product of their own rotation. Light is documented here as a product of collision between waves and the visible matter and it is also shown why the Universe is dark. A redshift is analyzed through the weakening intensity of waves, which is detected by the astronomers' instruments.



The articles [9], [11], [14], [15] and [16], with this one, too, make the integral part of a constant growth, rotation and its effects, cyclones, light and redshift.

## 2. A constant growth causes optimal temperatures for the appearance of life

A constant growth is a sum of the different quantities of growth of the objects in a star system. The differences are present in the respective masses of the objects, their chemical compositions, the existence of atmosphere and its composition, the speed of rotation around the axis. [1] In our system there are inner small planets and objects, then large objects with impressive atmospheres (these are located in the area rich with matter) and smaller objects outside that area.

Matter in an orbit around a star or smaller objects gets concentrated in the asteroid belt (when the rotation of a star around its axis is relatively slow) or in the disk of gas, dust, smaller and larger objects, when a star rotates faster around its axis. Generally, the objects in this area rotate faster than inner and outer objects of a star system. It needs to be mentioned here that the objects, captured in an orbit, may have different masses, no matter how far the orbit may be from a central object. Inside a star system and due to a constant object growth, smaller stars with high temperatures make orbits around a central star (due to fast rotations around their axes and the mass of an object).

Table 1. planets, large distance orbits, mass/temperature

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

Table 1. Planets at a great distance from the stars with high temperatures and different mass. [1]

Only very distant stars or planets that achieve their temperatures on their own, without a central object, are included in this table. They are shown as the examples here to avoid the discussions that would state that objects that are close to a star achieve their temperatures exclusively through the extreme radiation of the central object. High temperatures are registered in data bases at all distances.

Sirius B is distant 20 AU (Uranus' orbit), T 25.200° K (Sirius A 9.940° K); Procion B 15 AU, T 7.740° K (Procion A 6.350°K), 40 Eriidani B (C) 400 AU (B i C 15 AU between themselves) T 16.500°K (B) / 3.100 (C) / 5.300 (A); Acrux B 1 AU, T 28.000° K (Acrux A T 24.000); Epsilon Aurigae B 18 AU, T 15.000 (A 7.750° K)..

The stars (and planets) with a small radius and mass have temperatures higher or similar as a part of large central stars.

Table 2. Cold stars, mass/radius

	Star	Radius Sun 1	Temperature °K
1	<u>R Cygni</u>	745	2.200
2	<u>CW Leonis</u>	700	2.200
3	<u>IK Tauri</u>	451-507	2.100
4	<u>W Aquilae</u>	430-473	1.800 (2250-3175)
5	<u>T Cephei</u>	329 +70 -50	2.400
6	<u>S Pegasi</u>	459-574	2.107
7	<u>Chi Cygni</u>	348-480	2.441-2.742
8	<u>R Leporis</u>	400±90	2.245-2.290
9	<u>R Leonis Minoris</u>	569±146	2.648
10	<u>S Cassiopeiae</u>	930	1.800

Table 2. Cold stars in relationship: mass/radius (Sun=1).

A few more examples cool Stars:RW Lmi 2.470° K; V Hya 2.160° K; 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° K.. [9]

These indicators point to a different perspective on the so-called zones suitable for the appearance of life. Just before the creation of these stars in the orbit, as a result of insufficient mass and possibly a slower rotation, these objects had a crust and atmosphere,

i.e., they were objects with a melted interiority and very active geological processes.

### 3. The speed of rotation around the axis of an object accelerates the rise of temperature and creates a global magnetic field

A speed of rotation around an axis, with the binary effects and mass included, determines the level of temperature of an object. At the same time it enables the appearance of geological processes, because of the temperature amplitudes between a day and a night. A rotation creates a global magnetic field on the objects with a melted interiority and on stars.

	Brown dwarf (& planets)	Mass of Jupiter	Temperature °K	Planets orbit AU
1	<u>2MASS J2126-8140</u>	13,3 (± 1,7)	1.800	6.900
2	<u>Gliese 570</u>	~50	750 - 800	1.500
3	<u>B Tauri FU</u>	15	2.375	700
4	<u>DENIS J081730.0-615520</u>	15	950	

Table 3. 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. [9]  
The objects from the table 3 have very distant orbits, where the influence of a central object is marginal. At the same time it is seen that the mass of an object is

not responsible for the level of temperature. It should be particularly pointed out that a smaller quantity of mass is enough for an object to independently produce temperatures that are required for the appearance of life.

	Brown dwarf & planets	Mass of Jupiter	Temperature °K	Planets orbit AU
	<b>mass up to 13 Mass of Jupiter</b>			
1	<u>CFBDSIR 2149-0403</u>	4-7	~700	
2	<u>PSO J318.5-22</u>	6,5	1.160	
3	<u>2MASS J11193254-1137466 (AB)</u>	~5-10	1.012	3,6±0,9
4	<u>GU Piscium b</u>	9-13	1.000	2.000
5	<u>WD 0806-661</u>	6-9	300-345	2.500
6	<u>Venus</u>	0,002 56	737	0,723
7	<u>Earth</u>	0,003 15	184 - 330	1,00

Table 4. brown dwarfs and planets (at a great distance from the star) with a temperature above 500 ° C. [9]  
The objects from 1-5 achieve high temperatures independently. Venus makes it possible due to the tidal forces of Sun and Earth does it independently and with the binary effects, too. The objects can achieve the optimal temperatures for the appearance and progress of life at all distances from a central object. Those objects that have an independent rotation and are closer to the central object make the optimal temperature conditions with the quantity of mass, which is lesser than the one of Earth and the

distance a bit shorter than 1 AU. (depending on the speed of rotation and mass of the central object). With the increase of distance and the reduction of the tidal force effects, the objects need to gain mass and/or increase the speed of rotation to achieve the temperatures that are optimal for the appearance of life. The object 2MASS J2126-8140 is a star (T 1.800° K) with its mass of 13,3 (± 1,7) masses of Jupiter, at the distance of 6.900 AU., OTS 44 is a central object, which mass is 11,5 MJ, (1.700 - 2.300° K), ROXs 42Bb 9 MJ, T 1.950 ± 100° K, distance 157 AU..

	Star	Temperature K	Rotation speed km/s	Radius Sun 1
1	<u>8 Andromeda</u>	3.616±22	5±1	30
2	<u>β Pegasi</u>	3.689	9,7	95
3	<u>Aldebaran</u>	3.910	634 day	44,2
4	<u>HD 5980 B</u>	45.000	400	22
5	<u>BI 253</u>	50.100	200	10,7
6	<u>HD 269810</u>	52.500	173	18
7	<u>WR 142</u>	200.000	1.000	0,40

Table 5. Stars, relationship: temperature/rotation speed/ surface gravity and mass/radius. No 1-3 cold stars, 4-7 hot stars. [16]

Table 5 exhibits a primary influence of rotation to the level of temperature. Without rotation, the objects with completely or partially melted interiority can

have no global magnetic field, which is an effective protector of an environment, in which simple and

complex living organisms are created and existing.

Body	Rotation speed	magnetic field G,	Mass (Sun 1)	Radius
<u>Sun</u>	25,38 day	1-2 G (0.0001-0.0002 T)	1	696.392 km
<u>Jupiter</u>	9.925 h	4,2 G equ. 10-14 G poles	0,0009	69,911 km
<u>SGR 1806-20</u>	7,5 s	10 <sup>15</sup> G	1 – 3	>20 km

Table 6. The bodies, relationship: rotation speed/magnetic field and radius. [9]

The lack of global magnetic field is registered on Venus, Mars and other objects without a melted interiority (Uranus 0,1 Gauss , Neptune 0,14 G, Saturn 0,2 G, Jupiter 4,2 G, Pluto has no global magnetic field ..).

#### 4. Working temperatures of elements and compounds and chemical composition

The quantity of elements (mass fraction (ppm)) in our galaxy: Hydrogen 739.000, Helium 240.000, Oxygen 10.400, Carbon 4.600, Neon 1.340, Iron 1,090, Nitrogen 960 ..

This is, roughly, similar to the chemical composition of gaseous planets and Sun - that quantity is almost all of the matter in our system.

Opposite to these objects, Earth has chemical composition of the crust: Silica SiO<sub>2</sub> 60.2%; Alumina Al<sub>2</sub>O<sub>3</sub> 15.2%; Lime CaO 5.5%; Magnesia MgO 3.1%; iron(II) oxide FeO 3.8%; sodium oxide Na<sub>2</sub>O 3.0%; potassium oxide K<sub>2</sub>O 2.8%; iron(III) oxide Fe<sub>2</sub>O<sub>3</sub> 2.5%; water H<sub>2</sub>O 1.4%; carbon dioxide CO<sub>2</sub> 1.2%; titanium dioxide TiO<sub>2</sub> 0.7% (Total ~100%).

Inner objects cannot hold H<sub>2</sub> and He, which migrate towards Sun. This is the reason why an object that lacks independent rotation or insufficient mass has no significant quantities of water (Venus, Mars, Ceres, Vesta,...). The objects in the external orbits produce very low (minor) quantities of O<sub>2</sub> and they also cannot produce significant quantities of water.

This is, of course, valid with the existing mass of the object in the orbit and their rotation speeds. With the increase of mass ( ~1,5 of the mass of Earth, depending on rotation) Mars will be able to hold a part of its hydrogen in the compounds of CH<sub>4</sub>, H<sub>2</sub>O, NH<sub>3</sub>, etc., although hydrogen will continue to migrate towards Sun.

In the area rich with matter, due to "fast" growth, the objects have a shorter period that is suitable to the appearance of life. The period becomes unsuitable when an object's mass reaches a point, after which hydrogen and helium remain on the object.

The objects outside the area rich with matter are in a significantly better position. These objects achieve a melted interiority when their mass equals a few masses of Earth.

Nowadays, on these distances, the objects that are below the mass of Jupiter are registered and their temperatures are significantly high (at these distances it is impossible to detect an object, unless it has a significantly high temperature (the radiation emission): OGLE-2011-BLG-0173L b 0,19 MJup, dist. 10 AU; HD 163296 b 0,3 MJ, dist. 105 AU; HD 163296 c 0,3 MJ, dist 160 AU; MOA-2011-BLG-

028L b 0,094 MJ, dist. 7,14 AU; MOA-2011-BLG-274 b 0,8 MJ, dist. 40 AU ..).

High temperatures are estimated at the objects, which mass is only a few times larger than the one of Jupiter: (Planet HD 95086 b 2.6 (± 0.4) MJ, distance 61.7 (-8.4 +20.7) AU, T 1.050° K; 2M1207b 4 (+6-1) MJ, dist. 24-231 AU, T 1600 ± 100 K; HR 8799 b 5 (+2, -1) MJ, ~68 AU, T 870 (+30, -70) K; GJ 504 b 4 MJ, dist. 43,5 AU, 544±10 ° K...).

The independent objects with high temperatures (brown dwarfs) are nowadays detected with the mass of 5 and more masses of Jupiter: (ULAS J0034-00 0,005 M Sun, T 550 – 600°K; WISE 1828+2650 3 – 6 M Jup, T 250 – 400° K; WISE 0855-0714 ~3 – 10 MJ, T 225- 260° K; CFBDSIR 2149-0403 4-7 MJ, T ~700° K; PSO J318.5-22 6,5 MJ, T 1160; ..).

A chemical composition of the objects in an orbit depends also on:

Quote: „there are objects that are formed in a cold space without approaching a star and there are objects, the structures of which are formed in the interaction with a star. Within these two types there is the heating of an object, due to the increase of its mass (the forces of pressure) and due to the actions of tidal forces.. Furthermore, chemical complexity is influenced by the rotation around the axis (the temperature differences of day and night), the temperature differences on and off the poles, geological and volcanic activity (cold and hot outbursts of matter), etc. Planets emit more energy than they get in total from their stars (Uranus emits the least (1,06±0,08), Neptune 2,61(1,00 stands for zero emission of its own), while Venus emits the most of its own energy and has the most significant volcanic (hot) activity in our system).

The lack of O<sub>2</sub> points out that extreme cold does not favor the appearance of that element. It gets replaced by N<sub>2</sub>. A lack of H<sub>2</sub> points out that an object has been near a star for a long time. The comet shows the process of removing volatile elements and compounds (those with low operating temperatures) from an object. The objects closer to a star have an abundance of oxygen in the atmosphere and on the surface. The lack of hydrogen is particularly seen on Mars<sup>4</sup>, since there isn't any in the atmosphere or on the surface. The more distant planets have a lack of oxygen and big amounts of hydrogen (on smaller objects, like Titan or Pluto, it gets replaced by N<sub>2</sub> and hydrogen



compounds ( $\text{CH}_4$ ,  $\text{C}_x\text{H}_x$ ,  $\text{NH}_3$ , etc.))“ [2] end quote.

The temperature of space and an object determines, which elements create its atmosphere and enter the processes of the object's chemical structure construction.

The working temperature of water is from 0 to  $+100^\circ\text{C}$ ; oxygen from  $-218,35$  to  $-188,14^\circ\text{C}$ ; nitrogen from  $-209,86$  to  $-195,75^\circ\text{C}$ ; methane from  $-182,5$  to  $-161,49$ ; hydrogen from  $-259,14$  to  $-252,87^\circ\text{C}$ ; helium from  $-272,20$  to  $-268,934^\circ\text{C}$ ; sulphur dioxide from  $-72$  to  $-10^\circ\text{C}$ , etc.

Temperature and distance of the body in our system: Mercury distance 0.387 098 AU, temperature  $80 - 700^\circ\text{K}$ ; Venus 0.723332 AU,  $750^\circ\text{K}$ ; Earth 1 AU,  $144-330^\circ\text{K}$ ; Mars 1.523679 AU,  $130-308^\circ\text{K}$ ; Jupiter 5.2044 AU,  $112-165^\circ\text{K}$ ; Saturn 9.5826 AU,  $85-134^\circ\text{K}$ ; Titan 9.5826 AU,  $93,7^\circ\text{K}$ ; Uranus 19.2184 AU,  $47-76^\circ\text{K}$ ; Neptune 30,11 AU,  $55-72^\circ\text{K}$ ; Pluto 39,48 AU,  $33-55^\circ\text{K}$ .

In the elements' and compounds' working temperature / the temperature of the object ratio, it can be determined, which elements and compounds will create the atmosphere and the structure of the object. If the temperature is above the boiling point of oxygen, which is  $90,188^\circ\text{K}$  (on Jupiter, it is  $112-165^\circ\text{K}$ ), such an object needs to have almost all of its oxygen in the atmosphere; when all the compounds containing oxygen and oxygen itself are taken into account, there are only traces of water ( $0.0004\% \pm 0.0004\%$ ) on Jupiter.

There are some species on Earth that can use a kind of antifreeze and successfully progress in cold types of climate. Microorganisms on Earth can endure the

temperatures from  $-20^\circ\text{C}$  (*Synechococcus lividus*) to  $121^\circ\text{C}$  (*Pyrolobus fumarii*, *Pyrococcus furiosus*). [3] Some bugs also can survive the temperature of  $-100^\circ\text{C}$  (The Alaskan Upis beetle), *Upis ceramoides* bug to  $-140^\circ\text{C}$  (the Upis antifreeze is a complex sugar called xylomannan). The spores of the bacterial species of *Bacillus* have endured having been heated to the temperature of  $420^\circ\text{C}$ . [4]

However, we discuss here the environment that is suitable for the appearance of (more complex forms of) life, because only when life appears and progresses to a certain level, there is a possibility to discuss the conditions, in which life can survive and adapt. Such an environment does not include extreme temperatures, in which survive such organisms that were created somewhere else and have evolved to survive in the extreme conditions. The appearance of life needs an optimal and balanced temperature in a long period of time. Besides such an atmosphere, these objects must have significant quantities of compounds that are a base to create life. The problem of our (star system's) planets is they have no liquids that would stay in the same place in the liquid form for a long period of time.

## 5. A Constant Growth of Objects And Systems Inside the Universe

The processes of matter attraction inside and outside our Universe are based on the evidence and the fundamental principle of matter attraction. The matter attraction takes place on the level of particles, dust, smaller objects and to the galaxies, clusters of galaxies, ... Our Earth daily gets richer with the new quantities of matter, incoming from the Universe and estimated to be 300 tons per day. [5]



Figure 1. An image of a comet hitting into Jupiter and a meteor hitting Earth

The history of a constant matter incoming can be demonstrated by the percussive craters of those objects that did not get burned in the atmosphere. These processes are demonstrated the best with the direct images of Moon and other objects with no atmosphere or with a weak one.



Figure 2. Craters (NASA)

Besides fully covering (the surfaces of) some objects, the percussive craters also prove the ongoing process of the constant influx of new matter from outside an object. It is represented by the new craters, formed inside the older ones, while these older ones are also formed inside even older craters.

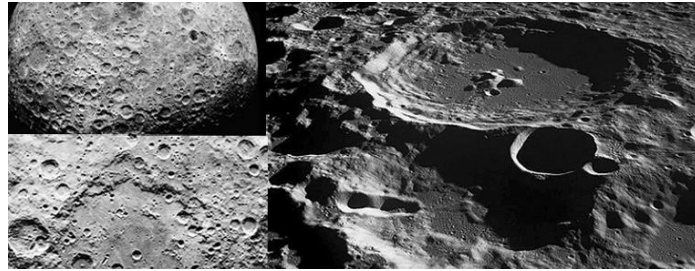


Figure 3. Percussive craters on some objects (NASA)

A constant daily influx of new matter to an object causes a constant growth of the object. That process is never-ending through the whole history and nowadays there are no indications that it will be any different in the future.



Figure 4. Percussive craters and a constant growth of body

The process of constant growth is not limited to the objects only. The processes of merger, collisions and other interactions are taking place on all levels inside the Macro-Universe, from gas and dust to superclusters, the Universe and the Macro-Universe.

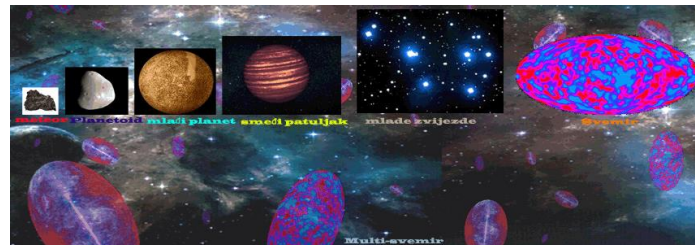


Figure 5. A constant growth starts with the asteroids and all the way to the Multiverse and beyond, to the next two systems that exist in the Absolute Zero

With the help of the forces of attraction and the rotation, omnipresent in the Macro-Universe, the already formed objects create star systems and cause the creation of binary stars, smaller or larger irregular or spherical clusters of stars, create centers of galaxies, which create galaxies with the united forces of attraction of their objects and with the rotation, too. Galaxies are combined into groups and clusters of galaxies, which are further combined into superclusters and they are all combined into the Universe ...



Figure 6. A star system, binary stars, a small and a large cluster of stars, galaxies, a cluster of galaxies, the Universe, Multiverse,...

The processes of systems merger are recognized from the small and large mergers of galaxies, their collisions, the attraction of the other objects and matter from the outside of a galaxy. All systems that are known to this day are gravitationally connected. [6], [7]



Figure 7. Interacting galaxies (Hubble Telescope)

## 6. The Rotation of Objects And Systems And Its Effects

An object with no rotation around its axis, or with an extremely slow one, can not have objects in the orbits around itself, because there is only the law of matter attraction present there. All of the other objects use rotation to capture particles, dust and other objects, in a lesser quantity, related to the total mass.



Figure 8. Venus, Mercury, Moon and internal natural satellites have no independent rotation and also have no satellites of their own or other matter in the orbits around them

Furthermore, an object can not form orbits around the poles (north – south direction). An object, incoming vertically to the poles, has the same speed as those incoming in the direction of rotation (vertically to the equator).

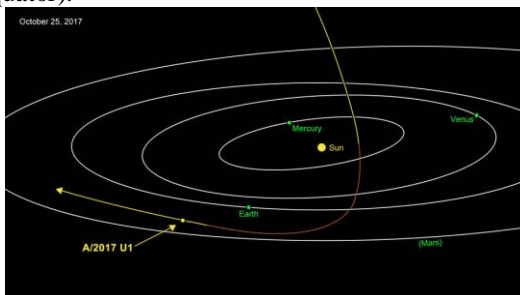


Figure 9. "interstellar object" A/2017 U1 NASA/JPL-Caltech [8]

The orbits are created due to the rotation of an incoming object and also the central object



Figure 10. 65803 Didymos, Rotation period  $2.26 \pm 0.01$  h; satellite orbital period 11.9 hours.

There is only a small percentage of stars with a very fast rotation in Milky Way (O (0,0003%), B and A type (together) 0,73003% [9] White Dwarf ~0,0002%, small number WR stars ...) and they are mostly placed in the nebulae or in the part of space that is richer with matter.



Figure 11. NGC 346. HD 5980 is the brightest star on the left, just above centre. Wikipedia.

HD 5980 B: 24 R Sun; Rotational velocity ( $v \sin i$ )  $< 400$  km/s; T 45.000 °K.

The stars with a slow rotation (M type of stars, 0.08–0.45 masses of Sun;  $\leq 0.7$  R of Sun; 2,400–3,700°K; 76,45%, all red stars above 0,45 M of Sun are also included here and K and G type stars It is total 96,15 % [10]).

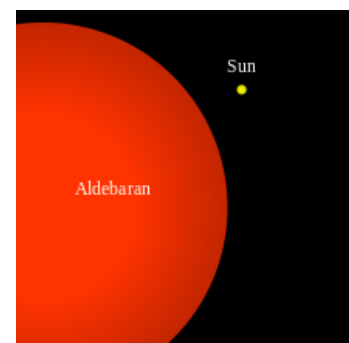


Figure 12. Size comparison between Aldebaran and the Sun. Wikipedia.

Aldebaran:  $44.13 \pm 0.84$  R Sun; Rotational velocity ( $v \sin i$ )  $3.5 \pm 1.5$  km/s; T  $3,900 \pm 50$  K.

The increase of speed of an object's rotation causes the increase of the emission of the radiation spectrum from the cyclones on the poles of the object. The speed of rotation of the galactic center is responsible for the type or the shape of a galaxy.



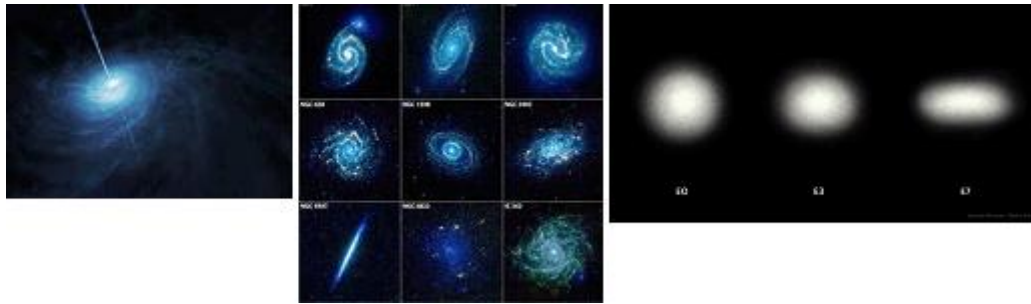


Figure 13. Quasar (blazar); spiral galaxy; elliptical galaxy

Galaxies	Type galaxies	Speed of galaxies
<b>Fast-rotating galaxies</b>		
<u>RX J1131-1231</u>	quasar	„X-ray observations of RX J1131-1231 (RX J1131 for short) show it is whizzing around at almost half the speed of light. ([22] [23])
<u>Spindle galaxy</u>	elliptical galaxy	„possess a significant amount of rotation around the major axis“
<u>NGC 6109</u>	Lenticular Galaxy	Within the knot, the rotation measure is $40 \pm 8 \text{ rad m}^{-2}$ ([24])
<b>Contrary to: Slow Rotation</b>		
<u>Andromeda Galaxy</u>	spiral galaxy	maximum value of 225 kilometers per second
<u>UGC 12591</u>	spiral galaxy	the highest known rotational speed of about 500 km/s,
<u>Milky Way</u>	spiral galaxy	$210 \pm 10$ (220 kilometers per second Sun)

Table 1. galaxies, relationship: type galaxies / rotational speed of galaxies; No 1-3 Fast-rotating galaxies, No 4-6 Slow-rotating galaxies. [11]



Figure 14. Pulsar

Star (pulsar)	Temperature K	Rotation speed in s; ms	Mass Sun 1	Radius Sun 1
<u>PSR B0943 + 10</u>	310.000	1,1 s	0,02	2,6 km
<u>PSR 1257 + 12</u>	28.856	6,22ms	1,4	10 km
<u>Cen X-3</u>	39.000	4,84 s	$20,5 \pm 0,7$	12

Table 2. Display of fast rotating stars, temperature and relation mass > radius. [9]

A faster rotation creates a larger magnetic field, a more significant asteroid belts, gas disks and a higher radiation emission from a cyclone.

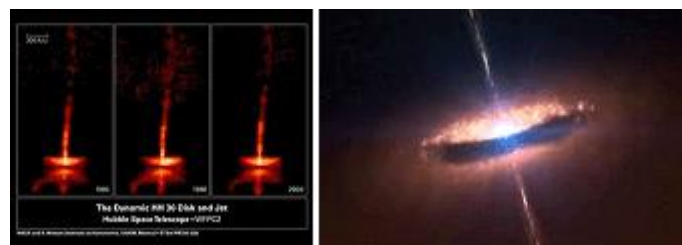


Figure 15. „Protostar“ (a fast rotating object)

Body	Rotation speed	magnetic field G,	Mass (Sun 1)	Radius
<u>Sun</u>	25,38 day	1-2 G (0.0001-0.0002 T)	1	696.392 km
<u>Jupiter</u>	9.925 h	4,2 G equ. 10-14G poles	0,0009	69,911 km
<u>SGR 1806-20</u>	7,5 s	$10^{15} \text{ G}$	1 – 3	>20 km

Table 3. The bodies, relationship: rotation speed/magnetic field and mass/radius. [9]



A central object of a galaxy (bulge) can have a diameter of more than 30.000 ly (Milky Way: 3,000-16,000 ly [12] or 40 thousand ly on the equator and 30 thousands ly [13] (according to some other sources). The rotation of a galaxy center (There are around 10 million stars within one parsec of the Galactic Center) works the same way as the rotation of objects and creates a recognizable shape of a galaxy.



Figure 16. the Galactic Center rotate as one body  
Rotation is confirmed for galaxies, clusters and galactic superclusters. The rotation of Universe is observed through: the existence of the galactic blueshift; the different galactic speeds, whereby the closer galaxies are faster than the significantly distanced ones; the existence of smaller and larger mergers; the collisions of galaxies and the clusters of galaxies. Appendix 1.

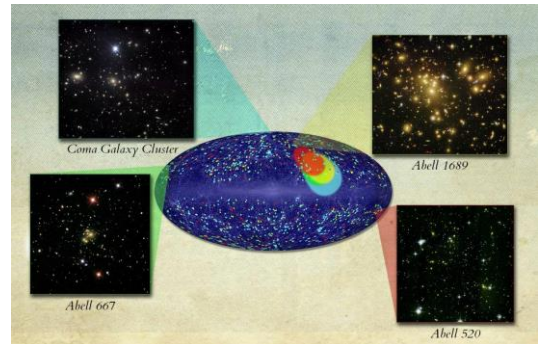


Figure 17. rotation of the Universe „The dark flow“

## 7. Cyclones and whirls

A slow rotation of the objects, stars, galactic centers creates whirls on their poles and their rotation is also slower in these regions than the object's rotation around its axis in the equatorial region. The situation is the opposite with the high speeds of rotation (only a small part of a total), the speed decreases from a cyclone in the middle of an object towards its surface (NGC 6109, Lenticular Galaxy, Within the knot, the rotation measure is  $40 \pm 8 \text{ rad m}^{-2}$ ; PSR B0943 + 10, rotation speed 1,1 in a second).

When an object, which orbits around a central object, is in the orbit in the space, where the temperature is below the melting point of helium, it has higher orbital speeds than its neighbors that are closer to the central object, although they have a lower quantity of tidal forces from the central object (Hale-Bopp 52.5, Halley's comet 66, Shoemaker-Levy hit into Jupiter by the speed of  $\sim 58 \text{ km/s}$ ; the data state the average speed of comets of  $10 \text{ km/s}$ ).



Figure 18. Tropical ciklon

The rotation around an axis and the structure of an object (gas, liquid,...) cause the appearance of whirls and cyclones on the poles of gaseous objects, stars and galactic centers, which rotate around their own axis. Slower rotations create whirls on the poles and very fast rotations create a cyclone with apertures (the eyes of a cyclone) on the poles of stars and rotating galactic centers.



Figure 19. Tropical ciklon, a blazar, planets and pulsar (turbosquid.com)

The rotation of a central object affects the rotation of the atmosphere of a tidally-locked object (Venus, Titan)

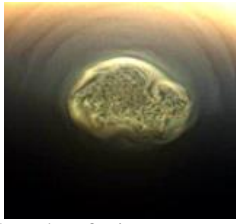


Figure 20. South Pole of Titan moon (NASA)  
When the cyclones on the poles of an object suck matter in, it heats up by passing through the atmosphere (or the objects are stars) and it accelerates the rotation of a cyclone and produces strong emissions of gamma and other radiations. Depending on an object's incoming angle into a cyclone, a rotation may get slower or faster.



Figure 21. Artist's concept of interstellar asteroid 1I/2017 U1 ('Oumuamua) as it passed through the solar system after its discovery in October 2017. The aspect ratio of up to 10:1 is unlike that of any object seen in our own solar system.

Credits: European Southern Observatory/M. Kornmesser [8].

When a cyclone on a fast-rotating star sucks an object of a sufficient size in, it goes deep into the interior of the cyclone and the star, where its explosion causes the explosion of the star or a larger or smaller discharge of the higher layers of the star. The rest of the object or a core, depending on whether the object and the explosion went in the direction of rotation or against it, becomes hot and even faster-rotating (a pulsar) or, due to a slow down, it becomes a small, cold and slow-rotating M type star.

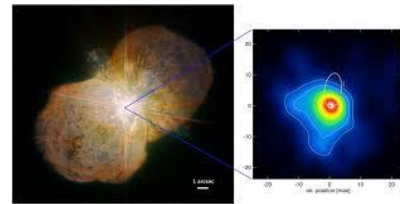


Figure 22. Eta Carinae, the Max Planck Institute for Radio Astronomy

## 8. When Does Light Appear?

A space outside the visible matter is dark. There is no light just outside the atmosphere of Sun. There is no light outside the atmosphere of Earth and off the surface of Moon. Light does not travel through space. There is a total darkness between Sun and Earth, just as between Sun and any other form of visible matter.

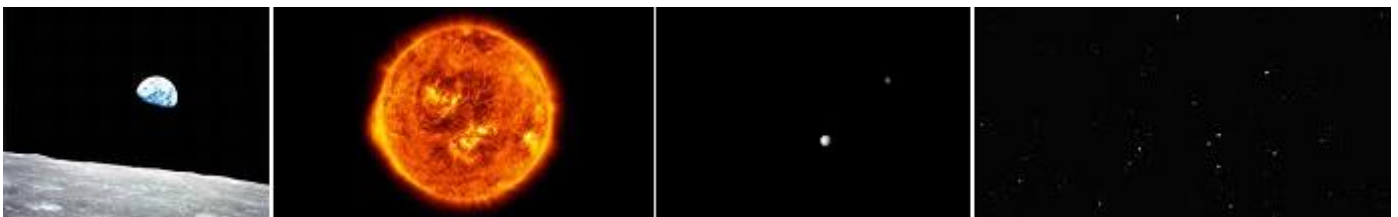


Figure 23. the Moon and the Earth Apollo 8; Sun; Pluto and Charon moon; stars look like from outer space of the Dawn spacecraft; NASA

There is no light just outside the more important part of the atmosphere of Earth. Light appears only on the visible matter.



Figure 24. Moon, comet, ISS; NASA

Sun emits X-rays, ultraviolet, visible light, infrared, radio waves and a very low quantity of gamma rays from sun spots. Radiation and waves are not visible and they are not a visible light, because space becomes dark just outside the visible

matter of a star. When there is no visible matter, there is no light, there is only dark.

Light appears when waves (radiation) collide with the visible matter (an object, an atmosphere, a significant quantity of particles of gas and dust).



Figure 25. Sun before and after the collision of waves with the visible matter

### 9. The Correct Interpretation of Red Spectrum

The smaller and larger mergers of galaxies and clusters of galaxies, their collisions and interactions, higher movement speeds of the closer systems in the comparison to the more distant ones, show that the

contemporary interpretation of redshift is incorrect. Appendix 1. Redshift is not solely and exclusively related to the increase of speed of an object's distancing itself.

Space objekt Clusters, superclusters, galaxy	Distance Mly	Red shift (z)
The Laniakea Supercluster centre	250	0,0708
Abell 754	760	0,0542
CID-42 Quasar	3.900 (3,9 Gly)	0,359
Saraswati Supercluster	4.000	0,28
Einstein Cross	8.000	1,695
TN J0924-2201 galaxy	12.183	5,19
Lynx Supercluster	12.900	1,26 & 1,27
EGS-zs8-1	13.040	7,73
z8 GND 5296 galaxy	13.100	7,51

Table 4. The system, rotation within the Universe, distance 250 M ly- 13,4 G ly [9]

If two or more systems merge or are in some other form of interaction, the detected redshift in all of these systems should not be interpreted exclusively as a result of distancing the systems. A part of these systems is getting closer to an observer and a blueshift should be detected there, but it is not.

With the increase of distance, the intensity of waves is decreased – the consequence of which is the increase in red spectrum, independently of the object being distanced away or getting closer to an observer.



Figure 26. A red color before sunrise and after sunset; to the east (up) and to the west (down) at sunset (Zadar, Croatia)

A red color is directly related to the decrease of wave intensity from the emitting object. On the images, the Sun is behind the horizon.

After a certain distance the weakening of radiation intensity overcomes the speed of the system getting closer to the observer and after that distance it gets impossible to detect the blueshift. In the processes of getting closer, merger and collisions of galaxies and clusters of galaxies there is only the blueshift among these systems, although the redshift is detected, because of the low wave intensity. Nowadays, the

blueshift is not detected above 70 M Ly. An exact example is the appearance of a red moon. Moon gets red when it is in the shadow of Earth. The waves from Sun do not reach Moon then.



Figure 27. Red Moon, a display of the process



## 10. Conclusion

In reality, the appearance and progress of life are to be expected on all objects, but only during a particular period of time and under the conditions, needed for such an object to progress. Finally, these conditions come down to the achievement of the melted interiority and an independent rotation – which should not be extremely slow. Under these conditions, geological processes become very active. In the process of interaction of the melted interiority with crust, atmosphere and liquids in or on the crust, a complex atoms and compounds are created. Inside our system, nowadays only Earth meets these conditions.

Millions of percussive craters scattered on the objects in our entire system, the daily influx of matter to Earth and the other objects, small and large mergers, collisions and other interactions among the objects, galaxies and galactic clusters are the representation of the process of the constant growth of the objects and systems.

The existence of orbits, star systems, binary systems and other systems (from galaxies to superclusters, the Universe and the Multiverse) is impossible in the space without the effects of an object's and a system's rotation around their axis. The objects that have no rotation, or have an extremely slow one, do not create orbits around themselves. The objects with an independent rotation do not create orbits around their poles, where there is no effect of the rotation around the axis.

The cyclones are the product of rotation. By sucking matter in, they increase or decrease the speed of an object's rotation. Only a very small quantity of the objects has a very high speed of rotation (O type and White Dwarf 0,0005% of the total quantity of stars in Milky Way).

Light is the product of the collision between waves (radiation) and the visible matter. Space is very cold and dark where there is no visible matter or the intensity of waves is very low. Beyond the third level above the Universe the temperature of space is at 0° K. All processes at the absolute zero are extremely slow or in the state of rest.

A red spectrum is a product of the weakening of the wave intensity, with the increase of the objects' orbital speeds inside clusters, galactic superclusters and the Universe. The decrease of the wave intensity is observed the best in our system from Mercury to the Oort cloud (Solar radiation pressure lbf/mi<sup>2</sup>, 0.1 AU 526; 0.46 AU = Mercury 24.9; ... 5.22 AU = Jupiter 0.19).

## Reference:

1. [https://www.academia.edu/32926807/Reassessment\\_of\\_the](https://www.academia.edu/32926807/Reassessment_of_the)

- old but still employed theories of Universe through data base checking
2. <https://www.ijsciences.com/pub/pdf/V82019021908.pdf> „Effects of Rotation Around the Axis on the Stars, Galaxy and Rotation of Universe“ „Effects of Rotation Around the Axis on the Stars, Galaxy and Rotation of Universe“ 2.6. „The Types of Stars with Similar Mass and Temperature Axis“ DOI: 10.18483/ijSci.1908
3. <https://en.wikipedia.org/wiki/Extremophile#Characteristics>
4. <https://asknature.org/strategy/unique-antifreeze-protects-from-extreme-cold/> „A sugar-based polymer produced by an Alaskan darkling beetle keeps cell contents from freezing in extreme cold temperatures by attaching to the cell membrane.“
5. <https://cordis.europa.eu/project/rcn/102627/reporting/en> Cosmic Dust in the Terrestrial Atmosphere
6. [https://en.wikipedia.org/wiki/Category:Interacting\\_galaxies](https://en.wikipedia.org/wiki/Category:Interacting_galaxies) Interacting galaxies
7. [https://www.spacetelescope.org/static/archives/releases/science\\_papers/heic1506a.pdf](https://www.spacetelescope.org/static/archives/releases/science_papers/heic1506a.pdf) „The non-gravitational interactions of dark matter in colliding galaxy clusters“ David Harvey, Richard Massey, Thomas Kitching, Andy Taylor, Eric Tittley Laboratoire d'astrophysique, EPFL, Observatoire de Sauverny, 1290 Versoix, Switzerland Royal Observatory, University of Edinburgh, Blackford Hill, Edinburgh EH9 3HJ, UK Institute for Computational Cosm., Durham University, South Road, Durham DH1 3LE, UK Mullard Space Science Lab., University College London, Dorking, Surrey RH5 6NT, UK
8. <https://solarsystem.nasa.gov/asteroids-comets-and-meteors/meteors-and-meteorites/overview/> page=0&per\_page=40&order=id+asc&search=&condition\_1=meteor\_shower%3Abody\_type Oct. 26, 2017 "Small Asteroid or Comet 'Visits' from Beyond the Solar System" NASA; <https://www.nasa.gov/feature/solar-system-s-first-interstellar-visitor-dazzles-scientists> Nov. 20, 2017 Solar System's First Interstellar Visitor Dazzles Scientists
9. DOI: 10.18483/ijSci.1908 <https://www.ijsciences.com/pub/pdf/V82019021908.pdf> „Effects of Rotation Around the Axis on the Stars, Galaxy and Rotation of Universe“ 2.3. The Processes That Lead to the Acceleration and Deceleration of an Object's Rotation Around Its Axis
10. [https://en.wikipedia.org/wiki/Stellar\\_classification#Harvard\\_spectral\\_classification](https://en.wikipedia.org/wiki/Stellar_classification#Harvard_spectral_classification) Harvard spectral classification
11. <http://www.sciencepublishinggroup.com/journal/paperinfo?journalid=301&doi=10.11648/j.ajaa.20180603.13> How are the spiral and other types of galaxies formed? W.D. 2.4. The formation of galaxies
12. [https://en.wikipedia.org/wiki/Milky\\_Way#Galactic\\_Center](https://en.wikipedia.org/wiki/Milky_Way#Galactic_Center) the Galactic Center of the Milky Way
13. <http://www.astrodigital.org/astrometry/milkywaygalaxy.html>
14. <http://www.IntellectualArchive.com/files/Duckss.pdf>; <https://doi.org/10.32370/IAJ.2055> „Why do Hydrogen and Helium Migrate“ W.D.
15. [https://www.ijsciences.com/status\\_check.php?track\\_article=V82019052067](https://www.ijsciences.com/status_check.php?track_article=V82019052067) „The Processes of Violent Disintegration and Natural Creation of Matter in the Universe“ W.D. <https://www.svemir-ipaksevti.com/Universe-and-rotation.html#The-Processes-of-Violent-Disintegration-and-Natural-Creation-of-Matter>
16. <http://www.sciencepublishinggroup.com/journal/paperinfo?journalid=301&doi=10.11648/j.ajaa.20180603.13> "The processes which cause the appearance of objects and systems" W.D.

## Appendix 1.

"It means that if 10 Mpc equals 32,6 millions of light-years then Hubble's law doesn't apply for galaxies and objects, the values of which are more easily determined." Wikipedia

Let's check that on the distances at which Hubble's law should apply:



RMB 56 distance 65,2 Mly... blue shift.. -327 km/s.....(65,2 Mly x Hubble c. = -327 km/s Ha, ha..)  
NGC 4419.....56 Mly.....-0,0009 (-342 km/s).....(56 x H c = -342 km/s ..)  
M90.....58.7 ± 2.8 Mly.....-282 ± 4 km/s.....(58,7 x H c = -282 km/s)" + "compiled a list of 65 galaxies in Virgo with VLG < 0 (blue shift). Distance 53.8 ± 0.3 Mly (16.5 ± 0.1 Mpc)"  
 "Again, there is nothing in accordance with the constant and Hubble's law!" ..(53,8 Mly x Hubbl c. = 0 to -866 km/s ..Ha..)  
 Who lies? Autor or evidence? In the translations: a person who talks without a background (evidence) or scientific evidence?  
 If " "Objects observed in space - extragalactic space, 10 (Mpc)" = ~700 km/s  
 "NGC 7320c distance 35 Mly, speed 5.985 ± 9 km/s...(~10 Mpc x Hubble c. = 5.985 ± 9 km/s.. ha, ha..)  
NGC 4178.....43 ± 8.....377 km/s  
NGC 4214.....44.....291 ± 3  
M98 .....44.4 .....-0.000113 ± 0.000013

Messier 59.....60 ± 5.....410 ± 6  
NGC 4414.....62,3 .....790 ± 5  
NGC 127.....188.....409 etc....  
The Laniakea Supercluster.....250 Mly.....+0,0708 (z)  
Horologium Supercluster .....700 Mly.....0,063  
Corona Borealis Supercluster ...946 Mly.....0,07 etc...  
 (The galaxy is distant 250 Mly is faster (has a bigger red shift) than the galaxy at the distance 700 and 946 Mly ..)  
Q0906 + 6930 .....12,3 Gly.....5,47.(z)...speed ....299,792 km/s  
Z8 GND 5296.....13,1 Gly....7,5078±0,0004.....291.622 ± 120 km/s  
GN-z11.....13,4 Gly...11,09.....295.050 ± 119.917"  
 Who lies? .....  
 Object with red shift. 5.47 is faster than objects with red shift 7.05 and 11.09 ha, ha. Authors Hubble constant really need to go back to elementary school and learn math (basic for kids). (Slavko Sedić commented on an article. 28. kolovoza 2018. What Is The Hubble Constant? [www.space.com](http://www.space.com))