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THE INFLUENCE OF ROTATION OF STARS ON THEIR RADIUS, TEMPERATURE...

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The goal of this article is to prove a universal principle of causal correlation between the rotation of a star with its temperature and radius. Instead of tables, links leading to them or towards an encyclopedia or other published articles are given here.

„A **rotation** is a circular movement of an object around a center (or point) of rotation. A three-dimensional object always rotates around an imaginary line called a rotation axis. If the axis passes through the body's center of mass, the body is said to rotate upon itself, or spin. ..
Mathematically, a rotation is a rigid body movement which, unlike a translation, keeps a point fixed." [1]

Stars are not solid objects, their rotation can be analyzed with the average density of some 1,4 g/cm³, which is 40% more than the density of water ("lava is a liquid usually at temperatures from 700 to 1,200 °C .. lava can be up to 100,000 times more viscous than water" [2]).
Due to the rotation of a larger object (a galaxy, a cluster of galaxies, ...), stars have their own orbital speed, to which the orbital speed of the galaxy inside the local group and cluster of galaxies is added; it positions stars as very dynamic fluid objects. The rotation of a liquid object, which, with these already mentioned things, has different temperatures in the parts of layers, as well as between the layers in depth and there are also different speeds of rotation on the surface layer of a star on the equator and on the poles, cannot be analyzed as the rotation of a solid object ("Lava can be hot, but never radioactive (Low radiation that exist in the lava is considered that they are not harmful to people and life). The conduct of matter in blast furnaces for melting iron (and spots on the Sun,

volcanoes) is known; therefore, it is also known that hot mass is dislocating, which means that radioactive elements should be equally present in lava now and 4,5 billion of years earlier – but, they are not") [7].

With chemical composition, the speed of rotation determines the force of magnetic field (a larger mass does not create more significant effects here; Jupiter (1.8986×10^{27} kg) has a stronger magnetic field than Sun ($1.98855\text{x}10^{30}$ kg) ("Jupiter's magnetic field is fourteen times as strong as that of Earth, ranging from 4.2 gauss (0.42 mT) at the equator to 10–14 gauss (1.0–1.4 mT) at the poles, making it the strongest in the Solar System (except for sunspots")), although it has a lower density (1.326 g/cm^3) than Sun(1.408 g/cm^3).

Fast-rotating objects, white dwarfs and blue stars [3] {(There are higher and lower limits of density. Matter constantly tends to be less dense (Sun 1,408 g/cm3); from the total amount of stars in Milky Way, 96,15% are the stars of the classes M, K and G with low temperatures, up to ~ 6.000 K. Very small, even insignificant part of them are extremely hot, hot and warm stars, 3,85% (class O making only ~0,00003%) and with the white dwarfs probably following this percentage. [5]) (If type F is added to types M, K and G, then these are almost all stars in Milky Way, except ~0,73003% of fast-rotating stars.)}, a Wolf-Rayet star (WR 2 "the exact rotation rate is not known. Estimates range from 500 km/s; WR 46 "The terminal velocity of the stellar wind reaches 2450 km/s" etc.), pulsars, so-called neutron stars, generally have a negative ratio of the radius in the mass/radius relation (Sun = 1), and the opposite goes for the low-speed rotation stars (M, K and G type of stars, which make 96,15 % from the total amount of stars in our galaxy[3, 4]), they have a positive ratio of this relation[5,6,7]. It needs to be stressed that "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.. 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" [5] with the comment that evidence suggest that the stars outside nebulae (the majority of Milky Way stars), which do not have a close relation to another star (having in mind the range of several dozen AU, depending on the mass of a star), generally follow the mass/radius relation, which is related to the speed of a star's rotation around its axis [5, 6, 8].

The speed of stellar rotation is impossible to analyze without its forces of attraction (electromagnetic forces) (. If an object is approaching vertically to an equator and movement direction of a central object (which, by definition, needs to be a larger object, which can dictate the rules), the gravitational forces need to adjust the direction of the created movement length of a central object in every single point, thus changing the direction slowly to a curve. At the final stage, the rotations of both objects, with the speed included, place the incoming object into the orbit. ..
Opposite to the process of rotation there is the approaching of an object to the poles of a central object, where there are no orbits created, but only collisions of the incoming objects with the central object. These objects also have a speed, just as the objects that approach straight or with an inclination towards the equator do, but these speeds neither create orbits, nor there are observations to support such claims. If there is no rotation, there is also no orbit, no matter what the speed of the incoming object is." [7].

There is a similar situation with magnets, when a rotating magnet affects the nearby objects, attracted to it. A star has great forces of attraction (gravity) and they affect continuously, without limits, which can be observed on the orbits of the objects around a star (particles, gas, dust, asteroids, comets, etc.). Except for the smaller part of objects (up to a 1% of the central object's mass) in the constant orbits, which are less elliptic, the rest of the objects get connected with the central object (one part gets connected with larger or smaller objects in the orbit or they get connected among themselves, thus creating a new object). [7, 9] That process is constant: faster, if the surroundings are richer with matter, and slower, when there is less matter.
The stars with a faster rotation have more objects (in terms of mass and mostly in numbers, too) ("The objects without an independent rotation (such as Venus, Mercury, etc.) can't direct the other objects into their gravitational field." [7, 15]) orbiting around themselves.
If the speed of rotation increases, the conditions for an asteroid belt to exist are created.
The stars with (a very) fast rotation have a disk of gas (there can sometimes be no disk, if there are only small quantities of matter in the stellar surroundings and it happens rarely, because the increase of a stellar speed is related to the influx of matter to the whirls and cyclones at the poles of a star[6, 7, 9, 10]).
The stars with a very fast rotation around their axes have an increased emission of radiation at their poles, which sometimes

can vary, due to the increased influx of matter into cyclone or a faster whirl [11, 16].
The layers and matter inside a star create friction, due to the different speeds of layers' rotation.
The pressure inside a star contributes to its heating up, but only to a point, which depends on a star's mass. A large star S Cassiopeiae 930 R Sun has the temperature of 1 800°K, and CW Leonis 700 R Sun (with very dynamic activity around it) has a surface temperature of 2 200 °K.

The temperatures above these are mostly affected by the speed of rotation around the axis and binary effects of close stars (which are inside the range of a few dozen of AU) and smaller bodies; depending on the mass and rotation of a close star and smaller bodies, the effects can be more or less significant: the closer the relationship, the stronger the effects which influence the temperature "The origin of Earth (and other objects) can only be related to growth and gathering matter together in Universe. The sequence of gathering matter can be seen through the existence of gas, dust, lesser and larger asteroids and comets, small planets, planet-size objects, small and large stars and centers of galaxies at the same place (in the same part of Universe). When their mass is insufficient, the objects are cold. Matter gets warmed up with the increase of pressure and other forces: gravity, the interrelation of two or more objects, fast rotation. After a critical point (the sum of forces) they become hot objects that emit radiation (which we interpret as light)".[17]

Very hot stars are the combination of mass and fast rotation. [6]
However, even small stars can have very high temperatures, because of the high speed of rotation: PG0112+104 0,5 M Sun has the temperature of 30 000°K, HD 149382 0,29 – 0,53 M Sun has the surface temperature of 35 500±500°K, Wolf-Rayet star etc.

"Young stars can have a rotation greater than 100 km/s on the equator. The B-class star Achernar, for example, has an equatorial velocity of about 225 km/s or greater" [12] "Young" stars are only very fast-rotating stars ("proto"-stars included here, too[14]), which are most frequently found where the events are intensive, in nebulae and where there is a high concentration of visible matter.
96,15 % of all stars in Milky Way are stars with slow and slower rotation, while "young" stars represent only less than ~0,00003%[3].

Besides the forces of attraction, rotation is the principal creator of all systems in our Universe and beyond ("A rotating object (universe) has a direction of movement. Based on everything that has been proved about the universe so far, it means that direction can't be outside some kind of a system and there can't be only one whole.

That space (multi-universe) has one basic characteristic and it is that the temperature of that space is lower than the temperature of universe,"). [9, 13]

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1. https://en.wikipedia.org/wiki/Rotation
2. https://en.wikipedia.org/wiki/Lava
3. https://en.wikipedia.org/wiki/Stellar_classification#Harvard_spectral_classification
4. https://www.ijser.org/onlineResearchPaperViewer.aspx?Is-there-fast-and-slow-combustion-of-stars.pdf
5. https://www.academia.edu/32926807/Reassessment_of_the_old_but_still_employed_theories_of_Universe_through_database_checking
6. https://www.academia.edu/18485381/The_causal_relation_between_a_star_and_its_temperature_gravity_radius_and_color
7. https://www.academia.edu/26326626/Weitter_Ducksss_Theory_of_the_Universe
8. https://www.academia.edu/32296347/Why_is_The_Evolution_of_Stars_incorrect.doc
9. http://www.ijoart.org/research-paper-publishing_october-2016.shtml Universe and rotation
10. http://www.ijser.org/onlineResearchPaperViewer.aspx?The-observation-process-in-the-universe-through-the-database.pdf
11. http://www.svemir-ipaksevrti.com/the-Universe-rotating.html#12b
12. https://en.wikipedia.org/wiki/Star#Rotation
13. http://www.svemir-ipaksevrti.com/the-Universe-rotating.html#15b
14. http://www.ijser.org/onlineResearchPaperViewer.aspx?Observation-of-the-Universe-through-questions.pdf
15. http://www.svemir-ipaksevrti.com/the-Universe-rotating.html#10b
16. http://www.ijser.org/onlineResearchPaperViewer.aspx?The-observation-process-in-the-universe-through-the-database.pdf
17. http://www.svemir-ipaksevrti.com/Universe-and-rotation.html#iron