Do the JWST findings on early galaxies disprove the Big Bang?

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Abstract

I argue that the JWST findings on early galaxies, along with other discrepancies, cast serious doubt on the validity of the Big Bang theory. The first JWST findings regarding early galaxies were observed only two years ago. These findings are not consistent with the Big Bang theory (BB), which posits that as we look back in time towards the Big Bang, early galaxies should appear small and underdeveloped because there hadn't been enough time for them to evolve. However, the JWST findings have shown the opposite. Early galaxies (approximately 400 million years after the Big Bang) appear fully developed, similar to galaxies like the Milky Way, which is estimated to be around 13.6 billion years old. Some scientists have questioned the validity of the Big Bang theory; however, many are hesitant to dismiss it based on these findings. They argue that our understanding of galaxy formation in the early universe requires refinement. As research continues and new early galaxies are observed, the initial finding that galaxies appear fully developed persists, regardless of the time elapsed since the Big Bang.

I suggest here an alternative model of the universe, I designate the Pivot universe, that explains the JWST finding on early galaxies.

The BB theory – current status.

The BB Theory has been for a century the leading explanation of the universe's evolvement. It posits that the universe began approximately 13.8 billion years ago as a singularity point, where density and temperature are infinitely high. This is a state beyond the reach of current physical theories, particularly general relativity, which breaks down under such extreme conditions. Since the BB the universe is expanding in all directions.

Observations that are explained by the BB:

1) **CMB**: The Big Bang theory is strongly supported by the CMB Cosmic Microwave Background (CMB)

2) **Elemental Abundances**: The Big Bang theory predicts the relative abundances of light elements such as hydrogen, helium, and lithium.

Observations that are not explained by the BB:

1) The Hubble tension: The Big Bang theory claims that since its beginning the universe has been expanding. The rate of expansion (H) was measured by Hubble. This constant describes the universe's expansion rate. It tells how fast galaxies are moving away from each other based on their distance. The Hubble constant has been a pillar in the BB theory for 100 years. However, in the last decade, accurate measurements of the Hubble constant were done. There are two main ways to measure the Hubble constant. One method that is done on the scales of the local universe relies on observing distant objects like exploding stars. The other method uses data from the CMB. The problem is that these two methods provide different values for the Hubble constant. This difference is significant and statistically unlikely to be random. Scientists have not explained this discrepancy. This problem is known as the Hubble's tension.

2) JWST observations of early galaxies. I will relate here to the latest JWST observation of the early universe galaxy. As of July 2024, the JWST observed the earliest galaxy ever detected. This is galaxy JADES-GS-z14-0 which has a measured redshift of 14.32. Scientists confirmed JADES-GS-z14-0 not only with JWST's imaging capabilities but also through spectroscopy, a technique that analyzes the light spectrum to glean further information. It is also established, based on spectral analysis, that the distance of JADES-GS-z14-0 is ~33 billion light years away from the Milky Way.

Note: According to the BB calculations this galaxy existed 290 million years after the BB. However, in my hypothesis, I do not relate to this data, because I think it is flawed.

The JWST images have prompted more questions than they have provided answers. The current Big Bang theory predicts that the earliest galaxies in the universe, born near the BB should be seen small, slightly chaotic, and irregular in shape. However, the images of JADES-GS-z14-0 are huge, in addition to being balanced and well-formed,– a result that defies the BB. In other words, the JWST shows that the entire universe consists of approximately the same size galaxies and stars, independent of the time of their creation after the BB.

The Pivot universe.

I claim that the suggested Pivot model can explain JWST findings as well as Hubble's tension. In a nutshell, our matter universe is a finite isolated island in the stationary infinite space. It is composed of two parts: a massive spinning neutron star, I designate the Pivot, located at the center of the universe, and a ring-shaped visible Universe that orbits the Pivot. The spinning neutron star is, according to general relativity, a spinning black hole. The meaning is that for an observer located in the matter universe outside the event horizon of the Pivot, the Pivot cannot be observed. An additional prediction of general relativity is the frame-dragging of space. The spinning Pivot drags space in the peculiar shape that is shown in Fig. 1 and Fig. 2. The matter universe can reside only in the volume of the flat disk shown in Fig 2. and outside the event horizon of the Pivot.

The structure of the Pivot Universe is described in detail in [The structure of the Pivot Universe]

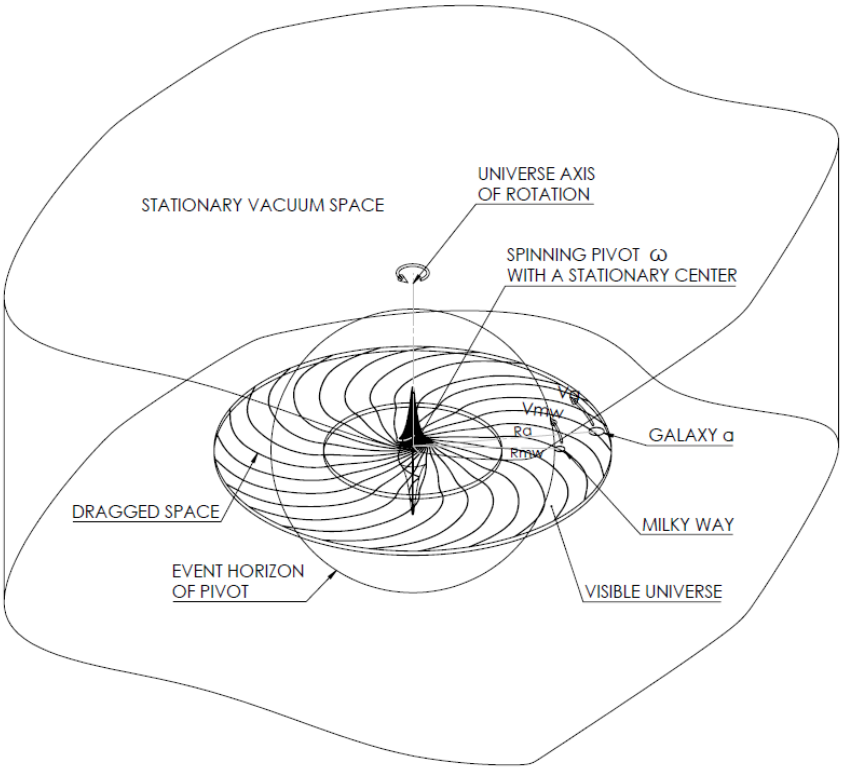

Fig. 1 –The Pivot universe in the stationary vacuum space

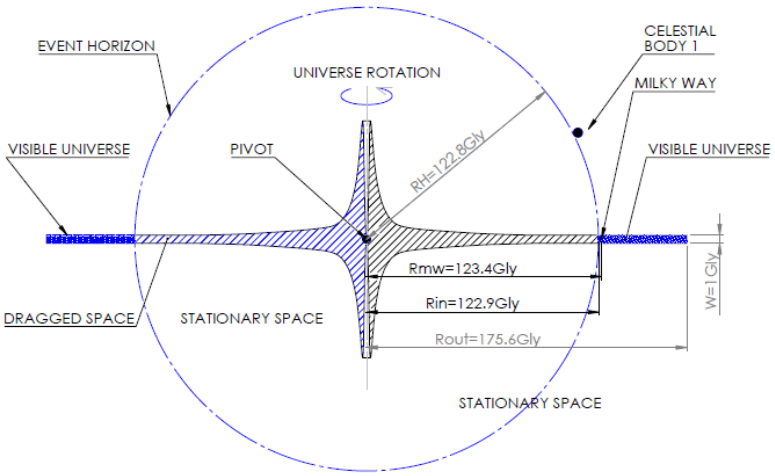

Fig. 2 – Cross section of the Pivot universe

Z-shift measurements

In this paper, I relate to the z-shift measurements of early galaxies. The Pivot theory postulates that there are only two contributors to the z shift of galaxies: the gravitational z shift caused by the mass of the Pivot, and the Doppler shift caused by the difference in orbital velocities of galaxies around the Pivot. **I discard the redshift caused by the expansion of the universe, as claimed by the BB, simply because the matter universe is not expanding.** The matter universe (galaxies, stars, planets, and dust) orbits the Pivot. It will be shown that the Doppler shift in the matter universe, caused the different velocities of matter around the Pivot is negligible in comparison to the gravitational redshift and thus can be neglected.

According to general relativity, the gravitational z shift Z_{gal} of a galaxy orbiting the Pivot at radius R_{gal} is given by general relativity:

$$Z_{gal}(R_{gal}) = \frac{1}{\left(1 - \frac{R_H}{R_{gal}}\right)^{0.5}} - 1 \qquad \text{(Eq. 1)}$$

Where:

$R_H = \frac{2 \cdot G \cdot M_{pivot}}{c^2} = 122.75 \cdot Gly$ ...Schwarzield radius (Event horizon)

$M_{pivot} = 7.824 \cdot 10^{53} \cdot kg$ ...Mass of the Pivot

$c = 2.998 \cdot 10^8 \cdot m / \sec$ ...Light velocity

$G = 6.67 \cdot 10^{-11} \cdot m^3 / kg \cdot \sec^2$ ...Gravitational constant

R_{gal} ...Orbiting radius of galaxy

Fig. 3 is the graph according to Eq. 1.

Finding the redshift of the Milky Way is done in several steps. It is based on Birch's estimations of the angular velocity of the universe. From Birch's data, the orbiting radius of the Milky Way $R_{mw} = 123.36 \cdot Gly$ is found. See:

http://buildengineer.com/www.paulbirch.net/IsTheUniverseRotating.pdf . Finally, according to (Eq. 1), the redshift of the Milky Way is:

$$Z_{mw}(R_{mw}) = \frac{1}{\left(1 - \frac{R_H}{R_{mw}}\right)^{0.5}} - 1 = 13.242 \qquad \text{(Eq. 2)}$$

As for the currently most distant galaxy JADES-GS-z14-0. The redshift measured is 14.43, as it is seen from the Milky Way. Therefore, the redshift as seen from the Pivot is $z_{GS\text{-}Z14}$=14.43-13.24=1.19.

From Fig. 3 it is found that the distance of JADES-GS-z14-0 from the Pivot is $R_{GS\text{-}z14}$=155.6Gly. Therefore, the distance between the Milky Way and the currently most distant galaxy JADES-GS-z14-0 is D= $R_{GS\text{-}z14}$-R_{mw}=155.4Gly-126.4Gly= 32Gly.

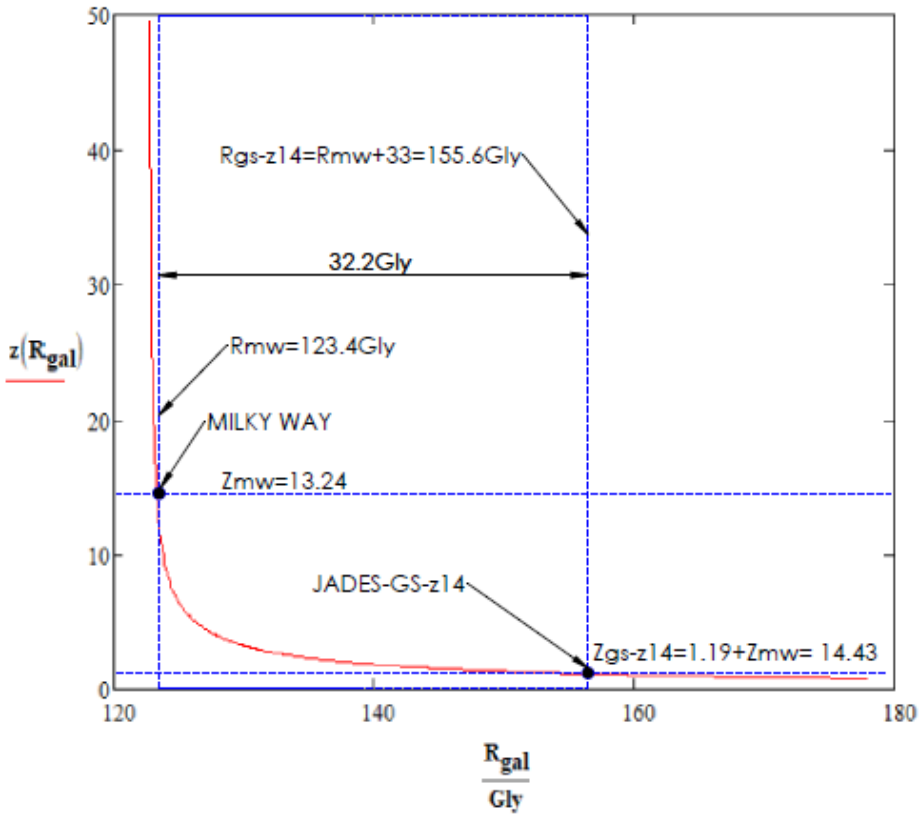

Fig. 3 -Redshift Vs. the orbiting radius of a galaxy

Fig. 4 shows a cross-section of the equatorial plane of the Pivot universe. It includes data from the [The structure of the Pivot Universe]

At the center of our matter universe resides the Pivot. All matter i.e., galaxies, stars, and dust orbit the Pivot at the equatorial plane. Each galaxy orbits the Pivot at its unique radius. An observer of the Milky Way $R_{mw} = 123.4 \cdot Gly$. According to calculations based on the Pivot universe, the disk of the matter universe has the following dimensions: $R_{in} = 122.9 \cdot Gly$, $R_{out} = 175.6 \cdot Gly$ (i.e., the flat disk depth of the universe is 52.7Gly) and width $W = 1 \cdot Gly$.

It is shown in Fig. 4 an area that is designated an invisible universe. This area starts from the radius of galaxy JADES-GS-z14-0 (=155.4Gly), up to the radius of $R_{out.}$ The radius of JADES-GS-z14-0 can be designated the cosmic horizon, as seen from the Milky Way. It is important to note that the area designated invisible universe contains galaxies, but an observer from the Milky Way cannot observe them. As time passes, the cosmic horizon will grow and more galaxies in the invisible universe will be revealed to us, until within 20.2 billion years the entire universe's flat disk will be observable.

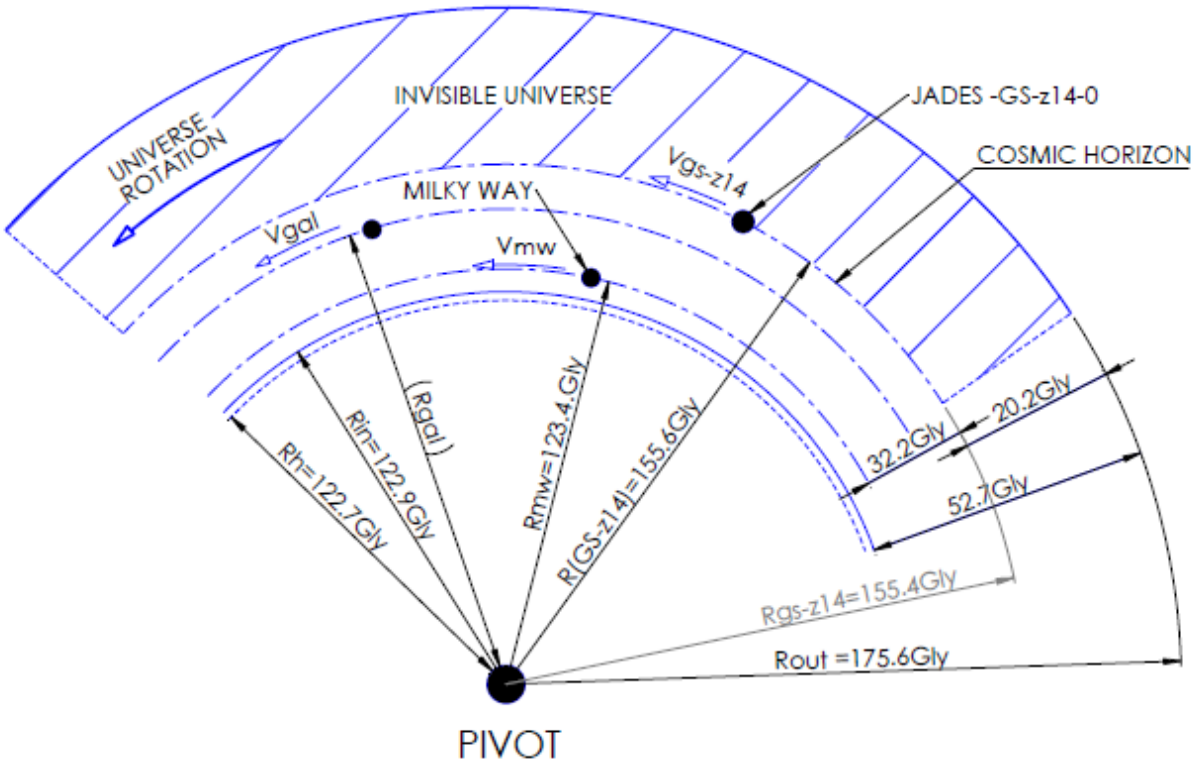

Fig. 4 – Cross-section of Pivot universe @ its equatorial plane.

Doppler redshift

The orbital velocity of a galaxy around the Pivot is dependent on the orbital radius of each galaxy. The closer the galaxy to the Pivot the faster its orbital velocity. The velocity of the Milky Way is higher than the velocity of JADES-GS-z14-0. ($V_{mw} > V_{GS\text{-}z14}$)

To calculate the orbital velocity of a galaxy, the general relativity formula of frame dragging of space by the Pivot is used. I claim that galaxies in the universe are not moving through the stationary vacuum space (or ether), but are rather dragged by the vacuum space of the Pivot. Note: This hypothesis answers a most profound question in cosmology: How come galaxies are not losing energy while moving in the stationary vacuum space? A trivial example is an air balloon that moves in the wind.

(Eq. 3) describes the frame dragging in the equatorial plane of the Pivot universe, as derived from general relativity.

$$\Omega(r) = \frac{R_H \cdot \alpha \cdot C}{r^3 + \alpha^2 \cdot r + R_H \cdot \alpha^2} \qquad \text{(Eq. 3)}$$

Where:

$$\alpha = \frac{J}{M_{pivot} \cdot c} 0.96 Gly$$

$$V_{gal} = \Omega(R_{gal}) \cdot R_{gal} \quad \text{...Orbital velocity} \qquad \text{(Eq. 4)}$$

From (Eq. 4):

$V_{mw} = \Omega(R_{mw}) \cdot R_{mw} = 2320 km/\sec$ ...Milky Way orbital velocity

$V_{GS-z14} = \Omega(R_{GS-z14}) \cdot R_{GS-z14} = 1462 km/\sec$ ...JADES-GS-z14-0 orbital velocity

The Doppler redshift is calculated by:

$$z_{doppler} = \frac{\Delta V}{c} = 0.00286$$

(Where: $\Delta V = V_{mw} - V_{GS-z14} = 858 \cdot km/s$)

The $z_{doppler} = 0.00286 << z_{GS-z14} = 1.19$ and therefore can be neglected.

A speculative hypothesis on Superluminal velocity

It was noted above that based on JWST finding it can be assumed that all galaxies in the universe were created approximately at the same time. On the other hand, the Pivot universe model shows that the universe extends over $\Delta R = R_{out} - R_{in} = 175.57 \cdot Gly - 122.88 \cdot Gly = 52.7 Gly$. To fill the flat disk of the matter universe at maximum velocity C it would take 53 billion years. To resolve this issue, I claim that the matter distribution during the BB explosion and immediately after it was done at the superluminal velocity. Observations show that at a supernova event, superluminal velocities are reached. In the case of V838 Monocerotis supernova, it was found that the outburst was done at a rate exceeding the speed of light as it grew from an apparent visual size of 4 to 7 light years in a matter of months. My speculative hypothesis is that matter

can move in space faster than light (FTL) if all vacuum space fluctuating fields e.g., electrical and magnetic fields, are momentarily removed from vacuum space. In this case, there is no creation of virtual particles and space becomes a total void, thus space cannot create a resisting force on anything moving in it - matter and light. This is what happened at the BB. Matter velocity could reach many times more than the speed of light in a vacuum. As the total void state of space was temporary and vanished soon as fluctuating fields came back and the virtual particles reappeared, no matter or light in our matter universe can move faster than C.

Summary

High lights:

1) The Pivot model of the universe can explain JWST's findings of early galaxies as well as Hubble's constant tension.

2) The matter universe (including galaxies, stars, planets, and dust) is orbiting the Pivot. **The matter universe is not expanding.**

3) The redshift in the universe is comprised of gravitational redshift and Doppler redshift.

4) The JWST images are not of the early galaxies that were created near the BB, but rather images of the most distant galaxies that can be seen from the Milky Way.

5) Superluminal velocity at the BB and immediately after it enabled the creation of all galaxies at approximately the same time, thus all galaxies in the universe are equally developed.

6) The redshift and the orbiting radius of the Milky Way relative to the Pivot are based on the observation of Birch. Birch's hypothesis has not been refuted but it was not repeated by others.

7) When looking back towards the BB, as presumed by scientists, we look actually to the furthest galaxies from the Pivot that are in the cosmological horizon of the Milky Way.

8) From JWST data of JADES-GS-z14-0, it is concluded that **the universe has existed for ~32.2 billion years.** The flat disk of the matter universe has a bigger depth- 52.7Gly. It will take another 20.2 billion years for an observer located in the Milky Way will observe the edge of the flat disk.

9) Regarding Hubble's tension – I claim that Hubble's law is not valid. From Fig. 3 it can be seen that between the Milky Way and JADES-GS-z14-0, the redshift is not linear. Measuring the redshift near the Milky Way and JADES-GS-z14-0 results in two different values.