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We Proof: 1. Hubble's Law Opposes to Big Bang Theory; 2. Hubble's Law Can Be Deduced With No Space Expansion

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Abstract

Hubble's law has been considered as the scientific basis of the one atom exploding Big Bang Theory (BBT) for nearly hundred years. But with simple mathematical model we proved that the Hubble's law does not correctly describe the expanding Universe suggested by the BBT. And we found a lot of wrong observing reports that were based on the calculation of Hubble's law, which strongly supported our arguments. That is why we tried to explain the Hubble's observing results from a different point of view, namely **Velocity of Observed Image (V_{OI})** of celestial body. A new mathematic model was built to replace the calculation model of the cosmic redshift that is the essence of Hubble's law. This model does not require the condition of the expanding of the Universe, which tells us again that Hubble's law does not support BBT.

Keywords: Hubble's law, Lemaître, redshift, velocity of output image, Big Bang, Color-Magnitude Relation, geocentric theory, Observed Image, Velocity of Observed image, Pseudo-Theology

1. Introduction

In 1927, Father Lemaître proposed a miraculous theory that the Universe was formed by One Atom Explosion Big Bang. Science has no way to explain why and how one atom can generate the Universe by its explosion. Obviously BBT has no scientific base at all. So BBT is a theology theory. But today's astronomy academic world is dominated by this One Atom BBT.

Hubble's observation was that the red shift of galaxies was directly proportional to the distance of the galaxy from Earth. Things farther away from Earth were moving away faster. In other words, the Universe must be expanding. In 1929, Hubble released his Hubble's Law (Doppler, C. J. 1842, 1846; HUBBLB, E. 1929, 1936.)

$$v = H D \tag{1}$$

where v is the radial outward velocity of the galaxy, D is the distance of the galaxy from Earth, and H is the proportional constant which is called the Hubble constant. Hubble's Law said that most celestial bodies in the deep space of the Universe are moving away from the telescope. In other words, the Universe must be expanding.

The base of Hubble's law is the redshift of a celestial body, which is the shifting of its spectral features to longer wavelengths primarily due to the combination of Doppler motions and the general expansion of the Universe. The redshift is defined as

$$z = \frac{\nu_e - \nu_0}{\nu_0} = \frac{\nu_e}{\nu_0} - 1 \tag{2}$$

where the subscripts o and e refer to observed and emitted. The redshift is defined directly following the Doppler effect, based on the expanding Universe in the outer space of the Universe.

Hubble's law gave One Atom Big Bang theory a strong scientific support, this excited both religion people and science people. In 2018, International Astronomy Union (IAU) members voted to rename the Hubble's law as the Hubble–Lemaître law (IAU, 2018.) Thus, the Hubble's Law is called as the Hubble–Lemaître Law. This put one atomic BBT a pseudo-theology because it did not praise God but blasphemes God (Wu, Y. and Wu, J. 2023.)

We first scientifically proved why the Hubble–Lemaître Law did not support but was against the Lemaître's BBT by using a simple mathematic model.

Then we presented there are large quantity of wrong observing reports generated by using the Color-Magnitude Relation mathematical method which is based on Hubble’s law, which is similar of Hubble’s law method. This are the real examples strongly support our point of view.

Lastly, from a different angle, we derived a new mathematical model to explain the Hubble’s law without the requirement of the Universal expanding

2. Hubble's Law Is Not for But Against the Big Bang Theory

2.1 The Cooled Universe Should Contract, Not Expand

In this regard, Hubble's law is not the scientific evidence supporting the Big Bang theory, and is a strong opposition to the Big Bang theory!

This is because, first, based on the classical explosion theory, the space after the cooling of the Big Bang will only shrink, and will not continue to expand! Hubble's law was discovered by humans, which means that the Universe cooled down many years ago before humans appeared. That is, the Universe has already begun to shrink.

But using Hubble's law to interpret the observational data, says that this exploding space of the cooling Universe is expanding at an accelerating rate, the farther away it is, the faster it expands. This is the exact opposite of what should happen after a normal explosion, and goes against the basic scientific theory of explosion. The One Atom Big Bang not only needs to explain how one atom explosion possibly produce the Universe, it also needs to explain why the Universe space did not contract after the explosion has cooled down, but continue expanding? Dark energy was invented to explain this mystery after BBT was invented many years. But the whole astronomy world searched it for many years and found no single piece of it. And it is not easy to label something found is dark energy. Because that thing must have the ability to expand a small space, which is a tough (actually impossible) task to finders (Wu, Y. and Wu, J. 2015).

Thinking in this way, isn't Hubble's law a complete opposition to the Big Bang theory with scientific observations, data, and mathematical models?

2.2 The Premise of Hubble's Law: The Resurrection of the Geocentric Theory

Now we prove Hubble’s law works only the Earth (observers can only be on or near the Earth) locates at the center of the Universe.

In Figure 1, we connect the Earth and the One Atom Big Bang Center O with a straight line. For ease of illustration, add 2 galaxies (Galaxy 1 and Galaxy 2) to this line.

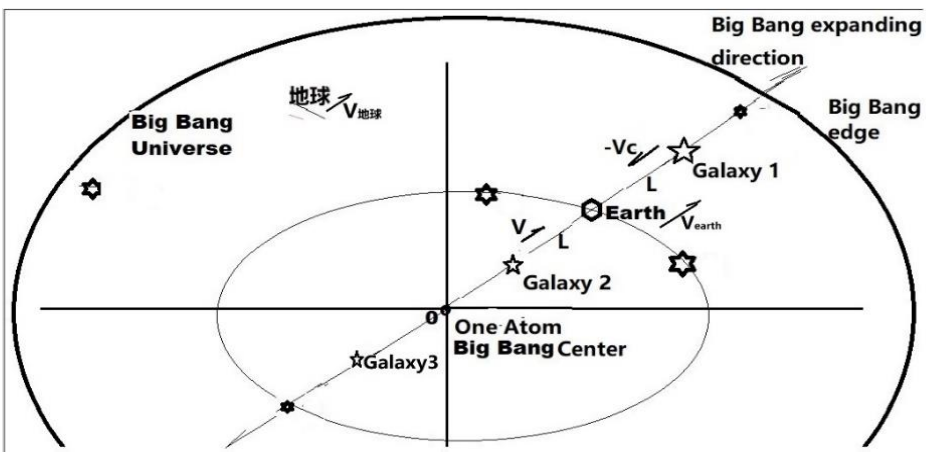

Figure 1. Earth, Galaxies 1, and 2 has equidistant L at different sides from the Earth. The One Atom Big Bang Center O in the picture is the place where this one atom starts to explode.

Now, analyze according to the known basic laws of physics. Firstly, the Galaxy 1, the Earth, and the Galaxy 2 are all moving towards the expansion direction of the Big Bang space away from the center of the Big Bang. Since the speed Vc of the light emitted by any moving celestial body is constant according to Einstein, it has nothing to do with the speed of the light source. Based on this, we examine the light travelling time T required for both Galaxies with a speed of Vc to travel a distance L to reach the Earth at a certain moment, as shown in Figure 2.

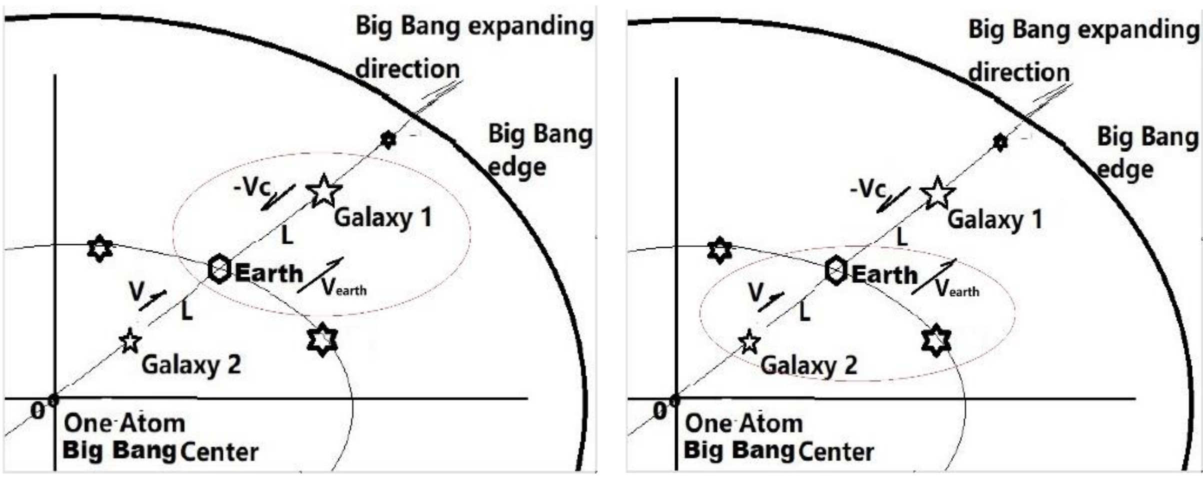

Figure 2. The upper right part of Figure 1. Viewing Galaxy 1 (left) and 2 (right) from the Earth.

Analyzed from the perspective of speed synthesis. Because the motion of the light of Galaxy 1 and the motion of the Earth are opposite, but the motion of the light of Galaxy 2 and the motion of the Earth are chasing, so when the light emitted from Galaxy 1 reaches the observer (such as a telescope) on the Earth at a constant speed of Vc, the Earth also faces the Galaxy 1 moving due to the general expansion of the Universe at the speed of V_{earth}, so the observation velocity of Galaxy 1 observed by the telescope on Earth is,

$$V_{ObservationSpeedOfGalaxy1} = Vc + V_{earth} \tag{3}$$

But when the light of Galaxy 2 arrives at the original observer location of the Earth at the speed of Vc, the Earth already left from that location at the speed of V_{earth}, so the observed velocity of Galaxy 2 is,

$$V_{ObservationSpeedOfGalaxy2} = Vc - V_{earth} \tag{4}$$

From the above analysis, we can also see an interesting and enlightening phenomenon: the velocity of **observed light image of celestial bodies** received by the telescope is completely **different** from the **constant light speed mentioned by Einstein**. In fact, it is not fully appropriate to call this speed the observation velocity of celestial bodies, because the observation process not only includes the relative motion between the celestial body and the Earth, but also the difference in the output observation results caused by the differences in the observation instruments themselves. The time for outputting observation images is shorter for observation instruments with higher sensitivity. Therefore, in the observation images obtained from the telescope, factors including **observation instruments** should also be considered. In the application of Hubble's law, these are completely ignored. But they are the major reasons caused the big discrepancies in the results displayed in Figure 3 below.

In the application of Hubble's law, factors such as the differences in the observation speeds due to the differences in the positions of the celestial bodies relative to the Earth, and the difference in the images of the observations due to the differences in the sensitivities of the observation instruments such as the telescopes are completely ignored. We will discuss these issues in detail when we re-deduce the new model for calculating the redshifts of celestial bodies in Hubble's law.

2.3 Error Observing Research Reports Released in Recent Years Related to Cosmic Redshift

There were many wrong observing research reports based on the observing data and calculated by using **Color-Magnitude Relationship method.** The typical problem is like this: Abell754 is located **0.76** billion light-years from the Earth, the reported age of the **new born** celestial is **0.3** billion years old. Obviously, the light emitted by the new born celestial cannot reach the observer on or near the Earth. Light emitted from 0.3 billion years old galaxy needs 0.46 more travelling years to reach the observer.

Following are several famous reports on TV and in many research papers.

Table 1. Error Research Reports Caussed by Using Color-Magnitude Relationship Method

Cestial Name	Distance between Observer& Celestial (light-year)	Reported Age of the Newborn Celestial (year)	Name of the Newborn Celestial	Report year
NGC 7318	*27 million*	*2 million*	Stephan's Quintet	(NASA, 2001)
NGC7320	40 million	10 million	Stephan's Quinte	(NASA, 2004)
Abell754	*0.76 billion*	*0.3 billion*	Newborn galaxy	(NASA, 2019)
M100	*50 million*	*30*	Youngest Baby Black Hole	(NASA, 2021)
NGC4485 …	*25 million* ….	*million* ...	interacting with NGC 4490 ….	2019 …

3. The Necessity of Reconsidering the Scientific Base of Hubble's Law

The ratio of distance to redshift is called Hubble's constant. But Hubble's constant gave us plenty of reason to reconsider the scientific base of redshift calculation method, which is the base of Hubble's law. Following figure shows the problem related to obtain Hubble's constant.

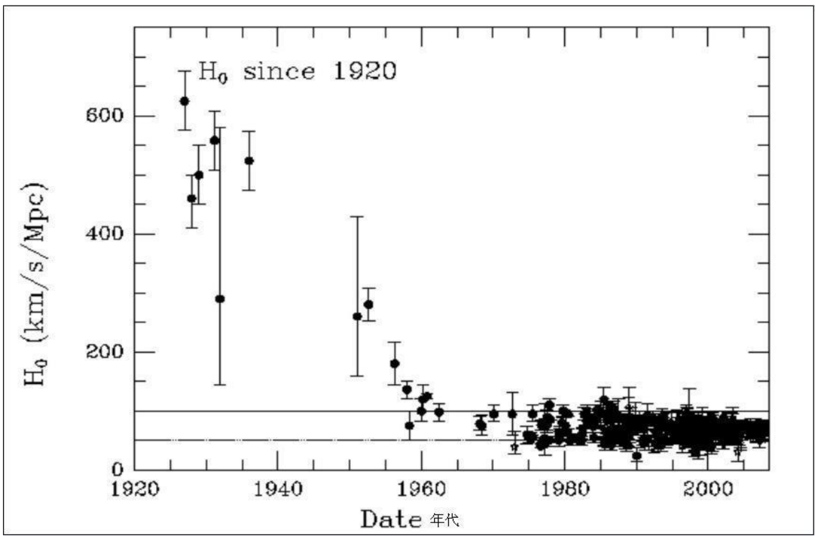

Figure 3. Different values of the Hubble constant H_0 measured in different years. The ratio of distance to redshift is called Hubble's constant H_0

Credit from: https://www.cfa.harvard.edu/~dfabricant/huchra/hubble/

Historical values of the Hubble Constant show the 1920s measured H_0 values were up to ten times greater than those measured after the 1980s.

The value of the Hubble Constant was once a long and intense topic of debate. After the first half of the twentieth century, the value of the Hubble Constant H_0 was estimated between about 50 to 90 (km/s)/Mpc. The French astronomer, Gérard de VA couleurs claimed it should be 80, while the American astronomer Allan Sandage believed it should be 40.

In 1996, a debate between Gustav Tammann and Sidney van den Bergh was held, presided over by John Bahcall.

The theme of which was the two competing values of the Hubble Constant.

We mention these to note that the fierce dispute continued for more than half a century. In this case, someone will eventually think of coming up with a new solution: from another angle or theory to explain the Hubble constant. However, with the mighty Hubble Space Telescope, NASA marginalizes all dissenting voices by using the telescope's enhanced capabilities to support established interpretations!

In 2003, using the results of the highest precision WMAP cosmic microwave background radiation detector, the measured value was 71.4 (km/s)/Mpc, and then in 2006, 70.4 +1.3/-1.4 (km/s)/Mpc was the measured value.

From Figure 3 we can see, the Hubble constant values obtained in different years have big differences. The values obtained in early years have huge different from later years. We think this majorly is because the different of the quality of the telescopes used. Otherwise, there would not have so many discrepancies among different observation results.

Below are ten reasons why we should be looking for a new way to correctly reinterpret and calculate the cosmic redshift? They are the reasons why we are suggesting our new theory to interpret and calculate the cosmic redshift.

1) There is no apparent proof that a celestial body receding from an observer is the exclusive cause of its redshift. As a result, it is necessary to expand the scope of our research and determine other salient factors that may be involved.

2) As we mentioned above, erroneous in many long-term simple astronomical observation reports have caused some scientists to doubt the basis of the Color-Magnitude Relationship (CMR). These errors, which were made when applying the redshift theory to easy verifiable fields of cosmic objects, leads us to reconsider the validity of Hubble's law.

3) When applying the K-Correction method, adding a color filter to the telescope will change the received redshift value, which needs to be corrected according to the value calculated by K-Correction. The noted astrophysicist, David Hogg, puts it this way: "the adjustment of the K-Correction to the standard relationship between absolute and apparent magnitude is required to correct for the redshift effect." (Hogg, D.W. et al, Oct 2002). This means that when the relative speed of the observer does not change, the measured redshift value of the celestial body will change as the intensity of light from the celestial body changes. In fact, a change in the red shift value will occur when using a color filter. As the filter weakens the light intensity that the telescope captures, the redshift value changes. This phenomenon has nothing to do with changes in light **frequency**, but only with changes in light **intensity** that a telescope captures. K-Correction is used to tinker with the application of theory. But our theory can satisfactorily explain this phenomenon, too.

We can also use this phenomenon to design changes in the redshift, implicating our point of view; that is, we can identify redshift values with telescopes focused on celestial objects in a Universe that is not expanding.

4) The value of constant in Hubble's law, which based on the cosmic redshift, has caused long-term disputes in astronomical observations, with said values differentiated by up to 10 times. NASA has thus used the Hubble telescope to try to settle the controversy. Careful analysis, however, reveals that the controversy sustains. Is there an issue with the transmission of light waves when calculated by Doppler's law? Perhaps. The significant differences in the value of the Hubble constant obtained by different observers throughout history proves one thing: the frequency of **the received light has changed drastically by different instruments and/or observation methods**. In effect, the redshift is not entirely caused by the Doppler effect. And this can be explained by our theory of the change in speed of the observed image.

5) Over the decades, numerous scientists have believed that their observations are correct. Who then is wrong? For us, the answer is clear: no one. Rather **the theory explaining the observations they made and the conclusions they drew from their observations was wrong**! The correct theory should be able to encompass and explain all the different results obtained from different instruments – as our theory does.

6) All redshift values are generated by observation **instruments**. The Hubble constant has a certain relationship to the quality of the telescope. It varies with the sensitivity of different instruments and is a function of the sensitivity of the instrument. **To date, no theory has considered the instrumental factors when analyzing and calculating redshift**. But which astronomical data does not need to be obtained through observation instruments (telescope, the naked eye, etc.)? At the very least, scientists should consider how an observation instrument affects the Hubble constant. If the issue is simply

instrumental noise and its elimination through technical refinement, observation results of redshift data should not exhibit the kind of deviations they did.

7) According to Hubble's theory, a celestial body at the "**proper distance**" — that is, within 30 million light years of Earth — should not exhibit a red shift. But virtually all close-range stars, including the Sun, exhibit redshifts; a phenomenon that Hubble's theory cannot explain on its own. So, scientists patched it up with an associated theory: the redshift caused by gravity.

8) According to the Hubble redshift theory, the farther a celestial body is from the observer, the faster it recedes from the observer. Unfortunately, this presumption runs counter to normal classical physics when applied to explosions. In classical physics, the energy of an explosion expands in a spherical shape from its center. As it does so, the intensity of its energy decreases exponentially as the distance from the center of the explosion increases. The Hubble redshift theory, which contradicts classical physics in this regard, places no limit on the speed at which a cosmic object recedes from an observer.

9) According to a 2013 study by Bond et al, the star, HD140283, which is about 13 billion years old, is only 190 light-years away from the Sun. In a Universe where celestial objects are ever receding from an observer, how is it that this star remains 190 light-years from the Sun? Does dark energy play a part; a part we do not yet understand?

10) The proof of the previous geometric scale of Figure 1 shows that if the Big Bang Universe really exists, the observation results of Hubble's law should get different observation results in different directions. Hubble's law cannot be used to calculate all the observation results from different directions.

4. A New Method to Reinterpret the Redshift of Celestial Light Without the Condition of Expanding Universe

Einstein agreed the light speed is constant. And the academic world has been using this contant light speed to describe not only the labortary light, but also to describe the light from the celestial objects. This is not appropriate. Because in modern astronomy observation, the observation instruments always treated the light from a celestial object as bunch of photons (Peak, K., 2014, Skinner, G. K., 2008, Wang, Ch.-J., & Ye, B.-X., 2013, etc.)

As we discussed above, we can precisely measure the speed of a photon or group of photons in the laboratory. But we cannot precisely measure the observed light image speed of a celestial object C. Here generated very important concepts about the light speed of a celestial object, which we define it as the **Velocity of Observed Image ($\mathbf{V_{OI}}$)**. The **Observed Image (OI)** is the output image of the observing result by an observer **TEL** on a celestial object **C**. $V_{ObservationSpeedOfGalaxy1}$ in (3) and $V_{ObservationSpeedOfGalaxy2}$ in (4) are examples of $\mathbf{V_{OI}}$.
There are two important factors that decided the $\mathbf{V_{OI}}$: the luminous intensity from C expressed by photon number N (D) per unit area per unit time. N(D) varies with the distance D between C and the quality of the Observer TEL, and the responding time **$\mathbf{T_R}$ (TEL, N (D))** of the observer TEL on incoming **N (D)** at distance D. Both N and T_R had been neglected in the galaxy light speed theory analysis. But they are fatal while measuring $\mathbf{V_{OI}}$.

We first study these factors one by one, then combine them together to check the whole process of light propagation from C to observer TEL while N (D) is changing on the route. Then we can derive the $\mathbf{V_{OI}}$ (C, P_{TEL}), which says we derive the velocity of the image sent from the celestial C using the observer TEL located at P_{TEL}.

The Responding Time of an Observer

Suppose an observer TEL requires at least **Q (TEL)** photons to respond (Narlikar, J.V. 2002; Skinner, G. K. 2008; Lodriguss, J. 2014.) If the incoming batch photon number is N_{FULL} > Q (TEL), then the **Time of Full Light Intensity Responding $\mathbf{T_{FLIR}}$** of this observer is

$$\mathbf{T_{FLIR} = T_{Respond}\ (TEL,\ N_{FULL}),\ N_{FULL} \geq Q\ (TEL)} \tag{5}$$

We can see T_{FLIR} is the normal responding time that an observer TEL requires in normal condition. The incoming light N_{FULL} is strong enough to make the TEL respond in its normal responding time. T_{FLIR} is a character of TEL, and a factor that related only to TEL. We include the delay caused by noise into T_{FLIR}, so need not take the noise into account in this analysis. In laboratory measurement the measuring instrument can be adjusted to such that T_{FLIR} = 0 or close to 0. But in celestial object observing because of the structure of the observer TEL, always we have T_{FLIR} > 0.

The Variation of Luminous Intensity vs Variation of Distance

1) The different observing zones on a photon batch travelling route from a celestial object C

At any instant t_i, C will emit a photon batch with finite number of photons, or we separate the continuous emitting photons from C into Δt_i batches. If from starting time T_0, the starting batch of photons emitted from C within time Δt_0 is N_0. After another short time periodΔt_1, C continuous emits next batch of N_1 photons…, after Δt_i time C emits consecutive batch of N_i photons......

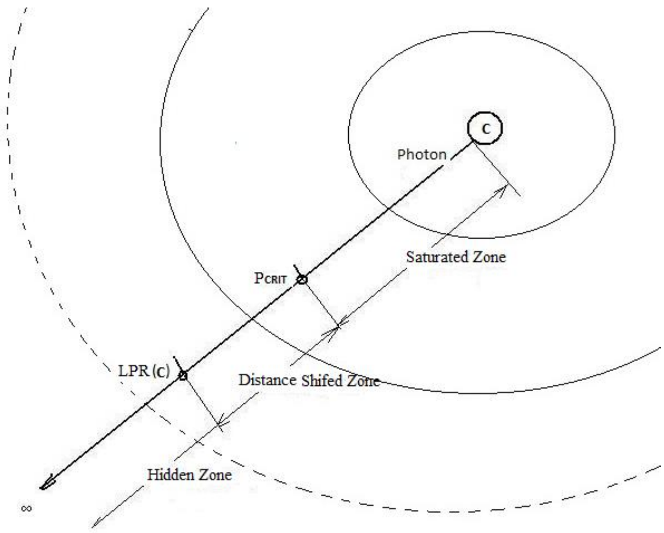

Figure 4. The divided observing zones on the route of waves emitted from celestial object C toward an observer TEL

In Figure 1 let D (C, P_{TEL}) be the distance from the celestial object C to point P_{TEL} where the observer TEL is located. The luminous intensity I on TEL at P_{TEL} is I (P_{TEL}). So, the initial luminous intensity I (P_{TEL}) can be calculated as

$$I\ (P_{TEL}) = \frac{N_0}{4\pi D^2(C,\ P_{TEL})} \tag{6}$$

The Saturated Zone to an observer TEL

Since we have

$$\lim_{D(C,\ P_{TEL})\to\infty} \frac{N_0}{4\pi D^2(C,\ P_{TEL})} = 0 \tag{7}$$

We always can find a point P_{CRIT} on the light traveling route of C that makes luminous intensity I (P_{CRIT}) at P_{CRIT} equals to minimum luminous intensity Q (TEL) that the observer requires to respond.

$$I\ (P_{CRIT}) = \frac{N_0}{4\pi D^2(C, P_{CRIT})} = Q\ (TEL) \tag{8}$$

while an observer TEL locates within (0, D (C, P_{CRIT})).

P_{CRIT} in (8) is called **Point of Critical Responding** from observed celestial C to the observer TEL located at P_{CRIT}.

Referring to Figure 4, the area between C and P_{CRIT} is called **Saturated Zone**. An observer located at any point P_{TEL} within this zone will have sufficient photon energy to make the observer respond within T_{FLIR}. Combine (5) and (8) we have

$$T_{FLIR} = \frac{N_0}{4\pi D^2(C, P_{TEL})} \quad \text{when } 0 < P_{TEL} \le P_{CRIT} \tag{9}$$

Let **Ve** be the photon speed. The photon batch traveling time from C to P_{TEL} will be

$$T\ (C,\ P_{TEL}) = \frac{D\ (C,\ P_{TEL})}{Ve} \tag{10}$$

After T (C, P_{TEL}) time, N_0 photon batch hits observer at P_{TEL}, so the total **Time of OI (T_{OI})** at distance P_{TEL} within P_{CRIT} will be

$$T_{OI}\ (C,\ P_{TEL}) = T_{FLIR} + T\ (C,\ P_{TEL}),\ PCRIT \geq P_{TEL} > 0 \tag{11}$$

The $\mathbf{V_{OI}}$ can be calculated as follows:

$$\mathbf{V_{OI}}\ (C, P_{TEL}) = \frac{D\ (C,\ P_{TEL})}{T_{FLIR} + T\ (C,\ P_{TEL})} \qquad \text{where } P_{CRIT} \geq P_{TEL} > 0$$

Let $\mathbf{Z_0} = \frac{T_{FLIR}}{T\ (C,\ P_{TEL})}$, and define $\mathbf{Z_0}$ **the Observer Shifted Value of OI**. Thus, we have

$$\mathbf{V_{OI}}\ (C, P_{TEL}) = \frac{D\ (C,\ P_{TEL})}{T\ (C,\ P_{TEL})(Z_0+1)} = \frac{V_E}{(1+\ Z_0)} \qquad \text{where } P_{CRIT} \geq P_{TEL} > 0 \tag{12}$$

Here the value of FLIRT is small. If P_{TEL} is near C like the Sun to the observer on the Earth, Z_0 is important. If P_{TEL} is near P_{CRIT}, T (C, P_{TEL}) will be big, and relatively Z_0 is small.

The Distance Shifted Zone

Many modern cameras like CCD used to take image of galaxies work like this: Electrons are generated if photons strike the sensor during the duration of the exposure or integration. They are **stored** in a *potential well* **until** the exposure is ended. The size of the well is called the *full-well capacity* and it determines how many electrons can be collected before it fills up and registers as full. (Narlikar, J.V. 2002; Skinner, G. K. 2008; Lodriguss, J. 2014.)

Let us put the observer between the point P_{CRIT} and the **LPR (C, TEL)**, which is the distance between celestial object C and the observer TEL and is named as **Limited Propagating Radius**. LPR (C, TEL) is determined by factors such as luminosity of celestial object C, instrument sensitivity, observing interfering noises. Each C has its LPR (C, TEL). If TEL located beyond LPR (C, TEL), this TEL cannot receive any valid information from C

We call the area between LPR(C) and P_{CRIT} **Distance Shifted Zone**. When the observer is located within this zone, we have

$$\frac{N_0}{4\pi D^{2}(C, P_{TEL})} < Q\ (TEL) \text{ while } LPR\ (C, TEL) \geq P_{TEL} > P_{CRIT} \tag{13}$$

At P_{TEL} when the unit light intensity from arrived photon batch N_0 is less than the required minimum number Q (TEL), the observer cannot response to N_0. But after a short time$\varDelta t_1$ the next batch of N_1 photons arrives. It will overlap with the previous batch of N_0 photons. The *potential well* (Narlikar, J.V. 2002; Skinner, G. K. 2008; Lodriguss, J. 2014) of the camera of the observer is filled up after N_1 photon batch arrives.

Thus, we have

$$\frac{N_0 + N_1}{4\pi {P_{TEL}}^2} \geq Q\ (TEL) \text{ while } \qquad LPR\ (C, TEL) \geq P_{TEL} > P_{CRIT}$$

$$V_{OI}\ (C, P_{TEL}) = \frac{D\ (C,\ P_{TEL})}{T_{FLIR} + T\ (C,\ P_{TEL}) + \varDelta t1} \tag{14}$$

The time delay will cause the time shift on the observers. With the increasing of the distance between the C and P_{TEL} D (C, P_{TEL}), the time delay will get bigger and bigger. Generally, we have:

If

i=0jN< Q(TEL) while i=0jN≥ Q(TEL), and LPR (C, TEL) ≥ P_{TEL} > P_{CRIT}

Then

$$V_{OI}\ (C,\ P_{TEL}) = \frac{D\ (C,\ P_{TEL})}{T_{FLIR} + T\ (C,\ P_{TEL}) + \sum_{i=0}^{j} \varDelta t_i} = \frac{D\ (C,\ P_{TEL})}{T\ (C,\ P_{TEL})\ (\frac{T_{FLIR}}{T\ (C,\ P_{TEL})} + 1 + \frac{\sum_{i=0}^{j} \varDelta t_i}{T\ (C,\ P_{TEL})}} \tag{15}$$

Define $\mathbf{Z_1}$ **be Shifted Value of the observed output image velocity** $\mathbf{V_{OI}}$. It is the **accumulated delays by batches in Distance Shifted Zone.**

Let

$$Z_1 = \frac{\sum_{i=0}^{j} \Delta t_i}{T\,(C,\ P_{TEL})},$$

Then

$$V_{OI}\,(C, P_{TEL}) = \frac{D\,(C,\ P_{TEL})}{T\,(C,\ P_{TEL})(1 + Z_0 + Z_1)} = \frac{D\,(C,\ P_{TEL})}{T\,(C,\ P_{TEL})} \frac{1}{(1 + Z_0 + Z_1)}$$

$$= \frac{V_E}{(1 + Z_0 + Z_1)} \quad \text{where } V_E \text{ is the photon speed.} \tag{16}$$

Define **Z be the Redshift Hysteresis Parameter Value of V_{OI}**, we have

$$Z = Z_0 + Z_1 \tag{17}$$

$$V_{OI}\,(1 + Z) = V_E \tag{18}$$

Summarize above analysis, refer to Figure 4, we get Table 2.

Table 2. Calculation for Velocity of Observed Image V_{OI} from Celestial body C

V_{OI} =	The telescope is in Saturated Zone $\frac{V_E}{(1 + Z_0)}$	While $Z_0 = \frac{T_{FLIR}}{T\,(C,\ P_{TEL})}$ $P_{CRIT} \geq P_{TEL} > 0$	(19.1)
	The telescope is in Distance Hysteresis Zone $\frac{V_E}{(1 + Z)}$	while $LPR(C) \geq D\,(C, P_{TEL}) > D\,(C, P_{CRIT})$ i=0jN< Q(TEL) i=0jN≥ Q(TEL) $Z = Z_0 + Z_1 + Z_2$ $Z_0 = \frac{T_{FLIR}}{T\,(C,\ P_{TEL})}$ $Z_1 = \frac{\sum_{i=0}^{j} \Delta t_i}{T\,(C,\ P_{TEL})}$	(19.2)
	The telescope is in Invisible Zone. N/A	When $D\,(C, P_{TEL}) > LPR\,(C, TEL)$	(19.3)
V_{OI}	**Velocity** of Observed Image.		
V_E	The speed of photons emits from celestial object C. It is the constant light speed.		
P_{CRIT}	The critical point where its Distance D (C, PcRIT) satisfies $\frac{N_0}{4\pi D^2(C, P_{TEL})}$ = Q (TEL), where Q (TEL) is the minimum number of photons that make observer TEL respond.		
P_{TEL}	Telescope TEL located at this point		
T_{FLIR}	Time of Full Intensity Responding, the time an observer TEL responds to equal or more than incoming photons of Q(TEL)		
N_i	Number of incoming photons within ith batch in Δt_i time		
LPR (C)	Limited Propagating Radius of celestial object C with observer TEL		
Z	Redshift Hysteresis Parameter Shifted Value of V_{OI}, $Z = Z_0 + Z_1$		
Z_0	Observer Shifted Value of OI, $Z_0 = \frac{T_{FLIR}}{T\,(C,\ P_{TEL})}$		
Z_1	The Shifted Value of the observed output image velocity V_{OI}. It is the accumulated delays by batches in Distance Shifted Zone.		

	$Z_1 = \frac{\sum_{i=0}^{j} \Delta t_i}{T(C,\ P_{TEL})}$
OI	Observed Image, the output observing result from an observer on a celestial object

Observer-Distance Caused Redshift of a Celestial Object

In the frequency domain, used by Hubble's law and many astronomical observations, the redshift is defined as (Harvard web, 2008):

$$Z = \frac{V_E - V_{TEL}}{V_{TEL}} \quad \text{so we have}$$

$$V_{TEL}(1 + Z) = V_E$$

This is exactly (20.1) and (20.2) defined. We know that

$$Z = Z_0 + Z_1 = \frac{\text{FIRT}}{T(C,\ P_{TEL})} + \sum_{i=0}^{j} \frac{\Delta t_i}{T(C,\ P_{TEL})} \tag{20}$$

with the conditions given in (19.1) and (19.2)

The Observer Distance Caused Redshift Z can be decomposed as Z_0 Observer Shifted Value of V_{OI}, Z_1 Distance Shifted Value of $V_{OI,}$ and Z_2 Displacement Shift value.

Summarize of above deduction, we can see from totally different point of view, the cosmic redshift can be explained without considering the expanding space, which shakes down the most important scientific base of one atom Big Bang Theory.

In Doppler Redshift that can only be measured at millions of light-years away Z_0 is not considered. Z_0 here is different and it always exists and only varies with the responding time of the observer, and can be measured in a very short distance. For example, the Sun is only 490 light-second away from the Observers, but it still can get a redshift value (Huchra, J. 2014), The Sun has some movements with a certain speed, but compared to the speed of light it is ignorable and cannot cause the Doppler Redshift. Within the Saturated Zone responding time of an observer will cause the time delay and the observer shift.

5. Testing Experiment Design

The V_{OI} cannot be correctly simulated and measured from local on the Earth by experiment like Michelson-Morley or any previous measurements did (Higgs, L. A. 1960), because there is no way to simulate light diverse effect on millions of light-year distance. The observing effect beyond P_{CRIT} we are discussing will only happen after light of photon batches traveled long distance, exactly like the distance that the galaxy redshift appears by current theory. To simulate the diffusion of the light travelling a million light years away we need to modify the current experiment, or we can design a new special one to test V_{OI}. The experiment we suggested is simple but including the diffuse effect of the travelling light, which agrees with our theory.

To simulate the measurement of the light batch speed from a distant celestial object, we can gradually block the light batch intensity from a celestial object to the observer TEL, such as the Sun's light, to the levels a little bit bigger or smaller than the sensitivity of the observer, and measure the different results.

We can use different observers with different sensitivities and compare the results. But do not calibrate the observations with other observers.

Specifically, we can use a telescope in a laboratory, to measure the photon batch with different photon energies. Also compare the results of the same photon batches measured by laboratory equipment and telescope.

Above test experiment can also be used to see the redshift value. Current theory considers celestial object redshift is the shifting of its spectral features to longer wavelengths primarily because of the combination of Doppler motions or the general expansion of the Universe (Doppler, C. J. 1842, 1846; Marmet, P. et al., 1988, etc.)

But other reasons also can cause the non-Doppler redshift (Hogg, D.W. et al, Oct 2002) Refer to K correction, if a Sun-like spectrum had a redshift of $z = 1$, the light intensity will be reduced in the filter by a factor of two (i.e., $1+z$). The filters used in photometry will cause an increase of the redshift value (Hogg, D.W. et al, Oct 2002) which means a decrease of the incoming photons will increase the redshift value.

If the Universe did expand then we should be able to see some observable celestial objects disappear and become Hidden Celestial Objects (HCO). (Wu, Y. and Wu, J., 2015), If there are no such regular disappeared celestial objects, then it is not so convincing to say the Universe is expanding.

6. Discussion

One Atom BBT invented by Father Lemaître has been dominating the contempary cosmic academy for many years. But the world created by explosion of one atom obviously is not science. So, it is theology. On the one hand, Father Lemaître's theology needs science to embolden his mythological theory of arbitrarily guessing the way God created the world; on the other hand, the cosmology community, which is poor in academic thought, needs imagination and support from theology. Thus, theology, astronomy and cosmology began to be bound together.

On one side, Hubble–Lemaître Law naming tells us the science borrow the theology to support itself is ruining the science itself. On the other side, using science to support a theology is not hornor the religion, but blasphemy God. If the supporting science is proved to be wrong, it blasphemes God. (Wu, Y. and Wu, J. 2023).

That is why correctly understand the Hubble's law is important for us to correctly understand the Universe.

7. Conclusion

We proved the Hubble’s law does not support one atom Big Bang theory. And we identified the velocities of the constant light speed suggested by Einstein from the **Observed Image** (**OI**) of a celestial body.

Observer-distance effect is an important factor in analyzing the cosmic observing results. By sorting the light speed of a celestial object C into two categories, 1) speed of a photon and 2) observed speed of photon batches, gave us the reasonable theoretical explanations to define and calculate the Velocity of Observed Image V_{OI}, which is the real “light image speed of a celestial object C.”

V_{OI} also explained the Observer-Distance caused redshift of OI. This Observer-Distance redshift is different from Doppler redshift. This redshift can be measured from very near celestial objects like the Sun. It also can explain current observed redshift data. Most important, this new method for calculating the cosmic redshift does not require the observed galaxies receding away from the observe, and need not the primise of space expanding, thus no need the Big Bang Theory.

As the author’s resorce limited him from the related practical observation to verify the theory, and go in deeper research, starting from research of the fuction of the telescope filter would be a good way to further proof the theory suggested in this paper.

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