Redo Red Shifts To Fix Cosmology

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This presentation uses material in the author's book titled

Observing Our Universe

This presentation provides a simple explanation for the red shift measurements which resulted in such preposterous theories like a big bang and even an expanding fabric of "space" in the universe.

We observe the light coming from distant stars and galaxies.

Visible light actually has many frequencies. Some are visible as colors, from red to violet.

We know sunlight has ultraviolet, but our eyes cannot see that frequency.

Sunlight also has infrared, but our eyes cannot see that infrared frequency either. However, we can feel infrared as heat.
With no air, the Sun would be white, but the air makes it appear yellow.

A rainbow or prism can spread out the colors in sun light.

This distribution of all the colors in the light is called a spectrum.

Light can be measured as either a frequency or a wave length.

A spectrogram (the graph of a spectrum) usually shows a wave length.

In cosmology, a specific wave length value is important.

The word frequency is for ranges of wave lengths like when saying "radio frequencies."

A spectrum provides information in the light from the stars and galaxies.

For example: The light from a star reveals its surface temperature.

We classify a star by its measured temperature.

The spectrum from a galaxy also reveals atoms in the line of sight.

Each atom can cause a line in the spectrum.

This is called an absorption line because the atom absorbed that wave length energy, taking it out of the spectrum.

If the line has moved from where it should be then this is called a shift and it can shift toward either red (longer wavelength) or blue (shorter wave length).

A red shift measurement in a spectrum is the basis for a galaxy's velocity **and** its distance.

If this simple red shift measurement has been done wrong, then **that** mistake affects **everything** based on its value.


Andromeda Galaxy or M31 from Wikipedia

This is our nearest large spiral galaxy and it is actually similar to our own Milky Way galaxy.

Astronomers have been getting data about M31 for over 100 years.

Wikipedia's topic for Andromeda Galaxy provides these details:

Redshift z = - 0.001001
(minus sign indicates blueshift)
Helio radial velocity -301 ± 1 km/s
Distance 2.54 ± 0.11 Mly
(778 ± 33 kpc)
Apparent magnitude (V) 3.44

That covers the important data.

One could wonder where those numbers came from.

The 2 critical values are the redshift and distance values.

The distance is obviously very, very far away, but it is known **very** precisely.

This value **must** have required calculations based on certain assumptions.

First,

Let’s consider that velocity value.

Astronomers claim the relative velocity is negative. This negative sign means M31 is moving toward us here on Earth.

If it were positive, then the object is moving away.

This velocity value is also known **very** precisely.
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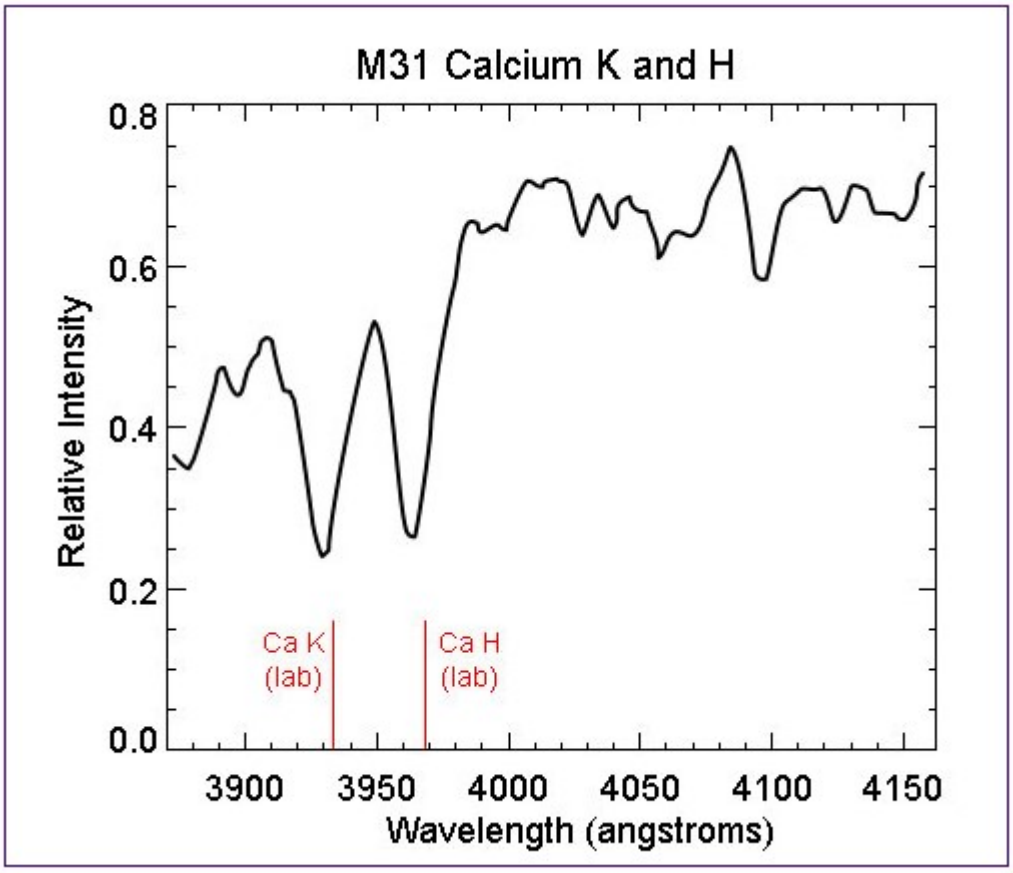
The origin of this velocity can be explained.

Here is the M31 spectrogram from a NASA web page for educators.



The spectrogram shows the intensity for the range of measured wave lengths in the light from M31.

The wave length values are along the bottom scale. The vertical scale has the relative intensity for each wavelength.

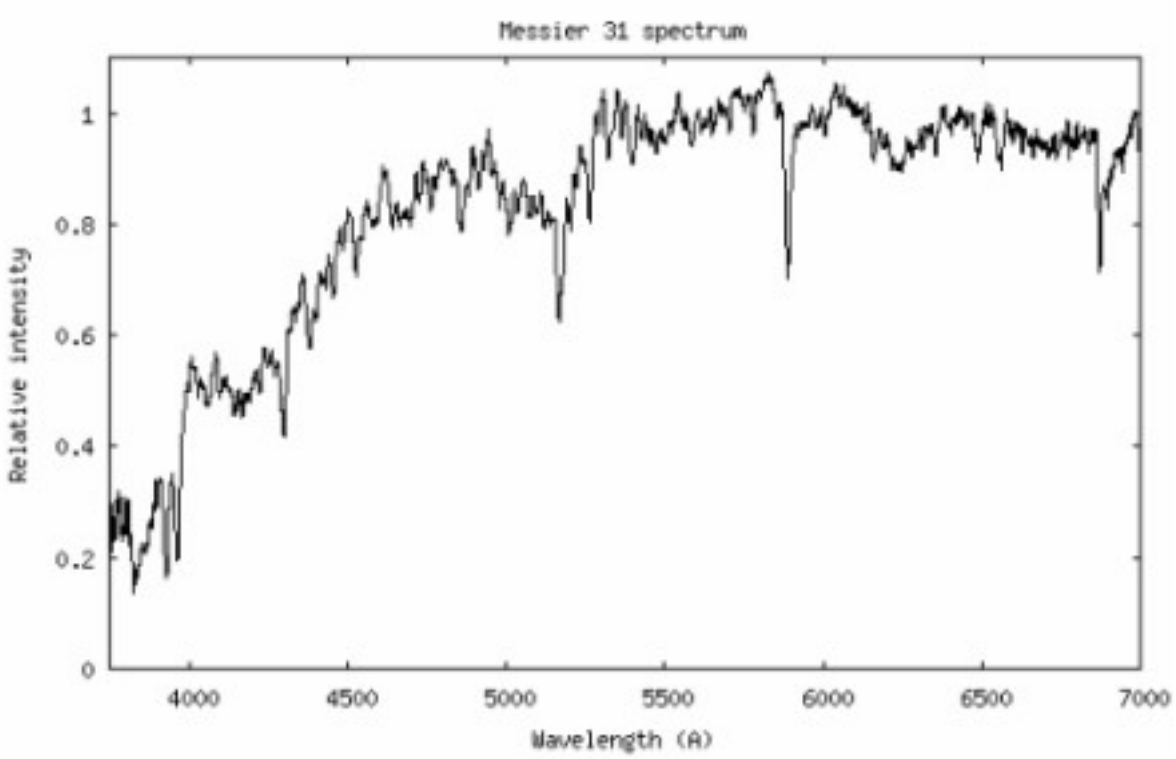
We look for the deviations below the normal intensity.

The image marks the 2 absorption lines from a calcium ion, which are at the left.

An astronomer in France posted a more detailed spectrogram than NASA offers.

His light capture was a slice of the M31 galactic corona.

Here is that spectrogram.



This detail reveals the origin of the blue shift velocity. The calcium ions are are showing their presence by their absorption lines.

These calcium atoms are in our line of sight to the M31 galactic corona which is radiating this broad range of frequencies.

An astronomer calculated the change in wave length from the laboratory value to the measured value,

The result was shown as z with that negative value.

The wave length change results in the z value having no units.

Wikipedia has also provided a velocity for this z value.

The book explains why this velocity is valid.

The kinetic energy of the ion is involved during the process of the ion absorbing the light to execute a change in its internal energy state.

The z value and its velocity value appear correct.

However, they **cannot** apply to M31, which is the light source **behind** these moving atoms.

On the back cover of the book is this statement:

We are observing our Universe with only one view, from on or near our Earth.

The result is an illusion of everything as moving away.

Explaining the illusion of galaxy red shifts will follow this beginning with a blue shift.

In the case of M31, we have the illusion **this** galaxy is moving **toward** us.

This velocity of the calcium ions is similar to the velocity of calcium ions moving away from the solar corona, in a rough range of 200 to 400 km/s.

These calcium ions in motion are **not** in a very tight beam pointed directly at Earth from M31!

They will be moving away from M31 in all directions from m31, just like the ions moving away from the Sun in our solar corona.

This is the line of sight problem noted in the book.

Consider if we could observe M31 but from the opposite direction, which would have M31 in the foreground and our Earth in the background.

From this line of sight, M31 still has its same blue shift, and is apparently Approaching us, at our new viewing location.

As a result, **now** M31 appears to be moving away from Earth, which is far behind M31.

Therefore, our line of sight determines the M31 direction of motion.
It is impossible to claim the blue shift of the calcium ions is an accurate measurement of the M31 proper motion, but it is not a 3-dimensional velocity, and it depends on a particular line of sight.
Even if someone claims this ion's velocity matches the velocity of M31, there is another complication.

The blue shift is only in the line of sight.

It is impossible for an absorption line to indicate a tangential velocity.

Therefore, the correct 3-dimensional velocity for M31, not just in relation to Earth is impossible to determine from just the Doppler Effect.
The book explains there can be other reliable methods, but a Doppler effect is not one.

Next,

We consider galaxy red shifts, which is the crucial mistake in cosmology.

The M31 blue shift mistake becomes trivial.

However, M31 provided descriptions which will also apply to other galaxies.

The M31 distance calculation will follow with galaxy red shifts.

Messier 87 or M87 is a giant elliptical galaxy in a nearby galaxy cluster.

M87 from Wikipedia
M87 became a world famous galaxy in April, 2020, when an array of radio telescopes created an image of an object in the core of that galaxy.
That torus-shaped object in the image is a separate topic.

The M87 data will be used for explaining a galaxy red shift.

Wikipedia's topic for Messier 87 provides these details:

Redshift 0.00428
Helio radial velocity 1284 km/s
Distance 16.4 ± 0.5 Mpc (53.5 ± 1.6 Mly)
Apparent magnitude (V) 8.79

Just like with M31, the 2 crucial values are the redshift and distance values.

One could wonder where those M87 numbers came from.

Unlike M31, M87 has a positive z value so this red shift indicates M87 is moving away from Earth.

M31 has a public spectrogram available, but M87 does not.
In the process of that core imaging, there are public spectrograms but of **only** the core, **not** of the entire galaxy.

As noted in the book, astronomers never make a galaxy spectrum with only a hydrogen red shift available to the public.

In the 1920's, each spectrogram would have been on a sheet of paper and then filed away somewhere.
Astronomers have continued that practice.

However, the book noted in descriptions from long ago, there is a single absorption line in the spectrum for all galaxies beyond our Local Group.
This line has continued to apply to all distant galaxies, even those having a red shift of z greater than 9 times the velocity of light (clearly a mistake).
The change in that single absorption line is used for nearly all galaxy velocity and distance data.
The book cited those high red shift galaxy studies.

There is an accepted method for calculating a galaxy distance but it requires that galaxy has a Cepheid variable star with a known standard for its luminosity curve.

Using a simple dimming by distance calculation, the distance to a galaxy having a Cepheid can be calculated.
A Cepheid was used for the M31 distance calculation.

Hydrogen is the only element with a single electron so it is the only element with a single absorption line.

Perhaps this lack of publication is acceptable when the spectrogram has only a single absorption line.

Using the z value, one could calculate the observed absorption line wave lengthbut it is not needed here.

It is very important to note a galaxy red shift is measured as a change in the hydrogen absorption line.

This is absolutely NOT a velocity measurement. It is a ratio having no units.

If astronomers recorded their correct data as just a z value, then there would be no fictitious velocity for every galaxy.
The red shift caused by the inter-galactic medium affecting this measurement.

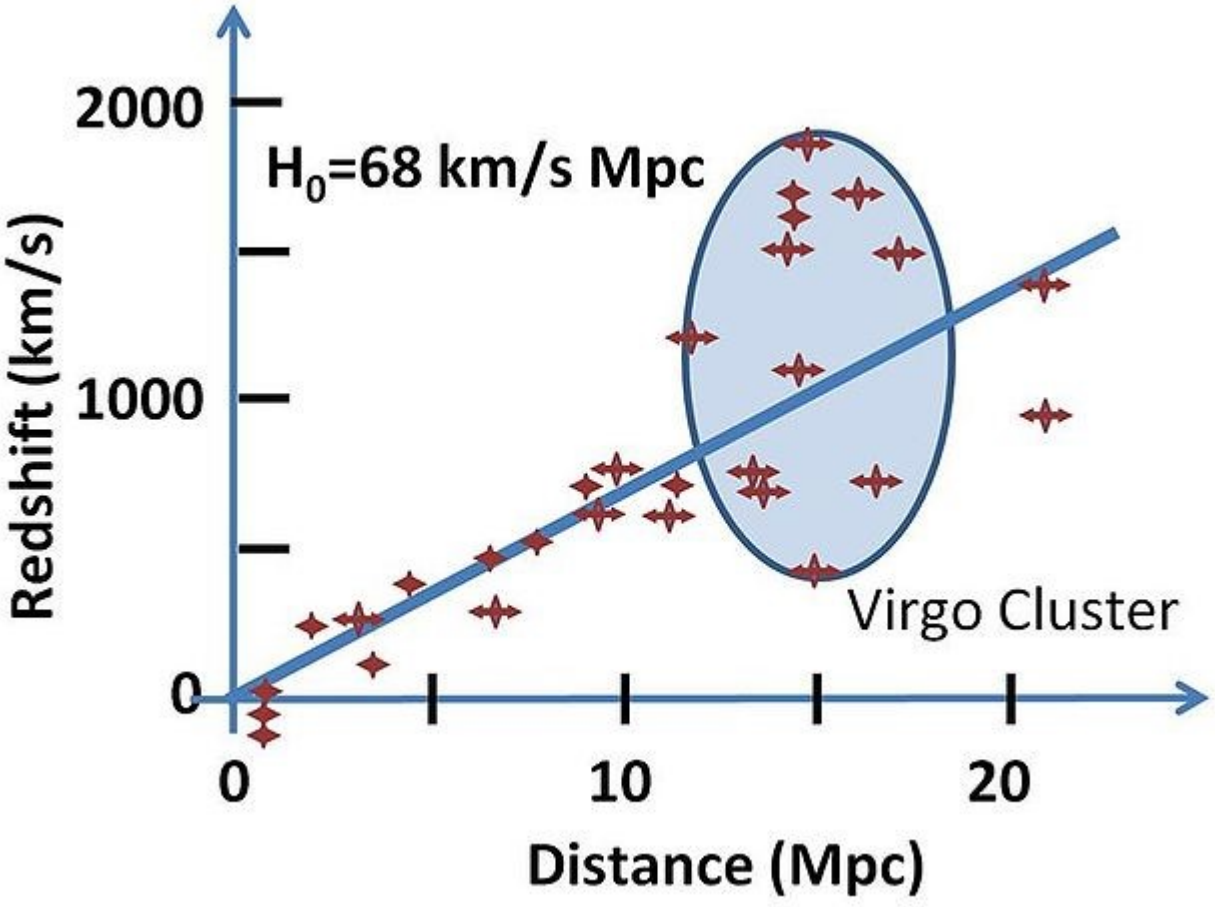
My book provides an extensive description of how this absorption line is driven by hydrogen atoms in the inter-galactic medium(IGM).

Cepheid stars are nearly always in the arms of a spiral galaxy.
M87 is an elliptical galaxy.

Hubble's Constant is actually an indicator for the amount of of hydrogen in the IGM in the line of sight.

From Wikipedia, the following graph is the spread of this incorrectly named Hubble's constant.
Its value can vary around the universe.

At some time in the 1920's, the vertical scale was the z red shift value, not a velocity.



M87 has a velocity and a distance,

Their relationship for M87 is 1284 / 16.4 which is about 78 km/s / Mpc.

Note:
This is **NOT** the value at the top of the graph which shows 68.

Calculated distances using the red shift velocity with Hubble's constant are not reliable, because the IGM is not consistent.

The M87 relative velocity is unreliable for 2 simple reasons.

First,
This red shift is driven by the inter-galactic medium in the line of sight to this galaxy, so that value is definitely **not** the proper velocity of the galaxy.
Second,
This red shift is only in the line of sight.

M87 could have a velocity tangential to our line of sight but that **other** value cannot be measured this way.

There is another crucial observation here.

The IGM factor should **not** be in units of km/s / Mpc. It should be z / Mpc

For M87, the IGM factor is 0.00428 / 16.4

The galaxy red shift measurement is always a z value, **never** a velocity. The velocity value comes from a wrong assumption.

This mistake of treating a galaxy z value as a velocity is the direct cause of the false universe expansion.

The velocity value is wrong for a galaxy, even if the z value is a correct calculation of a wave length change.

When using only red shifts, it is impossible to be sure of galaxy velocities and distances.

This conclusion means there is **no** justification for the false universe expansion **and** for its related mistake, the big bang which is a ridiculous, creation, science fiction story.

Currently, the galaxy red shifts make everything appear as moving directly away from Earth.

None of them actually has a valid velocity.

None of those distant galaxies was checked for transverse motion.

However, separate Studies in 2006 and 2008 used images from both the Hubble Space Telescope and the Gaia space probe to check the 2 closest galaxies, the 2 Magellanic Clouds.

Both galaxies have a red shift indicating both are moving directly away.

The studies of collections of stars in both galaxies concluded both sets appear to be moving **sideways** to our line of sight, **not** away.

This demonstrates the mistake with red shifts which can never indicate a transverse velocity.

This check of only the 2 closest galaxies confirms cosmology must redo all the data associated with red shifts.

Quasars have a different red shift problem than galaxies.

Here is a “typical spectrum of a quasar” according to Caltech.

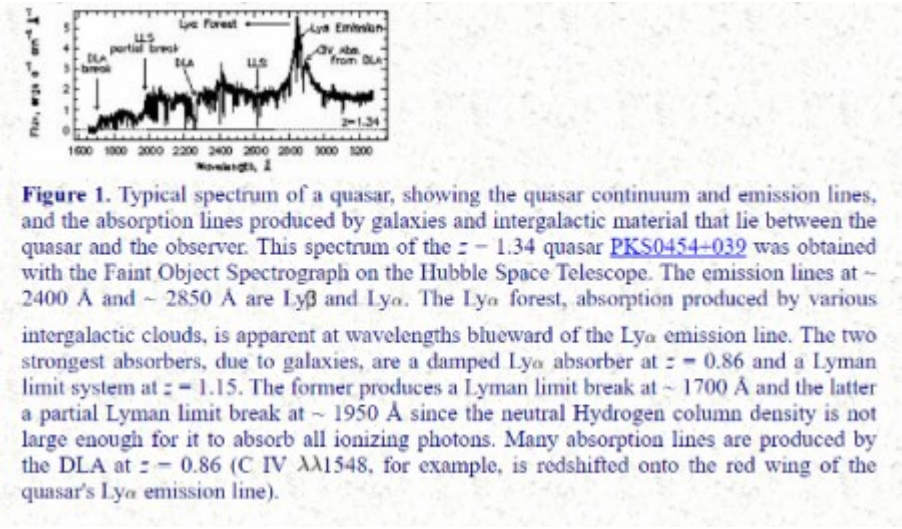


Figure 1. Typical spectrum of a quasar, showing the quasar continuum and emission lines, and the absorption lines produced by galaxies and intergalactic material that lie between the quasar and the observer. This spectrum of the $z = 1.34$ quasar PKS0454+039 was obtained with the Faint Object Spectrograph on the Hubble Space Telescope. The emission lines at ~ 2400 Å and ~ 2850 Å are Lyβ and Lyα. The Lyα forest, absorption produced by various intergalactic clouds, is apparent at wavelengths blueward of the Lyα emission line. The two strongest absorbers, due to galaxies, are a damped Lyα absorber at $z = 0.86$ and a Lyman limit system at $z = 1.15$. The former produces a Lyman limit break at ~ 1700 Å and the latter a partial Lyman limit break at ~ 1950 Å since the neutral Hydrogen column density is not large enough for it to absorb all ionizing photons. Many absorption lines are produced by the DLA at $z = 0.86$ (C IV λλ1548, for example, is redshifted onto the red wing of the quasar's Lyα emission line).

A typical quasar is surrounded by clouds of atoms; many are ions.

Those atoms result in the many absorption and emission lines. An emission line results when an ion captures an electron.

The spectrogram identifies the wave length with the highest intensity.

This is the Lyman-alpha line which is generated when a proton captures an electron and becomes a hydrogen atom. The red shift of this line is driven by the velocity of the proton at that instant.

None of the lines in this spectrogram indicate anything about the quasar’s velocity or its distance from Earth. It is impossible to determine either value from a quasar spectrum.

Note:

The figure states the quasar red shift is z = 1.34, or faster than the velocity of light.

That z value came from the proton, **not** the quasar.

Quasars do not have Cepheids so no distance metric is available for them.

All the current astronomical data, for galaxies and quasars, derived from red shifts are wrong.

I have a web site about cosmology, www.cosmologyview.com