

# Everything That Is Wrong with Cosmology

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## Abstract

This study conclusively disproves big bang theory, Hubble's law, general relativity, dark matter theory, and gravitational wave theory

## Keywords

Cosmology; Astrophysics; Universe; Big Bang; Hubble's Law; General Relativity; Dark Matter; Gravitational Waves

## The Redshift Blunder

In 1915, astronomer Vesto Slipher observed that light from some spiral nebulae is redshifted and falsely presumed he was witnessing a light source rapidly moving away from the observer and somehow stretching the wavelength of light it emits [1]. Slipher did not understand how light attenuates and mistakenly believed he was witnessing a Doppler effect [2].

Redshift and Doppler are two fundamentally different phenomena. Redshift applies to light. Doppler applies to sound. In redshift there is an actual increase in wavelength. In Doppler there is only the illusion of a change in wavelength. To presume that they are the same Doppler-redshift is rather like referring to a line in geometry as a straight-curve [2].

Light waves are transverse (i.e., oscillate perpendicular to their path) and do not require any medium through which to travel. Sound waves are longitudinal (i.e., vibrate parallel to their path) and can only propagate by compression and rarefaction of the medium through which they travel (e.g., air, water, solids) [2].

The farther light travels, the greater the degree to which its frequency slowly diminishes as its wavelength correspondingly increases. We observe this phenomenon as a *redshift*, i.e., the tendency of light to drop toward the red end of the spectrum. The degree of redshift is a function of two variables only: (1) temperature of the light source, and (2) distance from source to the observer [10].

A star with a surface temperature of 12,000° C emits light in the blue end of the spectrum, and one with a surface temperature of 3,000° C emits light in the red end of the spectrum. If both such stars are the same distance from Earth, the frequency of light we receive from them will have diminished by an equal amount. Depending on the distance travelled, however, the light from the 12,000° C star could still be in the blue range of the spectrum by the time we receive it [10].

For over 100 years, astrophysicists have ignored frequency at source. They falsely assume galaxies are in motion and mistakenly believe that redshift indicates velocity of motion. This is the logical error of circular reasoning, i.e., including the

conclusion in the assumption, then using the assumption to prove the conclusion.

## There is No Blueshift

Light from the following nebulae in the 700 to 5,000 light-year range is predominantly blue at source: Helix NGC7293, Iris NGC7023, and Swan's Crescent NGC6888. Supernovae SN1885A and SN1986J (in Andromeda); SN1994D and SN2007bi (in Virgo); and SN1987A (in the large Magellan Cloud) emit intense blue and violet light that by the time it reaches us has been redshifted from its very high frequency at source but still appears to us to be in the blue range of the spectrum [12].

Light attenuates, meaning that over extreme distances its frequency slowly diminishes as its wavelength correspondingly increases. We observe this phenomenon as a *redshift*, i.e., the tendency of visible light to drop toward the red end of the spectrum. If the source emits light in the blue end of the spectrum, it will have redshifted but could still be in the blue range by the time we receive it. There is no such thing as a "blueshift" whereby wavelength shortens and frequency increases. All light is redshifted. Light cannot behave in any other way [2].

There is no blueshift. There are no galaxies rushing toward us. We are not on a collision course with Andromeda.

## Disproof of General Relativity

In 1915, Einstein developed *general relativity*, the geometric theory of gravitation that is the current description of gravity in modern physics. Einstein proposed that gravity is the result of a geometric distortion of four-dimensional spacetime by massive objects. The more mass that produces gravity in a body, the more distortion results. This presumed distortion allegedly changes the trajectories of objects moving through space and even the paths of light rays as they pass close by massive objects. Supposedly, massive objects bend the space around them, causing other objects to deviate from the straight lines they otherwise would have followed [3].

The 4-D spacetime model upon which general relativity is based is a mathematical fiction. Spacetime does not exist, does not curve, and does not interact with gravity [4].

Time measures the changing positions of objects and sequences of events that occur within space. Time is thus an abstract (nonphysical) measurement within the 3-D. Time cannot be extracted from space and projected onto a fourth supposedly physical axis with its own independent set of reference points [4].

Spacetime is the geometric illusion that can be expressed algebraically as  $3D + 0D = 4D$  (where  $D$  = dimension). Geometry is the mathematics which describes the properties and relations of points, lines, surfaces, and the location of objects. Mathematics is an abstract form of measurement and not a physical thing. As such, geometry can neither cause nor be influenced by anything that exists in physical reality. General relativity fails because it falsely presumes that a physical force (gravity) interacts with an abstraction (geometry) that has no physical existence [4].

## Einstein versus Newton

Newton predicted that a light beam passing close by the sun would bend slightly towards it by about 0.93 arcseconds; however, he was not talking about gravity. Newton was an expert in optics, having written the original treatise on this subject in 1704 [5]. He knew that light bends as it passes from air (low density) into water (high density) and surmised that the same thing would happen when light passes from space through the dense photosphere surrounding the sun.

Einstein predicted that a light beam grazing by the sun would bend slightly towards it by about 1.75 arcseconds. Experimental observations from the Solar Eclipse of 1919 suggested that Einstein's prediction was more accurate than Newton's; and because of those measurements, Newtonian gravity was scrapped in favor of general relativity.

The results of the 1919 Solar Eclipse experiment were inconclusive, however. An arcsecond is one 360<sup>th</sup> of a degree, or the angle made by the hypotenuse of a right-angled triangle one inch high and 1.9 miles in length [6]. The difference between Newton's and Einstein's predictions was only 0.82 arcseconds, which tiny variation is statistically insignificant.

Stephen Hawking said of the 1919 deflection results, "*Their measurement had been sheer luck, or a case of knowing the result they wanted to get, not an uncommon occurrence in science*" [7]. The errors in data were as large as the effect they were trying to prove, thus making the results inconclusive. There is no way to know whose prediction was more accurate, Newton's or Einstein's. Neither does it matter because Newton was talking about optics and Einstein was talking about gravity.

Einstein failed to make his case for a geometric theory of gravity. Therefore, Newton's law of universal gravitation still stands. Light has zero mass and is thus unaffected by gravity.

## Hubble's Failed Law

In 1929, Edwin Hubble presented data from star clusters he had studied in order to formulate Hubble's law, which theory is considered the ultimate observational basis for expanding universe theory. From 24 sets of nebulae data, Hubble selected five that demonstrated a perfect straight-line relationship between distance and presumed velocity [8]. Five, however, is a statistically insignificant sample size from which to project

meaningful data about the entire universe.

Hubble falsely presumed redshift to be a measure of velocity away from us. He further misinterpreted redshift data to suggest that galaxies are retreating from us at an accelerating rate [9].

Hubble committed selection bias by omitting data of galaxies from which light appeared to be blue shifted (e.g., Andromeda, M86, M90, M98) [9]. By ignoring data he believed indicated that some galaxies may be heading towards us, Hubble self-disqualified his theory as constituting a *law*. A law in physics permits no exceptions. Newton's universal law of gravitation, for example, does not permit occasional exceptions whereby some objects fall upwards or repel each other.

Hubble used contrived estimates of distance to develop his straight-line relationship between distance and presumed velocity. He imagined Virgo to be 3.4 times closer to us than NASA's measurement indicates – and the other star clusters to range from 12 to 68 times farther away from us than NASA's measurements indicate [9].

Hubble assumed that nebulae are accelerating away from us, then found the mathematics to prove his foregone conclusion. This is the logical error of circular reasoning, i.e., including the conclusion in the assumption, then using the assumption to prove the conclusion.

In 2014, Eric Lerner and a team of astrophysicists measured the surface brightness (per unit area) of over 1,000 near and far galaxies. If galaxies were moving away from each other, they would appear fainter the farther away they get, i.e., their surface brightness would diminish. Lerner's team, however, found that in every case surface brightness remains constant regardless of distance. If any far distant galaxy had been in motion away from us, its surface would have been much less bright than that of nearby galaxies, a phenomenon that has never been observed [10]. Thus, there is zero evidence that galaxies are moving apart and overwhelming evidence that they are not.

One thousand galaxies in the Lerner study is a statistically significant sample size from which to project meaningful data about the entire known universe. It is 200 times the number of galaxies that Hubble included in his biased sample.

The universe is not expanding. Galaxies are in the same position relative to each other that they have always been in.

## The Big Bang Never Happened

In 1927, astronomer Georges LeMaître developed equations which suggested that the universe may be expanding [11]. He initially called his theory the "hypothesis of the primeval atom" and described it as the "cosmic Egg exploding at the moment of Creation." In addition to being an astronomer, LeMaître was also a Catholic priest who felt comfortable with the notion that God had created the atom/egg that subsequently blew up to create the universe. Thus, what later became known as *big bang theory* had its origin in metaphysics.

According to this cosmological model, the universe was created by a big bang explosion/singularity that happened some 13.8 billion years ago. This date was arrived at by working backwards in time from equations that supposedly measure the universe's alleged rate of expansion.

Proposing a big bang or other singularity as cause does not answer the question as to how the universe was created. It

merely raises another question as to how the singularity was created [12].

According to big bang theory, the entire universe began from some tiny point violently exploding out pure energy that almost instantly became particles that eventually combined to form elements, molecules, gases, stars, and galaxies. In other words, the universe allegedly created itself from nothing, a notion that defies physics. Nothing cannot be the cause of something. Aristotle expressed it this way: *“The notion that there could be nothing that preceded something offends reason itself”* [12].

Points are artificial mathematical abstractions used to specify locations on a graph. Points do not in fact exist. Some variations of this theory are vague about what it was that allegedly exploded but suggest it was something that had zero dimensions. This is the same faulty logic. To have zero dimensions is to have zero existence.

The universe is defined as everything that exists. Big bang theory falsely claims that the something which created the universe pre-existed existence – a contradiction in terms [12].

Space is defined as the expanse of the universe beyond Earth’s atmosphere. Space is in the universe; the universe is not in space. Big bang theory falsely claims that the something which created the universe was located somewhere before the concept of location (i.e., in space) existed – a second contradiction in terms [12].

Time is defined as the continuous duration of existence as seen as a series of events. Without existence and events, the concept of time has no meaning. Time is in the universe; the universe is not in time. Big bang theory falsely claims that there was a point in time at which time began – a third contradiction in terms [12].

## Cosmic Microwave Background is Blackbody Radiation

In 1964, cosmic microwave background (CMB) radiation was discovered by radio astronomers Robert Wilson and Arno Penzias [13]. They heard the CMB as a static buzzing sound coming from every part of the sky. Big bang proponents believed the CMB to be an echo of the singularity explosion that had allegedly created the universe.

CMB radiation can be detected by telescope in every direction as a patchy background about 13.4 billion light-years away [14]. This observation is mistakenly believed to be thermal radiation left over from *recombination*, the epoch during which charged electrons and protons supposedly first became bound to form electrically neutral hydrogen atoms, shortly after the alleged big bang. The assumption is that hydrogen, the lightest element, was made exclusively during the big bang and in the general area of its supposed origin. Ionized hydrogen gas, however, permeates the entire universe [15].

From 1989 until 1993, COBE satellite Explorer 66 investigated the cosmic microwave background [16]. Astrophysicists expected to see evidence of directional dependency (anisotropy) that could be traced back to the site of the alleged big bang. That was not what they saw, however. Instead, Explorer 66 measured an isotropic blackbody spectrum with little variation across the sky.

The cosmic microwave background spectrum as measured by the FIRAS instrument on the COBE is the most precisely measured blackbody spectrum in nature. It is impossible to

distinguish the observed data from the theoretical curve [17].

NASA thus confirms that the CMB follows the precise curve for blackbody radiation. A blackbody is an opaque object in space that absorbs radiation of all wavelengths that falls on it. Then, when the blackbody is very hot and at a uniform temperature, it emits its own radiation that is outside the visible spectrum of light. NASA’s measurements indicate that this blackbody curve peaks at 0.3 cm wavelength and 100 GHz frequency, which is at the high end of the microwave spectrum. The blackbodies in question are most probably interstellar dust [15].

The cosmic microwave background is smooth and looks the same in all directions for the same reason a fog looks smooth and uniform in all directions. The CMB thus appears as an electromagnetic fog on optical telescopes and as a static hum on radio telescopes [15].

## Nonexistent Dark Matter

In 1933, Fred Zwicky inferred the existence of *missing mass* (dark matter) when he discovered that the mass of all the stars in the Coma cluster of galaxies provided only about one percent of the mass needed to keep the galaxies from escaping the cluster’s presumed gravitational pull [18]. In 1970, astronomers Vera Rubin and W. Kent Ford supposedly confirmed dark matter’s existence by similar observations, namely that the mass of stars within a typical galaxy is only about 10 percent of that presumed to keep those stars rotating around the galaxy’s center [19].

Dark matter is hypothetical matter that supposedly suffuses the entire universe and fills the dark spaces between stars and galaxies. Dark matter is inferred to exist only because of the presumed gravitational pull it appears to have on visible matter rather than from any intrinsic luminosity [20].

Measurement of its apparent gravitational effects on galaxies suggest that dark matter accounts for about 85% of the matter in the universe and about 25% of its total energy density. Its presence is speculated on the basis of supposed gravitational effects that cannot be explained by accepted theories of gravity unless more matter is present than can be seen. For this reason, dark matter is theorized to be abundant in the universe, having had a strong influence on its structure and supposed evolution [21].

Dark matter is called dark because it does not interact with observable electromagnetic radiation and is undetectable by astronomical instruments. Evidence for hypothetical dark matter comes from calculations supposedly showing that many galaxies would fly apart or would not have formed if they did not contain a large amount of unseen matter [22].

Dark matter cannot be seen by telescopes nor detected by any other means. Light passes through dark matter, which neither emits nor absorbs light nor any other electromagnetic energy. Dark matter does not interact with normal matter and does not participate in nuclear fusion. Dark matter does not have any properties of matter. In fact, dark matter has no properties at all because it is a fiction that does not exist [23].

Dark matter was hypothesized to explain the presumed gravitational effect on galaxies that are supposedly keeping the universe from expanding too quickly. However, the universe is not expanding at all. There is no gravitational force opposing this non-expansion and no need to postulate fictitious dark matter.

## Nonexistent Gravitational Waves

Gravitational waves are alleged disturbances in the curvature of hypothetical spacetime supposedly generated by accelerated masses that propagate as waves outward from their source at the speed of light. They were predicted by Einstein on the basis of his fatally flawed theory of general relativity [24]. Alleged gravitational waves are falsely presumed to transport energy as gravitational radiation.

In 2015, scientists claim to have detected gravitational waves using an extremely sensitive instrument called Laser Interferometer Gravitational Wave Observatory (LIGO) [25]. These presumed gravitational waves appear to have been generated when two black holes crashed into each other. This collision happened 1.3 billion years ago, but evidence of it did not reach Earth until 2015.

LIGO is a large-scale experimental observatory designed to detect presumed cosmic gravitational waves. It consists of two detectors situated 3,000 km apart. Each L-shaped facility has two arms 4 km long positioned at right angles to each other. Lasers are beamed down each arm and bounced back by mirrors. LIGO has two observatories to rule out that a potential gravitational wave signal is not caused by a localized terrestrial disturbance [26].

Laser interferometry is a technique in which light from a single source is split into two beams that travel in different optical paths and are then recombined at a common detector [27]. A minuscule change in light frequency on one of those beams is interpreted as a difference in its optical path length, presumably suggesting that the light source has moved a tiny bit during the time it took to split and recombine the two beams.

In 2015, both LIGO observatories heard what astronomers call a chirp, a sine wave of amplitude 32 Hz lasting for 0.2 of a second. This chirp was a momentary irregularity in electromagnetic radiation measured by both detectors [28].

To presume that hypothetical gravitational waves can be measured by changes in light frequency is to commit the logical error of circular reasoning, i.e., including the conclusion in the assumption, then using the assumption to prove the conclusion. The assumption is that gravitational waves can be detected by tiny changes in electromagnetic radiation. The conclusion is that an electromagnetic chirp proves the existence of gravitational waves.

Gravitational attraction creates an accretion disk of gaseous matter that spirals in toward black holes [29]. Gravitational and frictional forces compress and raise the temperature of the material in this disk, causing the emission of electromagnetic radiation which can be in the X-ray part of the spectrum [30].

When two black holes merge, their accretion disks generate a tiny spike in frictional heat lasting for a fraction of a second. It is this spike in heat that LIGO measured rather than alleged gravitational waves [28].

Frequency at source is a function of temperature. As an example, the temperature of the accretion disk surrounding the super massive black hole at the center of the Milky Way is estimated to be 10,000 °C, causing it to emit X-rays just outside the event horizon. The frequency spike of 32 Hz observed by LIGO represents an increase of less than 0.00000001 percent in X-ray frequencies. What LIGO measured was an insignificant increase in temperature generated by the collision of accretion disks surrounding two black holes [28].

## An Infinite Universe

Either the universe was created by a *big bang* singularity, or it was not. If it was not created at some point in time, then it must be timeless/ageless. There is no third possibility.

There is no need to develop an alternate theory about the origin of the universe. If it did not suddenly pop into existence, then from our frame of reference it must have always been here.

The Hubble Space Telescope creates for us a spherical horizon with radius of about 13.4 billion light-years (Gly). At the perimeter of our horizon is galaxy GN-z11[31].

Suppose there is an advanced civilization in GN-z11 with technology equivalent to ours. We are at the perimeter of their spherical horizon. If we were to draw a graphical representation of our two horizons, the distance from their furthest edge to our furthest opposite edge would be two diameters or 53.6 Gly [32].

Suppose there is another advanced civilization at the farthest edge of GN-z11's horizon. Adding the three connecting horizons gives us an expansive view of three diameters or 80.4 Gly. This process of connecting spherical horizons could go on forever because the universe extends to infinity in every direction [32].

## Conclusions

There was no "big bang". The universe is not expanding. Einstein was wrong about gravity. Dark matter does not exist. Neither do gravitational waves. Galaxies are in the same position relative to each other that they have always been in. The universe is timeless and infinite.

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