Hybrid Redshift Equation, Matching all Redshifts Incorporating Special Relativistic Doppler Effect and Tired Light Correction in a Spinning Universe

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Abstract

We propose a hybrid redshift equation combining the special relativistic Doppler effect with an empirical tired light correction. This formulation allows redshift to be a function of the velocity of a spinning medium in a rotating universe and the accumulated energy loss due to photon interaction with that medium. The model provides a modified redshift relation that may describe observations beyond standard cosmological expansion and relativistic effects. This paper presents a model that predicts the redshifts as well as measured values, but without adjustments by dark energy, dark matter or comoving distances. There is only one parameter. It is the fraction of time since emission of the light. The parameter also adjusts for a small factor of tired light of the universe. The assumption is that light hits an object moving at the speed of light. The model of the universe is spheres made out of spheres. The model is called "Sempiternal Steady State Spinning Sphere Theory", aframework unifying particle masses via vacancy defects in cuboctahedral packing of a granular universe. The model proposes an eternal spinning sphere universe (radius 3.018 billion light-years, mass $\sim 1.636 \times 10^{54}$ kg) with continuous matter creation and destruction, driven by both attractive and repulsive gravity dynamics. . A redshift comparison table validates the model against measured values of redshift, suggesting resolution to the Hubble tension due to assumptions from a steady state universe verses a big bang universe. There are two graphs, the first showing how accurately the model predicts redshift vs actual data using the LambdaCDM model. The second showing that the Lambda CDM model has very unusual curve that would require tremendous changes of energy and force in the universe inexplicably. This paper predicts an attenuation constant of about 3.14, for whatever causes the attenuation of the redshift.

1 One parameter, look back time over total light travel time models redshift

This paper uses the following equation to predict redshift, wher b is the fraction of lookback time over the 13.8 billion light years.

$$z = \left(\left[\frac{1+b}{1-b} \right]^{0.5} \right) e^{\frac{b^3}{3.14}} - 1$$

The Sempiternal Steady State Spinning Sphere Theory posits that spacetime is granular, composed of Planck Spinning Spheres arranged in a cuboctahedral lattice with vacancy defects driving particle masses. It is the Planck Spinning Spheres, with the edge spinning at the speed of light that make the one parameter model work.

The parameter is how far something has traveled since it was emitted from the source divided by the maximum amount of distance light can travel in the universe. The maximum amount of time light can travel in the universe is what we calculate with the big bang model to be the age of the universe. But is actually the maximum amount of time light can travel. For example, galaxy A1689-zD1's light was emitted 13 billion years ago and is calculated to have a red shift of 7.6 The calculation for column c is 13.11 billion years with a redshift of 6.86. Practically identical. Each example shows the model remarkably predicts redshift with one parameter throughout the universe. It is likely redshift will behave differently before recombination. I believe this model works because the light from the universe, when it is absorbed, is absorbed into a smaller dimension of a universe that is granular. It is a universe that is a sphere made of spheres. These are called Planck Spheres in this model, and the Planck Spheres, just like the universe it self is moving at the speed of light at its edge. This model also includes a component adjusting for light attenuation and volume of universe after the light was emitted. The first table shows how well Equation 1 predicts the redshift compared to the Lambda CDM model. The second table showing that Equation 1 predicts a

redshift curve that is much more linear making it look like LambdaCDM predicts enormous fluctuations in force and energy levels, that may not be there at all. Equation 1 shows that a Spinning universe, with a continuous medium, made of spheres with a continuous medium makes a better and more simple prediction for redshift than the big bang theory. This redshift does not have to use dark energy, dark matter, or comoving distances to predict redshift in the galaxy. Redshift measurements in astrophysics have traditionally been explained through two primary mechanisms: Doppler shift due to relative motion and cosmological redshift due to the expansion of space. However, alternative or additional contributions to redshift—such as tired light models—have occasionally been considered, especially to explain anomalies or observations at very high redshifts.

We present a redshift equation that integrates a special relativistic Doppler shift with an exponential correction term motivated by a tired light mechanism. This correction term depends nonlinearly on the velocity of a spinning medium in a rotating universe through which light is propagating.

2 Velocity Parameter Definition

Let the parameter be defined as:

$$b = 1 - \frac{v}{c}$$

where is the velocity of the spinning medium in the rotating universe relative to the light source, and is the speed of light.

3 Redshift Equation

The total redshift is modeled as the product of two factors:

$$z = \left(\frac{1+b}{1-b}\right)^{1/2} \cdot e^{b^3/\pi} - 1$$

1. The special relativistic Doppler effect
2. An exponential tired light correction

4 Interpretation of Terms

Relativistic Doppler Term:

$$z_{\text{Doppler}} = \left(\frac{1+b}{1-b}\right)^{1/2} - 1$$

This term is derived from special relativity and accounts for redshift due to the velocity of the spinning medium.

Tired Light Correction:

$$z_{\text{tired}} = e^{b^3/\pi}$$

The exponential correction introduces an empirical form for photon energy degradation due to cumulative interaction with the spinning medium. The use of indicates a nonlinear coupling mechanism, and division by 3.14 suggests a geometric or packing-related origin.

Hence, when , the medium is spinning inward at near-light speed (), and when , the medium is nearly stationary with respect to the source.

The following is a graph of the equation in section 3 for redshift using this model verses actual redshift data using the Lambda CDM model

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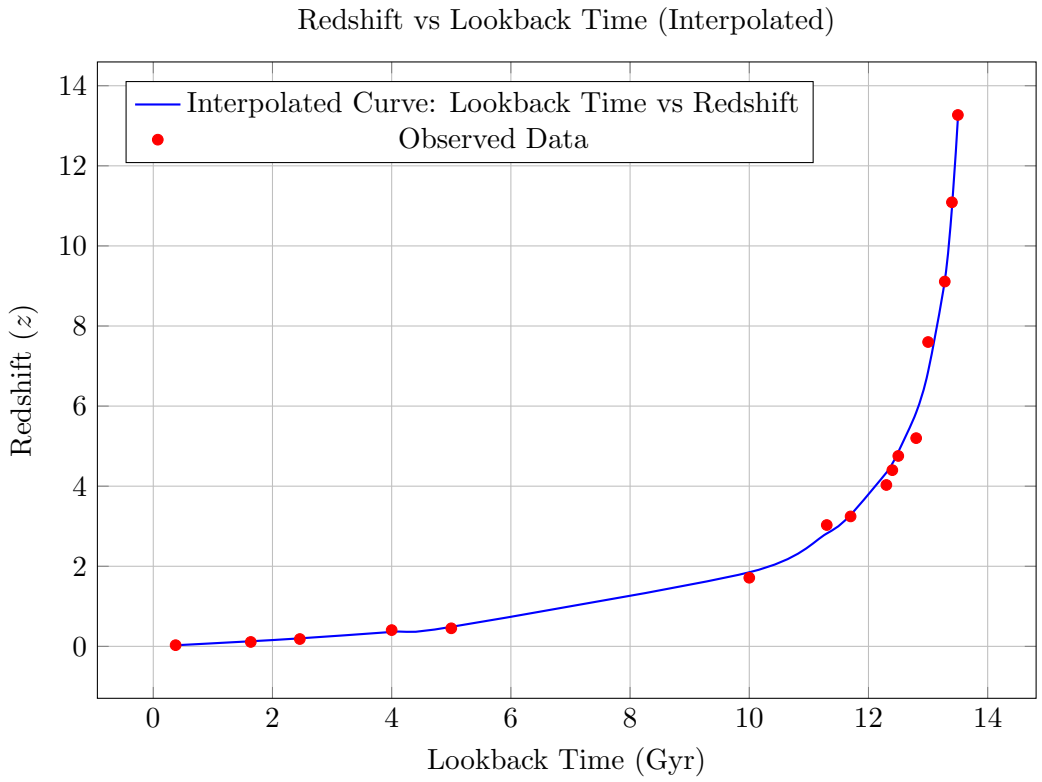

1	2	3	4	5	6	7	
fraction	time	time since	Light	Galaxy	galaxy	Z for	
since	frac	light	attenuated		emitted	galaxy	
light was	tion	emitted	red		light		
emitted	emitted	Gyears	shift		Gyears		
a	b	c	z	e	f	g	
0.020	0.980	13.4946	13.187	HD-1	13.5	13.27	
0.027	0.973	13.3982	10.94	GN-Z11	13.4	11.09	
0.036	0.964	13.2743	9.13	MACS1149-JD1 (JD1)	13.28	9.11	
0.056	0.944	12.9989	6.86	A1689-zD1	13.0	7.6	
0.070	0.930	12.8061	5.84	Zhulong	12.8	5.2	
0.092	0.908	12.5032	4.86	Aless-073.1	12.5	4.755	
0.099	0.901	12.4068	4.57	BRI 1335-0417	12.4	4.4	
0.107	0.893	12.2966	4.34	A2744-GDSp-z4	12.3	4.03	
0.150	0.850	11.7045	3.29	Big Wheel Galaxy	11.7	3.245	
0.179	0.821	11.3052	2.82	CEERS-2112	11.3	3.03	
0.274	0.726	9.9970	1.85	Mingus	10.0	1.713	
0.637	0.363	4.9985	0.487	RX J1347.5–1145	5.0	0.451	
0.709	0.291	4.0071	0.36	CL 0939+4713	4.0	0.406	
0.821	0.179	2.4648	0.2	Abell 1689	2.459	0.1832	
0.881	0.119	1.6386	0.128	FRB 180814.J0422+73	1.636	0.11	
0.973	0.027	0.3718	0.0274	NGC 368	0.375	0.02963	

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5 Explanation of Table

Column 2 is 1 minus column 1, column 3 is the distance light travels through the universe, 13.8 billion light years multiplied by column 1, column 4 if the first rough estimate of the redshift. It is square root of (1+column 2)/(1-

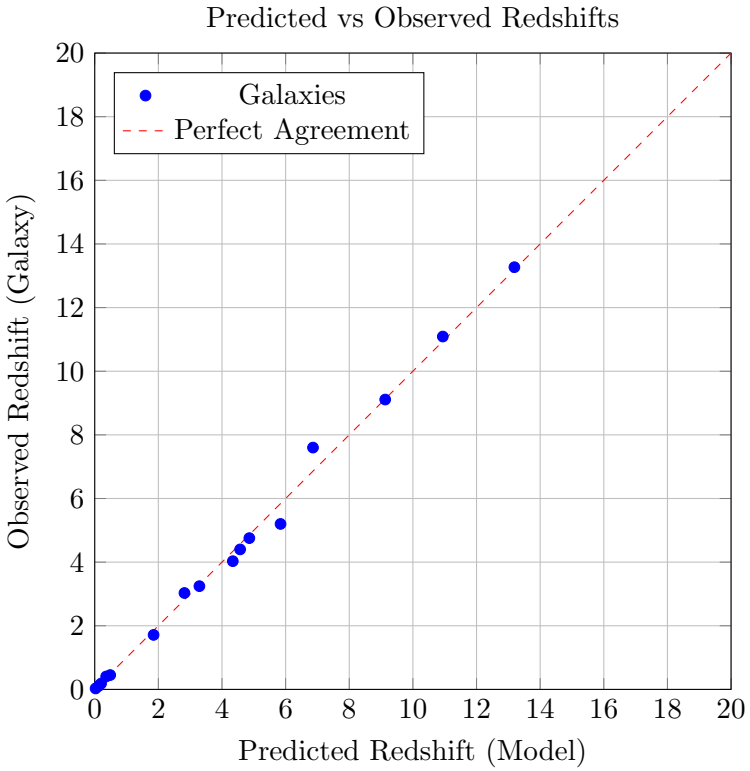

Figure 1: Comparison of predicted redshifts using custom model versus observed galaxy redshifts.

column 2) or radial redshift, Column 5 is red shift adjusted for light attenuation, column 6 is redshift adjusted for volume. Column 7 is a random galaxy to compare calculations in column 6 to real redshifts, column 8 is the time since red shifted light was emitted, and column 9 is actual redshift to compare to model redshift. Rows are removed for brevity and to provide the table on one page. Section 3's equation is used for calculating the redshift, column z, which is also column 4 in the table. are the equations for calculating the columns. The attenuation constant is 3.14 empirically.

6 Equation

Equation for calculating redshift throughout the universe.

$$z = \left(\left[\frac{1+b}{1-b} \right]^{0.5} \right) e^{\frac{b^3}{3.14}} - 1$$

7 Discussion and Conclusion

8 Possible Physical Motivation

- The exponential tired light term could result from photon interactions with a dense or structured spinning medium that causes cumulative energy loss.
- The cubic dependence on implies higher-order effects, such as third-order scattering, geometric compression, or velocity-dependent refractive index shifts.

- The appearance of 3.14 hints at a spherical symmetry or packing geometry (e.g., Planck sphere interactions in a spinning universe).

9 Applications and Future Work

This hybrid equation could be tested against observational data, particularly for high-redshift objects where conventional models show tension. The model invites future exploration into the physical basis of the exponential term, including geometric, quantum, or medium-based explanations within the context of a rotating universe.

We have presented a redshift formula derived from a relativistic and tired-light hybrid perspective in the context of a spinning universe. This formulation introduces a nonlinear energy-loss term to supplement standard redshift calculations and provides a basis for extending redshift interpretation in alternative cosmological models.

This model predicts z values for redshift that are remarkably close to measured values and for near, intermediate, and farthest galaxies. What is different about this model is that the red shift models seem to be related to attenuation of light. The attenutation constant is about 3.14 It may be that current models may be over predicting attenuation. It also appears there may be some volume involvement in the redshift/z values. Column 2 is assuming that when light travels to us, it goes into the next lower dimension where the light is going from our medium at certain fraction of the speed of light into another lower dimension medium that is moving at the speed of light. The graph shows equation 1 redshift, the dots are actual galaxies. The galaxies not falling on the line are distortions in the lambdaCDM model that are not smoothed out when switching over from ordinary matter, dark matter, and dark energy dominated parts of the universe in the lambda-CDM model. This seems to be something completely ignored or not discussed about the lambda-CDM model.

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