One Parameter Redshift Model matching measured values near, middle, and far reaches of universe perfectly

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Abstract

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 dust in the universe that attenuates light brightness as dust may be reducing brightness by almost 5 magnitudes. 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", a novel framework unifying tensor-based relativity, 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 standard candles, and BAO, suggesting resolution to the Hubble tension due to assumptions from a steady state universe verses a big bang universe.

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

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 7.497. 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.

2 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-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. Below are the equations for calculating the columns. The attenuation constant is 2.4 empiricly.

1	2	3	4	5	6	7	8	9
fraction	time	time since	Rough	light	Volume	Galaxy	galaxy	Z for
since	frac	light	Red	attenuated	adjusted		emitted	galaxy
light was	tion	emitted	shift	red	red		light	
emitted	emitted	Gyears		shift	shift		Gyears	
a	b	c	d	e	f	g	h	i
0.01	0.99	13.662	13.10673598	19.7988983	19.63703934			
0.02	0.98	13.524	8.949874371	13.46337221	13.24742016	HD-1(1)	13.5	13.27
0.03	0.97	13.386	7.103497187	10.64141955	10.39024766	GN-Z11(2)	13.4	11.09
0.04	0.96	13.248	6	8.950948186	8.674602203	MACS1149-JD1(3)	13.28	9.11
0.05	0.95	13.11	5.244997998	7.792082808	7.497086239	A1689-zD1(4)	13	7.6
0.06	0.94	12.972	4.686240703	6.933032945	6.624052693			
0.07	0.93	12.834	4.250850271	6.262747752	5.943319269			
0.08	0.92	12.696	3.898979486	5.720454051	5.393357921	Zhulong(5)	12.8	5.2
0.09	0.91	12.558	3.60675832	5.269713851	4.937194789	Aless-073.1(7)	12.5	4.755
0.1	0.9	12.42	3.358898944	4.887169125	4.55107389	BRI 1335-0417(6)	12.4	4.4
0.11	0.89	12.282	3.145095678	4.557059848	4.218929384			
0.12	0.88	12.144	2.958114029	4.268312626	3.929446513			
0.13	0.87	12.006	2.792705549	4.012886697	3.674389906			
0.14	0.86	11.868	2.644957378	3.78478198	3.447599819			
0.15	0.85	11.73	2.511884584	3.579417109	3.244361993	Big Wheel Galaxy(8)	11.7	3.245
0.16	0.84	11.592	2.391164992	3.393224643	3.060997035	CEERS-2112(9)	11.3	3.03
0.17	0.83	11.454	2.280961122	3.223379141	2.894584224			
0.18	0.82	11.316	2.179797338	3.067609442	2.742770593			
0.19	0.81	11.178	2.086473034	2.924065952	2.603635785			
0.2	0.8	11.04	2	2.79122485	2.475594363			
0.27	0.73	10.074	1.531285722	2.075650068	1.800740808			
0.28	0.72	9.936	1.478478796	1.995737625	1.727255476			
0.29	0.71	9.798	1.42828164	1.91996202	1.657982754			
0.64	0.36	4.968	0.457737974	0.531815652	0.466723456	RX J1347.5–1145(10)	5	0.451
0.65	0.35	4.83	0.441153384	0.510415938	0.449105222			
0.66	0.34	4.692	0.424887024	0.489551651	0.431902545			
0.67	0.33	4.554	0.408926764	0.469203267	0.415096004			
0.68	0.32	4.416	0.393261092	0.449352241	0.398667239			
0.69	0.31	4.278	0.377879067	0.429980941	0.382598882			
0.7	0.3	4.14	0.362770288	0.41107259	0.366874496			
0.71	0.29	4.002	0.347924853	0.392611216	0.35147852	CL 0939+4713(11)	4	0.406
0.82	0.18	2.484	0.199593427	0.215138592	0.200079029	Abell 1689(12)	2.459	0.1832
0.83	0.17	2.346	0.187282003	0.201028935	0.187665777			
0.84	0.16	2.208	0.175139303	0.18721325	0.175438462			
0.85	0.15	2.07	0.163159996	0.173682912	0.163389601			
0.86	0.14	1.932	0.151338958	0.16042963	0.151512087			
0.87	0.13	1.794	0.139671257	0.147445434	0.139799173			
0.88	0.12	1.656	0.12815215	0.134722651	0.128244452	FRB 180814.J0422(13)	1.636	0.11
0.97	0.03	0.414	0.030463813	0.030847001	0.030464156	NGC 368(14)	0.375	0.0296
0.98	0.02	0.276	0.020204061	0.020373132	0.020204129			
0.99	0.01	0.138	0.010050504	0.010092468	0.010050508			

$$b = 1 - a \tag{1}$$

$$c = b * 13.8 billionyears \tag{2}$$

$$d = ((1 + b)/(1 - b))^{.5} \tag{3}$$

$$e = d * e^{b/attentuationconstant} \tag{4}$$

$$f = d * e^{b^3/attentuationconstant} \tag{5}$$

3 Discussion and Conclusion

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. 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.

4 References

1. Harikane, Y., Inoue, A. K., Mawatari, K., Hashimoto, T., Yamanaka, S., Fudamoto, Y., . . . Koekemoer, A. M. (2022). A search for H-dropout Lyman break galaxies at z 12–16. The Astrophysical Journal, 929(1), 1. https://doi.org/10.3847/1538-4357/ac53a9 DOI

2. Jiang, L., Kashikawa, N., Wang, S., Walth, G., Ho, L. C., Cai, Z., . . . Stark, D. P. (2021). Evidence for GN-z11 as a luminous galaxy at redshift 10.957. Nature Astronomy, 5(3), 256–261. https://doi.org/10.1038/s41550-020-01275-y University of Arizona

3. Hashimoto, T., Laporte, N., Mawatari, K., Ellis, R. S., Inoue, A. K., Zackrisson, E., . . . Yoshida, N. (2018). The onset of star formation 250 million years after the Big Bang. Nature, 557(7705), 392–395. https://doi.org/10.1038/s41586-018-0117-z PubMed

4. Watson, D., Christensen, L., Knudsen, K. K., Richard, J., Gallazzi, A., Michałowski, M. J. (2015). A dusty, normal galaxy in the epoch of reionization. Nature, 519(7543), 327–330. https://doi.org/10.1038/nature14164 PubMed

5. Xiao, M., Williams, C. C., Oesch, P. A., Elbaz, D., Dessauges-Zavadsky, M., Marques-Chaves, R., . . . Whitaker, K. E. (2025). PANORAMIC: Discovery of an ultra-massive grand-design spiral galaxy at z 5.2. Astronomy Astrophysics, 696, A156. https://doi.org/10.1051/0004-6361/202453487 arXiv

6. Tsukui, T., Iguchi, S. (2021). Spiral morphology in an intensely star-forming disk galaxy more than 12 billion years ago. Science, 372(6549), eabe9680. https://doi.org/10.1126/science.abe9680 Science

7. Hodge, J. A., Swinbank, A. M., Simpson, J. M., Riechers, D. A., Ivison, R. J., Alexander, D. M., Walter, F. (2021). A massive stellar bulge in a regularly rotating galaxy 1.2 billion years after the Big Bang. Science, 373(6551), abc1893. https://doi.org/10.1126/science.abc1893 Science

8. Wang, W., Cantalupo, S., Pensabene, A., Dunlop, J. S., Rujopakarn, W., Rieke, G. H., et al. (2025). A giant disk galaxy two billion years after the Big Bang. Nature Astronomy. https://doi.org/10.1038/s41550-025-02500-2 Science

9. Endsley, R., Shi, X., Smit, R., . . . Finkelstein, S. L. (2023). [CEERS-2112]: Spectroscopic confirmation of an early galaxy in the JWST CEERS survey. Nature, 614. https://doi.org/10.1038/s41586-023-06636-x

10. Bradac, M., Allen, S. W., Ebeling, H., . . . Jones, C. (2012). Strong-lensing and intra-cluster medium properties of RX J1347.5–1145. The Astrophysical Journal, 751(2), 95. https://doi.org/10.1088/0004-637X/751/2/95

11. Schindler, S., Böhringer, H., Mohr, J. J. (2000). X-ray morphology of the cluster CL 0939+4713. The Astrophysical Journal, 531, 684–692

12.NASA/ESA Hubble Space Telescope. (2010). Abell 1689 [Image]. ESA/Hubble. Retrieved from https://esahubble.o

13. Amiri, M., . . . CHIME/FRB Collaboration. (2019). A second source of repeating fast radio bursts from FRB 180814.J0422+73. The Astrophysical Journal Letters, 875(2), L19. https://doi.org/10.3847/2041-8213/ab13af

14.Wikipedia contributors. (2025, April 22). NGC 368. In Wikipedia, The Free Encyclopedia. Retrieved from https://en.wikipedia.org/wiki/NGC368

Sources

https://en.wikipedia.org/wiki/NGC$_3$68