

Hierarchical Universe without Big Bang

Henry Gu Cao, Zhiliang Cao

Abstract A recently published paper entitled “Unified Field Theory and the Hierarchical Universe” claims that the Big Bang did not create the universe and that the universe has a hierarchical structure. Also, The Black Holes are not “black”. This paper gives two pages explanation.

Keywords: *Unified Field Theory, Theory of Everything, BBT, Astronomy*

1. Introduction

Unified Field Theory (e.g. [1], [2]-[6]) is an important part of this paper.

The Big Bang Theory (BBT) is repudiated by the discovery of Huge Large Quasar Group (e.g. [7], [8]-[17]) (e.g. Fig. 1). The “Non-scattering photon electron interaction” (e.g. [4]) will provide additional support for falsifying BBT (e.g. [18], [19], [20]).

This paper summarizes the recently published “Unified Field Theory and the Hierarchical Universe” (e.g. [6]).

2. Controversial BBT

2.1. Huge-LQG Contradicts BBT

The cosmological principle implies that at sufficiently large scales, the universe is approximately homogeneous. However, the grand structure of Huge-LQG is non-homogeneous.

2.2. Remote Galaxies are Not Far Apart

Another important basis for the Big Bang is that remote galaxies are far apart.

Gravity lensing (e.g. Fig. 2) makes some galaxies clearer, but it makes other Galaxies invisible.

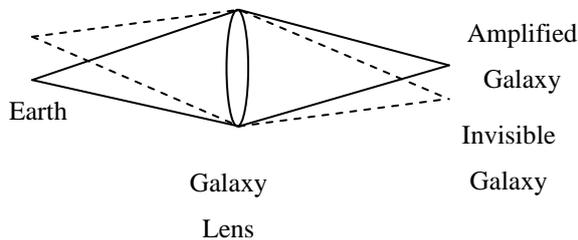


Fig. 2. Optical Illusion of Gravity Lensing

For a remote galaxy, the visibility from earth is inversely proportional to the distance from the earth:

$$A/L \quad (1)$$

Where A is a constant, and L is distance.

The more remote galaxies are, the less likely they are to be seen. The distribution of remote galaxies is same as nearby galaxies, but visible remote galaxies are further

apart. In Huge-LQG, galaxies are not far apart. It supports the our optical illusion claim and effectively falsifies an important BBT claim that remote galaxies are far apart.

2.3. Las Campanas Redshift Survey

Las Campanas Redshift Survey uses photon’s redshift to measure the distance, moving speeds, and distribution of the galaxies. It falsely concludes that the universe has large-scale homogeneity.

The redshift is mainly the result of non-scattering photon electron interactions (e.g. [4]). Therefore, redshift can not be used to explain the movements of the remote stars since electron photon interaction causes a bigger redshift than Doppler effects.

2.4. Hubble Constant

The Hubble Constant uses redshift to derive the relationship between distance and velocity. The velocity of the remote galaxies can not be measured accurately due to possible non-scattering photon electron interaction (e.g. [4]). The distance and speed may not be related to redshift.

3. Black Hole

Can a gravity field of Black Hole trap a photon? In order to trap a photon, the gravity force GMm/R^2 has to be greater than the reactive centrifugal force mC^2/R , or $GMm/R^2 > mC^2/R$. It can be simplified to:

$$GM/RC^2 > 1$$

When mass m enters to gravity field of mass M at radius R, the escape energy GMm/R comes from the energy mC^2 (e.g. [3]). According to the law of energy conservation, the GMm/R cannot be greater than the original mass, or $(GMm/R) < mC^2$. Therefore, gravity cannot trap a photon; otherwise, it will contradict the law of energy conservation. Therefore,

$$GM/RC^2 < 1 \quad (2)$$

4. Hierarchical Universe

A parent Universe is $N (2.1788 \times 10^{60})$ times bigger than child Universe (e.g. [6]) with opposite Torque direction. The following is the Universal Hierarchy under logarithmic scale:

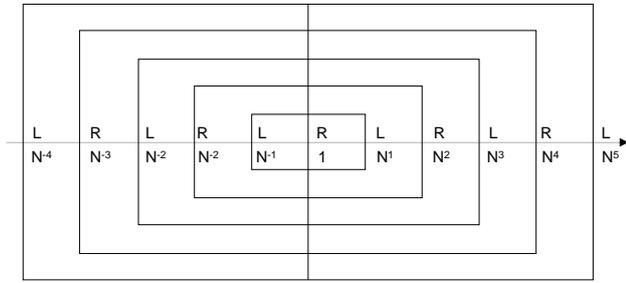


Fig. 3. Hierarchical Universe

R: Right handed twisting Torque Grid
L: Left handed twisting Torque Grid

References

- [1] Cao, Zhiliang, and Henry Gu Cao. "SR Equations without Constant One-Way Speed of Light." *International Journal of Physics* 1.5 (2013): 106-109. <http://pubs.sciepub.com/ijp/1/5/2/index.html>
- [2] Cao, Henry Gu, and Zhiliang Cao. "Drifting Clock and Lunar Cycle." *International Journal of Physics* 1.5 (2013): 121-127. <http://pubs.sciepub.com/ijp/1/5/5/index.html>
- [3] Zhiliang Cao, Henry Gu Cao. *Unified Field Theory*. American Journal of Modern Physics. Vol. 2, No. 6, 2013, pp. 292-298. doi: 10.11648/j.ajmp.20130206.14. <http://article.sciencepublishinggroup.com/pdf/10.11648.j.ajmp.20130206.14.pdf>
- [4] Cao, Zhiliang, and Henry Gu Cao. "Non-Scattering Photon Electron Interaction." *Physics and Materials Chemistry* 1, no. 2 (2013): 9-12. <http://pubs.sciepub.com/pmc/1/2/1/index.html>
- [5] Cao, Zhiliang, and Henry Gu Cao. "Unified Field Theory and the Configuration of Particles." *International Journal of Physics* 1.6 (2013): 151-161. <http://pubs.sciepub.com/ijp/1/6/4/index.html>
- [6] Cao, Zhiliang, and Henry Gu Cao. "Unified Field Theory and the Hierarchical Universe." *International Journal of Physics* 1.6 (2013): 162-170. <http://pubs.sciepub.com/ijp/1/6/5/index.html>
- [7] Aron, Jacob. "Largest structure challenges Einstein's smooth cosmos". *New Scientist*. Retrieved 14 January 2013.
- [8] "Astronomers discover the largest structure in the universe". *Royal astronomical society*. Retrieved 2013-01-13.
- [9] Clowes, Roger; Harris; Raghunathan; Campusano; Soechting; Graham; Kathryn A. Harris, Srinivasan Raghunathan, Luis E. Campusano, Ilona K. Soechting and Matthew J. Graham (2012-01-11). "A structure in the early Universe at $z \sim 1.3$ that exceeds the homogeneity scale of the R-W concordance cosmology". *Monthly notices of the royal astronomical society* 1211 (4): 6256. arXiv:1211.6256. Bibcode:2012arXiv1211.6256C. doi:10.1093/mnras/sts497. Retrieved 14 January 2013.
- [10] "The Largest Structure in Universe Discovered – Quasar Group 4 Billion Light-Years Wide Challenges Current Cosmology". Retrieved 14 January 2013.
- [11] Prostack, Sergio (11 January 2013). "Universe's Largest Structure Discovered". *scinews.com*. Retrieved 15 January 2013.
- [12] Yadav, Jaswant; J. S. Bagla and Nishikanta Khandai (25 February 2010). "Fractal dimension as a measure of the scale of homogeneity". *Monthly notices of the Royal Astronomical Society* 405 (3): 2009–2015. doi:10.1111/j.1365-2966.2010.16612.x. Retrieved 15 January 2013.
- [13] Hogg, D.W. et al., (May 2005) "Cosmic Homogeneity Demonstrated with Luminous Red Galaxies". *The Astrophysical Journal* 624: 54–58. arXiv:astro-ph/0411197. Bibcode:2005ApJ...624...54H. doi:10.1086/429084.
- [14] Scrimgeour, Morag I. et al., (May 2012) "The WiggleZ Dark Energy Survey: the transition to large-scale cosmic homogeneity". *Monthly Notices of the Royal Astronomical Society* 425 (1): 116–134. arXiv:1205.6812. Bibcode: 2012MNRAS.425...116S. doi: 10.1111/j.1365-2966.2012.21402.x.
- [15] Nadathur, Seshadri, (July 2013) "Seeing patterns in noise: gigaparsec-scale 'structures' that do not violate homogeneity". *Monthly Notices of the Royal Astronomical Society in press*. arXiv:1306.1700. Bibcode: 2013MNRAS.tmp.1690N. doi: 10.1093/mnras/stt1028.

- [16] Gott, J. Richard, III et al. (May 2005). "A Map of the Universe". *The Astrophysical Journal* 624 (2): 463–484. arXiv:astro-ph/0310571. Bibcode:2005ApJ...624..463G. doi:10.1086/428890
- [17] Gaité, Jose, Dominguez, Alvaro and Perez-Mercader, Juan (August 1999) "The fractal distribution of galaxies and the transition to homogeneity". *The Astrophysical Journal* 522: L5–L8. arXiv:astro-ph/9812132. Bibcode: 1999ApJ...522L...5G. doi: 10.1086/312204.
- [18] Wollack, E.J. (10 December 2010). "Cosmology: The Study of the Universe". *Universe 101: Big Bang Theory*. NASA. Archived from the original on 14 May 2011. Retrieved 27 April 2011. "The second section discusses the classic tests of the Big Bang theory that make it so compelling as the likely valid description of our universe."
- [19] "Planck reveals an almost perfect universe". *Planck*. ESA. 2013-03-21. Retrieved 2013-03-21.
- [20] Jeffrey Joseph Wolynski, *The Big Bang is Officially Falsified*, <http://vixra.org/pdf/1309.0156v1.pdf>