



The Milky Way Panorama Credit: ESO / S. Brunier

## Newsletter of *A Cosmology Group* - January 2023

### ACG Editorial

In this Newsletter: surprising results (for mainstream cosmologists) from the Webb Telescope, two falsifications of the expanding-universe model, and a falsification of dark matter. Thanks to all who contributed references.

Louis Marmet, January 11, 2023

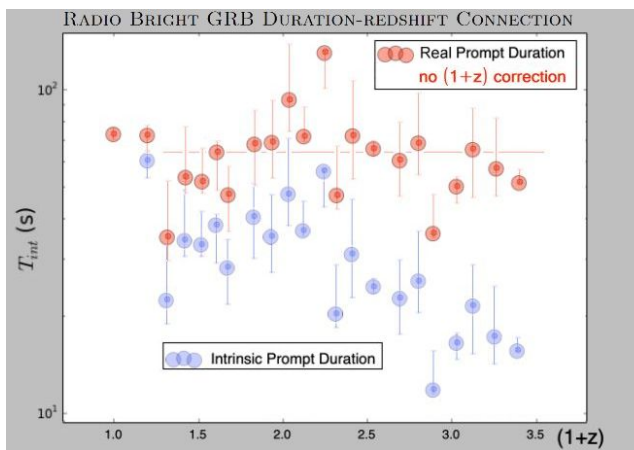
[redshift@cosmology.info](mailto:redshift@cosmology.info)

### Reviewed Publications<sup>1</sup>

#### - Redshift, Hubble parameter, Expansion

Well before Hubble's observations in 1929, C. Wirts saw a relationship between luminosity-distance and redshift. **“Einiges zur Statistik der Radialbewegungen von Spiralnebeln und Kugelsternhaufen”** C. Wirts, *Astronomische Nachrichten* **215** 17, pp. 349–354 (1921-10) doi:10.1002/asna.19212151703. [onlinelibrary.wiley.com/doi/abs/10.1002/asna.19212151703](https://onlinelibrary.wiley.com/doi/abs/10.1002/asna.19212151703) “On the other hand, from the signed averaged values, an approximately linear progression appears, as if the spiral nebulae that are close to us tend to approach, and those that are far move away from our Milky Way system. The small number of statistical members in the Table, however, by no means establishes this fact as surely as chance could make it to be.” (*My translation, with help from ‘Google Translate’.*)

**“On the Anti-Correlation between Duration and Redshift in Gamma-ray Bursts”** N.M. Lloyd-Ronning *et al.* [arxiv:2212.08096](https://arxiv.org/abs/2212.08096) (2022-12-15) “For gamma-ray bursts (GRBs) with durations greater than two seconds, the intrinsic prompt gamma-ray emission appears, on average, to last longer for bursts at lower redshifts.” *If the fudge-factor =  $(z + 1)^{-1}$  is not used, the real duration does not depend on redshift (see graph below). The expanding-universe model is, once again, falsified.*



In red is the duration not corrected for cosmological time dilation. The data points are consistent with a non expanding cosmology.

Adapted from [arXiv:2212.08096](https://arxiv.org/abs/2212.08096)

Figure 1. Intrinsic gamma-ray duration (corrected for cosmological time dilation) as a function of redshift for 376 GRBs with redshift measurements. The data are from Lloyd-Ronning *et al.* (2019b) and binned every 20 GRBs, for clarity.

<sup>1</sup>For all reviews, quoted text is adapted from the original, underlined text is my emphasis, and *italicized text are my comments*.

**“The Pantheon+ Analysis: Cosmological Constraints”** D. Brout *et al.* ApJ **938** 110 [iopscience.iop.org/article/10.3847/1538-4357/ac8e04](https://iopscience.iop.org/article/10.3847/1538-4357/ac8e04) (2022-10-19) “For a flat  $\Lambda$ CDM model, we find  $\Omega_M = 0.334 \pm 0.018$  from SNe Ia alone. For a flat  $w_0$ CDM model, we measure  $w_0 = -0.90 \pm 0.14$  from SNe Ia alone,  $H_0 = 73.5 \pm 1.1$  km/s/Mpc.”

**“The Hubble Tension and Early Dark Energy”** M. Kamionkowski, A.G. Riess [arxiv:2211.04492](https://arxiv.org/abs/2211.04492) (2022-11-8) “Simple theoretical explanations for this ‘Hubble tension’ that are consistent with the majority of the data have been surprisingly hard to come by” (???) “We explain why early-Universe solutions are currently favored.”

## - Microwave [and other] Background

**“The Spectrum of the Universe”** R. Hill *et al.* [arxiv:1802.03694](https://arxiv.org/abs/1802.03694) (2018-2-11) *For discussions on the CMB.*

**“Cosmic Optical Background Excess, Dark Matter, and Line-Intensity Mapping”** J.L. Bernal *et al.* Phys. Rev. Lett. **129** 231301 [journals.aps.org/prl/abstract/10.1103/PhysRevLett.129.231301](https://journals.aps.org/prl/abstract/10.1103/PhysRevLett.129.231301) (2022-11-29) *Dark matter decays? To photons? Shouldn't it decay to 'dark photons' to conserve 'darkness'?*

**“Detection of a bright burst from the repeating FRB 20201124A at 2 GHz”** S. Ikebe *et al.* [arxiv:2211.13835](https://arxiv.org/abs/2211.13835) (2022-11-25) [astrobit.es.org/2022/12/13/frb\\_repeater/](https://astrobit.es.org/2022/12/13/frb_repeater/) “A bright burst of radio waves from another galaxy has thrown a wrench in our understanding of how they’re created!”

**“The CMB cold spot under the lens: ruling out a supervoid interpretation”** S. Owusu *et al.* [arxiv:2211.16139](https://arxiv.org/abs/2211.16139) (2022-11-29) “Anomalies are observed, including the CMB Cold Spot. [...] We rule out the hypothesis that the Cold Spot could be due to a large void located anywhere between us and the surface of last scattering” In Phys.org [phys.org/news/2022-12-supervoid-doesnt-mysterious-cmb-cold.html](https://phys.org/news/2022-12-supervoid-doesnt-mysterious-cmb-cold.html) *The simple alternative explanation, that the CMB is not ‘cosmic’ and not a ‘background’, is not discussed.*

**“A Measurement of the Cosmic Optical Background and Diffuse Galactic Light Scaling from the  $R < 50$  AU New Horizons-LORRI Data”** T. Symons *et al.* [arxiv:2212.07449](https://arxiv.org/abs/2212.07449) (2022-12-14) “This result supports recent determinations that find a factor of 2 – 3× more light than expected from the integrated light from galaxies.”

## - Galaxy and Large-Scale Structure Formation

**“Has JWST already falsified dark-matter-driven galaxy formation?”** M. Haslbauer, P. Kroupa *et al.* [arxiv:2210.14915](https://arxiv.org/abs/2210.14915) (2022-10-26) “Galaxies formed in the  $\Lambda$ CDM paradigm are by more than an order of magnitude less massive in stars than the observed galaxy candidates [GL-z11 and GL-z13]...” *So the answer is ‘yes’.*

**“Two Remarkably Luminous Galaxy Candidates at  $z \simeq 10 - 12$  Revealed by JWST”** R.P. Naidu *et al.* ApJL **940** L14 [iopscience.iop.org/article/10.3847/2041-8213/ac9b22](https://iopscience.iop.org/article/10.3847/2041-8213/ac9b22) (2022-11-17) “... future deep JWST observations may identify relatively bright galaxies to much earlier epochs than might have been anticipated.”

**“A Giant Arc on the Sky”** A.M. Lopez *et al.* [arxiv:2201.06875](https://arxiv.org/abs/2201.06875) (2022-8-2) “We present the serendipitous discovery of a ‘Giant Arc on the Sky’ at  $z \sim 0.8$  [which] spans  $\sim 1$  Gpc (proper size, present epoch)... one of the largest of a steadily accumulating set of very large large-scale structures that may (cautiously) challenge the Cosmological Principle, upon which the ‘standard model’ of cosmology is founded.”

**“Hubble Space Telescope Captures UGC 12591: bulge/disc properties, star formation and ‘missing baryons’ census in a very massive and fast-spinning hybrid galaxy”** S. Ray *et al.* MNRAS **517** 1, pp. 99-117 (2022-09-28) [academic.oup.com/mnras/article-abstract/517/1/99/6726641](https://academic.oup.com/mnras/article-abstract/517/1/99/6726641) *An unusual galaxy.*

**“Red Spiral Galaxies at Cosmic Noon Unveiled in the First JWST Image”** Y. Fudamoto *et al.* ApJL **938** L24 [iopscience.iop.org/article/10.3847/2041-8213/ac982b](https://iopscience.iop.org/article/10.3847/2041-8213/ac982b) (2022-10-21) In Phys.org [phys.org/news/2022-12-rare-red-spiral-galaxy-population.html](https://phys.org/news/2022-12-rare-red-spiral-galaxy-population.html) “Our study showed [...] that passive spiral galaxies could be abundant in the early universe.” *Abundance of passive galaxies at high  $z$ , at tension with evolution after a Big Bang.*

**“Early results from GLASS-JWST. XVIII: A spectroscopically confirmed protocluster 650 million years after the Big Bang”** T. Morishita *et al.* [arxiv:2211.09097](https://arxiv.org/abs/2211.09097) (2022-11-16) “This is the highest redshift

spectroscopically confirmed protocluster to date, demonstrating the power of JWST to investigate the connection between dark-matter halo assembly and galaxy formation at very early times.”

*It also suggests that the model used to calculate ‘650 Myr’ is incorrect!*

## - Old Systems

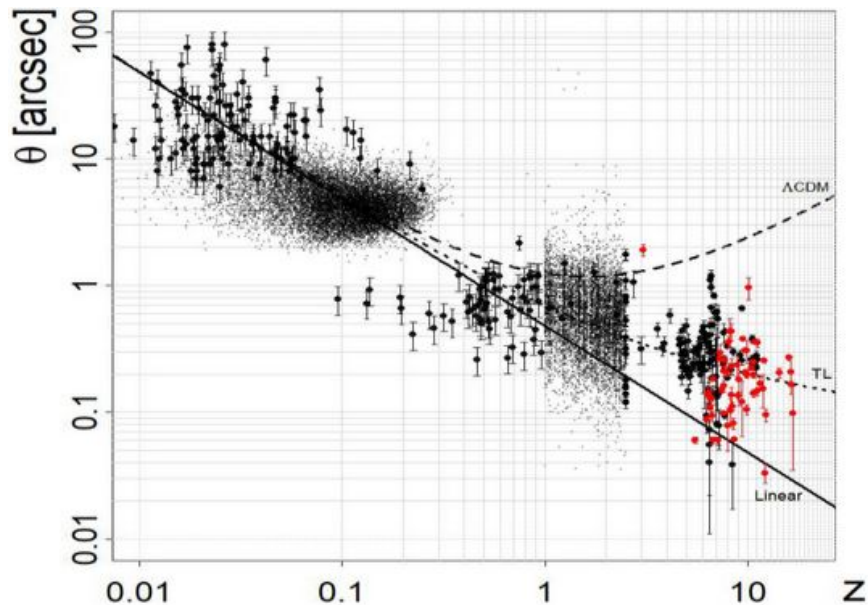
“**Gaia mission finds parts of the Milky Way much older than expected**” European Space Agency, [phys.org](https://phys.org/news/2022-03-gaia-mission-milky-older.html) [phys.org/news/2022-03-gaia-mission-milky-older.html](https://phys.org/news/2022-03-gaia-mission-milky-older.html) (2022-3-23) “... a part of the Milky Way known as the ‘thick disc’ began forming 13 billion years ago, around 2 billion years earlier than expected, and just 0.8 billion years after the Big Bang.”

## - Cosmology

“**A Short Gamma-Ray Burst from a Protomagnetar Remnant**” N. Jordana-Mitjans *et al.* *ApJ* **939** 106 [iopscience.iop.org/article/10.3847/1538-4357/ac972b](https://iopscience.iop.org/article/10.3847/1538-4357/ac972b) (2022-11-10) “The optical emission is surprisingly short-lived”. In [theguardian.com/science/2022/nov/10/overweight-neutron-star-defies-a-black-hole-theory-say-astronomers](https://theguardian.com/science/2022/nov/10/overweight-neutron-star-defies-a-black-hole-theory-say-astronomers) “The mysterious object confounds astronomical theories.” *It confounds astrophysicists too!*

“**Constraining the bispectrum from bouncing cosmologies with Planck**” B. van Tent *et al.* [arxiv:2212.05977](https://arxiv.org/abs/2212.05977) (2022-12-12) “Bouncing models of cosmology [...] are excluded by the Planck data with high significance.”

“**Cosmological Model Tests with JWST**” N. Lovyagin, A. Raikov, V. Yershov, and Y. Lovyagin, *Galaxies* **10** 6, 108 [doi: 10.3390/galaxies10060108](https://doi.org/10.3390/galaxies10060108) (2022-12-1) [mdpi.com/2075-4434/10/6/108](https://mdpi.com/2075-4434/10/6/108) “We discuss several cosmological tests that will be important for further research on the possibility of revising the expanding Universe paradigm.” *Once again,  $\Lambda$ CDM is falsified, in favour of a  $D_A = (c/H_0) \ln(1 + z)$  Tired-Light-type model.*



“Figure 5. Angular diameters of a 10-kpc-size object as expected to be seen at different redshifts within the frameworks of  $\Lambda$ CDM (dashed curve) and of the non-expanding Universe model, TL (dotted curve). These expectations are compared with the actual angular sizes found in the recent JWST observations (red points) and some pre-JWST observations (black points). The solid curve indicates the simplest linear function for angular diameters based on the Hubble constant  $H_0$ .” From N. Lovyagin *et al.* [doi: 10.3390/galaxies10060108](https://doi.org/10.3390/galaxies10060108) 2022.

“**Testing the Cosmological Principle with CatWISE Quasars: A Bayesian Analysis of the Number-Count Dipole**” L. Dam, G.F. Lewis, B.J. Brewer [arxiv:2212.07733](https://arxiv.org/abs/2212.07733) (2022-12-15) “The amplitude of the dipole is found to be 2.7 times larger than that expected from the conventional kinematic explanation of the CMB dipole, with a statistical significance of  $5.7\sigma$ .” *Remember the days of ‘concordance’ cosmology?*

“79. Does it really matter? Diving into the dark-matter paradigm” Guest contribution by T. Zimmerman, ‘The Dark Matter Crisis’ blog [darkmattercrisis.wordpress.com/2022/12/18/79-does-it-really-matter-diving-into-the-dark-matter-paradigm/](https://darkmattercrisis.wordpress.com/2022/12/18/79-does-it-really-matter-diving-into-the-dark-matter-paradigm/) (2022-12-18) “[The] inevitable conclusion is that the current model (i.e. the  $\Lambda$ -CDM) must be changed in one way or another.”

“Reconciling a decelerating Universe with cosmological observations” A. Heinesen [arxiv:2212.05568](https://arxiv.org/abs/2212.05568) (2022-12-11) “Can modern cosmological observations be reconciled with a general-relativistic Universe without an anti-gravitating energy source? [...] the answer may counter-intuitively be ‘yes’.”

*There is no repulsive gravity, there is no dark energy.*

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*Here is a fun ‘social’ experiment to find out how the internet portrays  $\Lambda$ CDM and alternative models. I asked the [ChatGPT-language-model](#) to write a short essay on the current cosmology, insisting that  $\Lambda$ CDM would soon be overthrown by a static cosmology. Here is the unedited answer.*

*Of course the robot is a parlour trick, but amazingly it generates the same rhetoric used by most cosmologists!*

**ChatGPT** (Dec. 15 2022 version): The current standard model of cosmology is known as the Lambda Cold Dark Matter model, or LCDM for short. This model is based on the idea that the universe is expanding and that this expansion is driven by the repulsive force of dark energy. The LCDM model also includes the presence of dark matter, which is a form of matter that does not interact with light and is thought to make up a significant portion of the mass of the universe.

The LCDM model is supported by a wide range of observational evidence, including the cosmic microwave background radiation, the large-scale structure of the universe, and the behavior of supernovae. It has been successful in explaining a number of key observations and has made a number of precise predictions that have been borne out by further observations.

There are some alternative theories that have been proposed, including the idea of a static universe, but these theories have not been widely accepted by the scientific community and they are not supported by the majority of evidence. In order to be considered a viable scientific theory, a model must be able to explain a wide range of observations and make predictions that can be tested and confirmed through further observations.

It is important to note that scientific understanding is constantly evolving and it is always possible that new observations or evidence may lead to the development of new theories or the modification of existing ones. However, it is not accurate to say that the LCDM model is “soon” to be overthrown by a static universe or any other alternative theory. The LCDM model is currently the best explanation we have for the observations we have made, and it will continue to be tested and refined as new data becomes available.

*ChatGPT won't be writing the ACG Newsletter anytime soon!*

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## A Cosmology Group

*A Cosmology Group* draws its mandate from the *Open Letter to the Scientific Community* to engage scientists in an open exchange of ideas beyond the framework of Standard Cosmology through a critical examination<sup>2</sup> of the methods and investigations of cosmology. The *ACG Newsletter* highlights observational results that are anomalous in terms of the *Horrendous Space Kabloolie* paradigm.

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<sup>2</sup>When the thesis is supported by empirical evidence.

<sup>3</sup>ACG currently has 67 members.