



The Milky Way Panorama Credit: ESO / S. Brunier

Newsletter of the Alternative Cosmology Group - March 2018

The [Alternative Cosmology Group](#) draws its mandate from the *Open Letter to the Scientific Community*¹ and points to the fundamental problems of the Big Bang theory. The ACG Newsletter seeks to publicize observational results which seem anomalous in terms of the Λ CDM model and which could support an alternative cosmology. It is distributed gratis to our subscribers² who receive notifications via our mailing list and the ACG Forum.

The ACG welcomes discussions of methods and investigations into the validity of the Big Bang theory. However, purely theoretical work and alternative cosmologies should be discussed outside of the ACG Forum or presented at conferences organized by the ACG.

If you would like to suggest papers for inclusion in the Newsletter, please send the direct reference and a brief exposition to webmaster@cosmology.info. We consider papers which have full and open access.

You can get onto our mailing list without obligation at: <http://cosmology.info> or by joining the ACG Forum “Alternative Cosmology” on *Yahoo! Groups* at: <https://groups.yahoo.com/neo/groups/altcosmology/info#>. You can also follow [@altCosmology](#) on Twitter.

ACG News

The last ACG Newsletter, published in 2014, marked the retirement of Hilton Ratcliffe as editor of the Monthly Newsletter and ACG website. I am sure every reader of the Newsletter would like to join me in thanking Hilton for the amazing work he did for several years.

Without a volunteer to carry the load, the ACG website disappeared last year. Since I believe that the ACG website is still relevant, I decided to take some time to revive the website. Eric and Hilton accepted my offer to volunteer as the Newsletter editor and the new website cosmology.info is now online. Every past Newsletter and the Open Letter on Cosmology are available on the website. The *Yahoo! Group Alternative Cosmology* is still active and a separate mailing list is maintained for those who only want to receive notifications from the ACG.

The ACG’s main goal is to publicize observational results which seem anomalous in terms of the Standard Model of cosmology. However, some members also want to publicize their own alternative cosmology or their theoretical models. We believe this should be avoided because the Group is very divided when it comes to alternative research work. Instead, members should seek to find observations which support alternative theories and present their alternative cosmologies and theoretical work at conferences such as the CCC. The ACG website remains relevant by providing information about the inconsistencies of the Big Bang theory, information which can be used by all its members for their independent research.

We would like to know what the members think. Suggestions and comments are always welcome.

Louis Marmet, March 8, 2018

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¹E. Lerner, “Bucking the big bang” *New Scientist*, 22 May 2004

²The ACG currently has 74 subscribing members.

Reviewed Publications

Many thanks to Eric Lerner who sent me a list of papers to review for inclusion in my first Newsletter. Some suggestions from other members are also included.

“A Dearth of Dark Matter in Ordinary Elliptical Galaxies”, A.J. Romanowsky *et al.*[1]

The data presented in this paper provide a measurement of the velocity decline as a function of radius in planetary nebulae. The new data are inconsistent with simple dark halo models and thus different from the kinematical results for brighter ellipticals. More surprisingly, the velocity dispersion data follow simple models containing no dark matter, showing the nearly Keplerian decline with radius that such models predict, and suggesting that these systems are not embedded in massive dark halos. This result conflicts with findings in other galaxy types, and poses a challenge to current galaxy formation theories.

“Method for Analyzing the Spatial Distribution of Galaxies on Gigaparsec Scales. II. Application to a Grid of the HUDF-FDF-COSMOS-HDF Surveys”, N.V. Nabokov and Yu.V. Baryshev[2]

An analysis of the distribution of photometric redshifts in a grid of the deep fields of HUDF-FDF-COSMOS-HDFN reveals the possible existence of super large structures with a contrast $\approx 50\%$, and tangential and radial dimensions of about 1000 Mpc. The reality of the detected candidate super large structures in the universe can be verified by further observations with a finer grid of deep fields. The unexpected discovery of a large scale “dark flow” means that the entire local volume, of size 300 Mpc/h, is undergoing a large scale motion, a fact consistent with the existence of super large structures on scales of 1000 Mpc/h.

“An extremely primitive halo star”, E. Caffau *et al.*[3]

The early Universe had a chemical composition consisting of hydrogen, helium and traces of lithium. Almost all other elements were created in stars and supernovae. The mass fraction, Z , of elements more massive than helium is called “metallicity”. This paper studies the chemical composition of a star with a very low $Z \leq 6.9 \times 10^{-7}$ ($4.5 \times 10^{-5} Z_{sun}$) and a chemical pattern typical of classical extremely metal-poor stars, i.e. without the enrichment of carbon, nitrogen and oxygen. This shows that low mass stars can be formed at very low metallicity. The observed lithium depletion implies that the stellar material must have experienced temperatures above two million K in its history, which points to rather particular formation condition or internal mixing process, for low Z stars.

“Observational evidence favors a static universe”, D.F. Crawford[4]

This paper and **“A problem with the analysis of type Ia supernovae”**, D.F. Crawford[5] on a related subject provide an extensive analysis of observational data within the paradigm of static cosmologies. The papers concentrate on whether observational data supports the Big Bang or a static cosmological model.

A problem in evaluating a well established cosmology like Big Bang cosmology is that all of the observations have been analyzed within the Big Bang paradigm. Thus there can be subtle effects that may lead to a possible bias. In order to avoid this bias and wherever possible, comparisons are made using original observations. It is found that in all cases where there is direct evidence for evolution, this evolution is close to what is required to cancel the expansion term in the Big Bang equations. The simplest conclusion is that the universe is not expanding.

“A simple Hubble-like law in lieu of dark energy”, Y.-H. Sanejouand[6]

A non-standard form of the Hubble law is presented in this paper. It is shown that it yields an age-redshift relationship which is consistent with available data without having to add “dark energy”. Together with an analysis of gamma-ray burst counts, it further suggests that the observable Universe has been euclidean and static over the last 12 Gyr (at least). Although a non-standard distance-duality relation is then required for interpreting luminosity distance data, it also seems consistent with current observations.

“A possible influence of magnetic fields on the rotation of gas in NGC 253”, J. Jałocha, L. Bratek, J. Pełkala, M. Kutschera[7]

The magnetic fields that are present in the galaxy NGC 253 are exceptionally strong. They can influence the rotation of matter and hence the mass-to-light ratio. The latest measurements show that the rotation curve of NGC 253 decreases for large radii, which makes this galaxy a natural candidate for a disc-like galaxy with only a small fraction of non-baryonic dark matter.

In addition, the mass-to-light ratio can be reduced further by the very strong magnetic field present in NGC 253, which should influence the motion of ionized gas. The mass-to-light ratio is modeled as a local quantity which is a function of the radius. The paper cautions in drawing conclusions about the dark matter abundance in spiral galaxies based in the increase in their mass-to-light ratio if the various factors that can influence this ratio are not known.

“History of the 2.7 K Temperature Prior to Penzias and Wilson”, A.K.T. Assis, M. C. D. Neves[8]

This paper presents the history of estimates of the temperature of intergalactic space, starting with the works of Guillaume and Eddington on the temperature of interstellar space due to starlight belonging to our Milky Way galaxy. The paper covers the works of Regener, Nernst, Finlay-Freundlich, Max Born, and Gamow and collaborators. It is shown that the models based on a Universe in dynamical equilibrium without expansion predicted the 2.7 K temperature prior to and better than models based on the Big Bang.

“Tests and problems of the standard model in Cosmology”, Martín López-Corredoira[9]

Numerous tests have been carried out on the main foundations of the standard Λ CDM model of cosmology: 1) redshifts are due to expansion, 2) the CMBR originates from the hot primordial Universe, 3) the abundance of light elements is explained in terms of primordial nucleosynthesis, and 4) the formation and evolution of galaxies can be explained only in terms of gravitation within an inflation + dark matter + dark energy scenario.

Although the standard model fits many observations, there are also many data that present apparent caveats to be understood with it. This paper offers a review of these tests and problems, as well as some examples of alternative models.

“Marginal evidence for cosmic acceleration from Type Ia supernovae”, J.T. Nielsen *et al.*[10]

There exists now a much bigger database of Type Ia supernovae to allow rigorous statistical tests to check whether these ‘standardisable candles’ indeed indicate cosmic acceleration. Taking account of the empirical procedure by which corrections are made to their absolute magnitudes to allow for the varying shape of the light curve and extinction by dust, we find, rather surprisingly, that the data are still quite consistent with a constant rate of expansion.

References

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