

ALTERNATIVE COSMOLOGY GROUP

www.cosmology.info

The Alternative Cosmology Group Newsletter - October 2009

The ACG newsletter is distributed gratis to subscribers. Get onto our mailing list without obligation at www.cosmology.info/newsletter. The current newsletter is a review of 1171 papers published on arXiv under astro-ph, together with 343 under gen-phys, for the month of September, 2009. We now include papers archived elsewhere, provided access is full and open. The Alternative Cosmology Group draws its mandate from the open letter published in *New Scientist*, 2004 (www.cosmologystatement.org), and this newsletter seeks to publicise recently published empirical results that are aligned with that ethos. If you would like to suggest recently published or archived papers for inclusion, please send the arXiv, viXra or other direct reference and a brief exposition to Hilton Ratcliffe (hilton@hiltonratcliffe.com). Note that our spam filter rejects slash and colon in the text, so please write web addresses commencing "www".

Redshift-Evolution

Tom Andrews presented a paper at the 1st Crisis in Cosmology Conference in 2005, and although he attended CCC2, did not have these latest results ready in time for presentation. This 42-page thesis is a comprehensive falsification of the use of SNe data to verify time dilation and expansion. Tom invokes in addition light curves from Brightest Cluster Galaxies and Gamma Ray Bursts to show that luminosity remains constant during the transient event, thus eliminating both increasing volume of intervening space and stretching of time. *"However, if the universe is static, only one light curve broadening effect will occur for the SNe and GRBs. Fortunately, Goldhaber has measured the widths of SN light curves and conclusively showed that only one light curve broadening effect occurs. Consequently, the expanding universe model is logically falsified."*

[27] viXra Discovery of a New Dimming Effect Specific to Supernovae and Gamma-Ray Bursts

Authors: [Thomas B. Andrews viXra:0909.0009](http://www.vixra.org/0909/0009)

The correlation of redshift values with any linear morphological progression on the time and space axes of the cosmos is of singular importance to philosophy of an expanding Universe. Observation tends to refute any general correlation, and peculiar objects are subjected to new evolutionary hypotheses in order to contrive a fit. Early Type Galaxies (ETGs) are a case in point. *"Contrary to previous claims, the half light radii estimated in very high S/N imaging data from HST+ACS are found to be large for most of the sample, consistent with local ellipticals. If the high redshift ETGs with $M^* < 2.5 \times 10^{11} M_{\odot}$*

are really small in size and compact as reported in previous studies, our result may suggest a ‘downsizing’ scenario, whereby the most massive ETGs reach their final structure earlier and faster than lower mass ones. However, simulating galaxies with morphological properties fixed to those of local ETGs with the same stellar mass show that the few compact galaxies that we still recover in our sample can be understood in term of fluctuations due to noise preventing the recovery of the extended low surface brightness halos in the light profile.”

[602] Title: High-redshift elliptical galaxies: are they (all) really compact?

Authors: [C.Mancini](#) et al [arXiv:0909.3088](#)

Another angle on redshift-aligned evolution requires the invocation of standard candles, with often seriously skew results. We saw it with Cepheid variables, type 1A SNe, and lately, GRBs. *“In recent years there has been considerable activity in using gamma-ray bursts as cosmological probes for determining global cosmological parameters complementing results from type Ia supernovae and other methods. This requires a characteristic of the source to be a standard candle. We show that contrary to earlier indications the accumulated data speak against this possibility. Another method would be to use correlation between a distance dependent and a distance independent variable to measure distance and determine cosmological parameters as is done using Cepheid variables and to some extent Type Ia supernovae... We have argued that these procedures involve many unjustified assumptions which if not true could invalidate the results. In particular, we point out that many evolutionary effects can affect the final outcome.”*

[978] Title: Gamma-Ray Bursts as Cosmological Tools

Authors: [Vahe Petrosian](#), [Aurelien Bouvier](#), [Felix Ryde](#) [arXiv:0909.5051](#)

The observational signatures ascribed to Black Holes include high energy radiation bursts in X-ray and gamma. The evidence raised in support of BHs has been plagued by ambiguity in matching observation to theory, and now a purely theoretical simulation suggests that SNe could just as well give the signature radiation.

[278] Title: X- and Gamma-Ray Flashes from Type Ia Supernovae?

Authors: [Peter Hoflich](#), [Bradley E. Schaefer](#) [arXiv:0909.1357](#)

“The discovery of a short-lived gamma-ray burst at a surprisingly early epoch in the history of the Universe shows how much is still unknown about the evolution of the parent systems of such bursts.”

[280] Title: Gamma Ray Bursts - Maybe not so old after all

Authors: [Enrico Ramirez-Ruiz](#), [William Lee](#) [arXiv:0909.1368](#)

“We use the large catalogues of haloes available for the Millennium Simulation to test whether recently merged haloes exhibit stronger large-scale clustering than other haloes of the same mass. This effect could help to understand the very strong clustering of quasars at high redshift. However, we find no statistically significant excess bias for recently merged haloes over the redshift range $2 < z < 5$, with the most massive haloes showing an excess of at most ~5%.”

[3] Title: On merger bias and the clustering of quasars

Authors: [Silvia Bonoli](#), [Francesco Shankar](#), [Simon White](#), [Volker Springel](#), [Stuart Wyithe](#) [arXiv:0909.0003](#)

Lyndon Ashmore's novel vision of H-cloud separation as a calibration of cosmological dynamics was presented at the 2nd Crisis in Cosmology Conference (CCC2) in 2008.

[42] viXra Hydrogen Cloud Separation as Direct Evidence of the Dynamics of the Universe.

Authors: [Lyndon Ashmore](#) [viXra:0909.0040](#)

Although we tend to avoid featuring complete cosmologies in this newsletter, John Hunter's contribution is included because it serves to illustrate that varying fundamental constants (like mass) can achieve a better fit with observation than the consensus model does. This is similar to the varying mass of particles hypothesis of Arp and Narlikar. The author commented as follows: *"It is a model in which the redshift of light is due to a changing of Planck's constant with time. In the model the universe is infinitely old, but effects of the Big Bang are mimicked through smaller bangs which occur when collapsing matter 'bounces' due to a reduction of gravitational (and inertial) mass for objects of high mass to radius ratio"*.

[11] viXra The Rescaling Symmetry Principle.

Authors: [John Hunter](#) [viXra:0908.0005](#)

Relative motion

The late Tom Van Flandern showed that the GPS adjustments were required because of normal mechanical relationships between the satellites and Earth. *"Radar is a critical tool for maintaining knowledge of the many objects in low Earth orbit and thus for maintaining confidence that societies around the world are secure against a variety of space-based threats. It is therefore important to raise awareness that LEO objects are embedded in the envelope of relatively dense plasma that co-rotates with the Earth (ionosphere-plasmasphere system) and thus accurate tracking must correct for the group delay and refraction caused by that system."*

[105] Gen-phys Title: Ionospheric correction of space radar data

Authors: [Mike Hapgood](#) [arXiv:0909.1659](#)

Dark Matter/Dark Energy

Joel Primack highlights a grave problem with the Λ -CDM model: The Dark Matter has to be cold or it would radiate thermally, and thus violate the "darkness". Unfortunately, whilst coldness does keep the matter dark, it brings with it a slew of other problems.

[445] Title: Cosmology: small scale issues revisited

Authors: [Joel R. Primack](#) [arXiv:0909.2247](#)

The need for “Dark” entities is an artefact of the Standard Model of Cosmology. Various competing models whilst equally hypothetical, obtain similar or even better fits with observation. *“We obtain these results by using the hitherto un-noticed fact that the global gravitational energy density in our Hubble Sphere (HS) is equal to the Cosmological Microwave Background (CMB) energy density. We derive the dynamic and kinematic relations that govern the motions of celestial bodies in and around galaxies. This derivation does not require any gravitating matter beyond the observed baryonic matter. The theoretical Rotation Curves (RC), resulting from these relations, fit observed RCs. We obtain these results by examining the interplay between the local gravitational energy density, around a galaxy, and the CMB energy density.”*

[500] Title: Cosmology and Astrophysics without Dark Energy and Dark Matter

Authors: [Shlomo Barak](#), [Elia M Leibowitz](#) [arXiv:0909.2581](#)

The foundation of LCDMM is General Relativity, yet it seems to be contra-indicated by some analyses: *“The nature of dark energy represents one of the major quandaries facing physics today, since a universe with gravity described by General Relativity (GR) containing baryonic and dark matter should exhibit decelerating, not accelerating, expansion... We find current data, driven by the COSMOS weak lensing measurements, disfavors GR on cosmic scales...”*

Title: A weak lensing detection of a deviation from General Relativity on cosmic scales

Authors: [Rachel Bean](#) [arXiv:0909.3853v2](#)

The search for gravitational waves has been as unsuccessful as the quest for the Higgs boson and tame mini-Black Holes. *“We report no signal detection from any of the targets and therefore interpret our results as upper limits on the gravitational wave signal strength...We also present updated limits on gravitational radiation from the Crab pulsar, where the measured limit is now a factor of seven below the spin-down limit. This limits the power radiated via gravitational waves to be less than ~2% of the available spin-down power.”*

[692] Title: Searches for gravitational waves from known pulsars with S5 LIGO data

Authors: The [LIGO Scientific Collaboration](#), The [Virgo Collaboration](#) [arXiv:0909.3583](#)

Elements

The abundance of lithium in various cosmological environments remains an abiding problem for the LCDM model.

[214] Title: Lithium in the Globular Cluster NGC 6397: Evidence for dependence on evolutionary status

Authors: [J. I. Gonzalez Hernandez](#) et al [arXiv:0909.0983](#)

Non-Gaussianity

Long-time ACG colleagues Francesco Sylos-Labini and Yuriy Baryshev joined forces with Tibor Antal and Nikolay Vasilyev to produce a statistical analysis of galaxy distribution that adds more fuel to the fire burning under the supposition of a homogeneous Universe with Gaussian distribution: *“Correspondingly, we find that the density fluctuations follow the Gumbel distribution of extreme value statistics. This distribution is clearly distinguishable from a Gaussian distribution, which would arise for a homogeneous spatial galaxy configuration.”*

[298] Title: Galaxy distribution and extreme value statistics

Authors: [Tibor Antal](#), [Francesco Sylos Labini](#), [Nikolay L. Vasilyev](#), [Yurij V. Baryshev](#) [arXiv:0909.1507](#)

CMBR & WMAP

Eric Lerner showed in 2005 that plasma attenuates radio waves, with the implication that the microwave background couldn't have come from very far away. Krishan's results give additional support to the idea. *“It is shown that, in addition to the Thomson scattering, the absorption due to the electron-electron, electron-ion and the electron -atom collisions in a partially ionized cosmic plasma would also contribute to the optical depth of the cosmic microwave background (CMB). The absorption depth depends on the plasma temperature and frequency of the CMB radiation. The absorption effects are prominent at the low frequency part of the CMB spectrum. These effects when included in the interpretation of the CMB spectrum may necessitate a revised view of the ionization of the universe.”*

[26] Title: Optical Depth of the Cosmic Microwave Background due to Scattering and Absorption

Authors: [V. Krishan](#) [arXiv:0909.0125](#)

Method

A MOND response to suggestions of universal halo surface density from Professor Mordehai Milgrom: *“Prompted by the recent claim, by Donato et al., of a quasi-universal central surface density of galaxy dark matter halos, I look at what MOND has to say on the subject. MOND, indeed, predicts a quasi-universal value of this quantity for objects of all masses and of any internal structure, provided they are mostly in the Newtonian regime; i.e., that their mean acceleration is at or above a_0 ... The prediction of S_m as an upper limit, and accumulation value, of halo central surface densities, pertains, unlike most other MOND predictions, to a pure 'halo' property, not to a relation between baryonic and 'dark matter' properties.”*

[999] Title: The central surface density of "dark halos" predicted by MOND

Authors: [Mordehai Milgrom](#) [arXiv:0909.5184](#)

The following author bravely tackles a thorny issue in physical science—evaluating the merit of theory in the light of observational or experimental results. He pays particular attention to standard models. *“...the value of a particular experimental result in an academic field should be measured by how much is learned from the result. Equivalently, the value*

of a result is how surprised you are that the particular result has been obtained. An experiment confirming an effect already predicted with high confidence does not teach us much, while an experiment producing an unanticipated result can teach us a great deal.”

[157] Gen-phys Title: A Quantitative Measure of Theoretical Scientific Merit

Authors: [Bruce Knuteson arXiv:0909.2361](#)

Some cosmologists are becoming increasingly wary of the opportunistic imposition of Occam’s razor, warning against over-simplification. The problem remains one of dealing with anomalies, which according to Glenn Starkman, are going to increase and diversify. Some sort of coping mechanism is required, and Starkman *et al* propose a slowing down of the data avalanche. This paper refers specifically and exclusively to CMBR analysis, which seems to imply that the thrust of modern cosmology is confined to the diffuse microwave image, and therefore that astronomical observation is irrelevant. *“Cosmologists will soon be in a unique position. Observational noise will gradually be replaced by cosmic variance as the dominant source of uncertainty in an increasing number of observations. We reflect on the ramifications for the discovery and verification of new models. If there are features in the full data set that call for a new model, there will be no subsequent observations to test that model’s predictions. We show how the gradual release of data can mitigate this difficulty, allowing anomalies to be identified, and new models to be proposed and tested. We advocate that observers plan for the frugal release of data from future cosmic variance limited observations.”*

[522] Title: The Virtues of Frugality - Why cosmological observers should release their data slowly

Authors: [Glenn D. Starkman, Roberto Trotta, Pascal M. Vaudrevange arXiv:0909.2649](#)

This conference address by Françoise Combes of the *Observatoire de Paris* is a summary of outstanding issues in galaxy formation and evolution. Unresolved problems listed include whether there are isolated galaxies, the void problem (paucity of observed galaxies in voids), the peculiarities of Compact Groups and early Type Galaxies. She also addresses the question of why luminosity functions vary with environment, and the over-prediction of bright and faint galaxies. All are anomalous with the Standard Model.

[\[538\] Title: Theoretical problems and perspectives](#)

Authors: [Françoise Combes arXiv:0909.2752](#)

Tully Fisher Relation

The earlier work by Dave Russell showing that TFR-given velocities are peculiar by galaxy type has been given independent support in this Chinese study.

[957] Title: The morphological dependent Tully-Fisher relation of spiral galaxies

Authors: [Shiyin Shen, et al arXiv:0909.4903](#)