



Monthly Notes of the Alternative Cosmology Group – October 2010

The ACG Webmaster who distributes this newsletter to subscribers would prefer not to receive related correspondence.

Please address all correspondence to MNACG Editor, Hilton Ratcliffe: mnacg_editor@cosmology.info.

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 1295 papers published on arXiv under astro-ph, together with 648 under gen-phys, for the month of September, 2010. 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 these monthly notes seek to publicise recently published empirical results that are aligned with that ethos. In other words, what observations seem anomalous in terms of the Standard Model of Cosmology? We prefer observational results and tend to avoid complete cosmologies and purely theoretical work. Discussion of method is welcome. 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”.

I. Dark Matter Awareness Week

Thanks to Chuck Gallo for investigating the broken link in last month’s MNACG. He sent us the following info, together with an appeal for concerted participation by ACG members:

“The following web-site seems to work. <http://www.sissa.it/ap/dmg/index.html>

Title "Dark Matter Awareness Week, 1 - 8 December 2010". For more information, contact Paolo Salucci: salucci@sissa.it, +39 (0)40 3787520. Cheers, Chuck Gallo”

II. Static Universe vs Expansion

1. Title: Observational evidence favours a static universe

Authors: David F. Crawford

arXiv:1009.0953

Quote: “The common attribute of all Big Bang cosmologies is that they are based on the assumption that the universe is expanding. However examination of the evidence for this expansion clearly favours a static universe. The major topics considered are: Tolman surface brightness, angular size, type 1a supernovae, gamma ray bursts, galaxy distributions, quasar distributions, X-ray background radiation, cosmic microwave back-ground radiation, radio source counts, quasar variability and the Butcher–Oemler effect. An analysis of the best raw data for these topics shows that they are consistent with expansion only if there is evolution that cancels the effects of expansion. An alternate cosmology, curvature cosmology, is in full agreement with the raw data. This tired-light cosmology predicts a well defined static and stable universe and is fully described. It not only predicts accurate values for the Hubble constant and the temperature of cosmic microwave background radiation but shows excellent agreement with most of the topics considered.”

III. CMBR anomalies

1. Title: Diagnosing Timing Error in WMAP Data

Authors: Hao Liu, Shao-Lin Xiong, Ti-Pei Li

arXiv:1009.2701

Quote: “The Doppler dipole signal dominates the cosmic microwave background (CMB) sky temperature maps obtained by the Wilkinson Microwave Anisotropy Probe (WMAP) observations, and plays a key role throughout the WMAP data processing. Previously, we discovered a timing asynchrony of -25.6 ms between the spacecraft attitude and radiometer output timestamps in the original raw WMAP time-ordered data (TOD), which, if not corrected in following data processing, would generate an artificial quadrupole component in recovered CMB maps (Liu, Xiong & Li 2010). Recently, Roukema (2010) proves that there does exist a timing-offset-induced error corresponding to ~ -25.6 ms in the WMAP calibrated TOD. Here, we find direct evidence for such an uncorrected timing asynchrony occurred in calculating the Doppler dipole signal during the WMAP team's data-calibration and map-making with almost the same amplitude to previous works at $>8.7\sigma$ significance and show that the uncorrected timing-offset leads the WMAP CMB quadrupole being substantially overestimated.”

2. Title: GRB Sky Distribution Puzzles

Authors: O.V. Verkhodanov, V.V. Sokolov, M.L. Khabibullina, S.V. Karpov

arXiv:1009.3720

Quote: “We test this hypothesis by mosaic correlation mapping of the distributions of CMB peaks and burst positions, find the distribution of these two signals to be correlated, and interpret this correlation as a possible systematic effect.”

3. Title: HD/H₂ Molecular Clouds in the Early Universe: The Problem of Primordial Deuterium

Authors: S.A. Balashev, A.V. Ivanchik, D.A. Varshalovich

arXiv:1009.4186

Quote: “Using a well-known model for the chemistry of a molecular cloud, we have estimated the isotopic ratio $D/H = HD/2H_2 = (2.97 \pm 0.55) \times 10^{-5}$ and the corresponding baryon density $\Omega_b h^2 = 0.0205^{+0.0025}_{-0.0020}$. This value is in good agreement with $\Omega_b h^2 = 0.0226^{+0.0006}_{-0.0006}$ obtained by analyzing the cosmic microwave background radiation anisotropy. However, in high-redshift clouds, under conditions of low metallicity and low dust content, hydrogen may be incompletely molecularized even in the case of self-shielding. In this situation, the HD/2H₂ ratio may not correspond to the actual D/H isotopic ratio. We have estimated the cloud molecularization dynamics and the influence of cosmological evolutionary effects on it.”

IV. Redshift

1. Title: Anti-photon

Authors: Jacques Moret-Bailly

arXiv:1009.5119

Quote: "The purpose of this article is neither a compilation, nor a critique of the article by W. E. Lamb of which it gets the name: It adds arguments and applications. Quantum electrodynamics quantizes "normal modes" chosen arbitrarily among the infinity of sets of orthogonal modes of the electromagnetic field. Changing the choice of normal modes splits the photons which are not physical objects. The classical field of electromagnetic energy is often, wrongly, considered as linear, so that Bohr's electron falls on the nucleus and photon counting is false. Using absolute energies and radiances avoids doing these errors. Considering the photons as small particles interacting without pilot waves with single atoms, astrophysicists use Monte-Carlo computations for the propagation of light in homogeneous media while it works only in opalescent media as clouds. Thus, for instance, two theories abort while, they are validated using coherence and Einstein theories, giving a good interpretation of the rings of supernova remnant 1987A, and the spectrum found inside. The high frequency shifts of this spectrum can only result from an interaction of light with excited atomic hydrogen which is found in many regions of the universe."

V. Dark Matter

1. Title: The Futile Search for Galactic Disk Dark Matter

Authors: [José Luis G. Pestaña](#), [Donald H. Eckhardt](#)
[arXiv:1009.0925](#)

Quote: "Several approaches have been used to search for dark matter in our galactic disk, but with mixed results: maybe yes and maybe no. The prevailing approach, integrating the Poisson-Boltzmann equation for tracer stars, has led to more definitive results: yes and no. The touchstone yes analysis of Bahcall et al. (1992) has subsequently been confirmed or refuted by various other investigators. This has been our motivation for approaching the search from a different direction: applying the Virial Theorem to extant data. We conclude that the vertical density profile of the disk is not in a state of equilibrium and, therefore, that the Poisson-Boltzmann approach is inappropriate and it thereby leads to indefensible conclusions."

VI. Method

1. Title: SCIENTIST 10 COMMANDMENTS

Authors: [Ignacio Ferrín](#)
[arXiv:1009.4891](#)

2. Title: Energy conditions and entropy density of the universe

Authors: [Ming-Jian Zhang](#), [Cong Ma](#), [Tong-Jie Zhang](#)
[arXiv:1009.4513](#)

Quote: "On the one hand, we find that these conditions imply that entropy density s depends on Hubble parameter $H(z)$. On the other hand, we compare the theoretical entropy density from the conservation law of energy-momentum tensor with that from the energy conditions using the observational Hubble parameter. We find that the two kinds of entropy density are in agreement, only when the present-day entropy density satisfies $0.0222 \leq s_0 \leq 0.7888$. We also obtain that the strong energy condition (SEC) accords with the first law of thermodynamics in the redshift range $z < 2.7$, the null energy condition (NEC) at $z < 3.2$, and the dominant energy condition (DEC) at $z > 2.6$. In addition, the energy conditions gives the deceleration parameter $0 \leq q(z) \leq 2$, which is in a predicament of the accelerated expansion of the universe. In particular, the NEC suggests $q(z) \geq 5/3$."

3. Title: Does the second law of thermodynamics really hold good without exception?

Authors: [Hans R. Moser](#)
[arXiv:1009.5394](#)

Quote: "A major part of the many thermally driven processes in our natural environment as well as in engineering solutions of Carnot-type machinery is based on the second law of thermodynamics (or principle of entropy increase).

An interesting link between macroscopically observable quantities of an ensemble (state variables) and the thermal velocity of its individual constituents such as molecules in a liquid is provided by the Brownian motion of suspended larger particles.”

VII. Titles of the month

Title: A quantum model for the stock market

Authors: [Chao Zhang](#), [Lu Huang](#)

[arXiv:1009.4843](#)