Alternative Cosmology Group Newsletter - October 2008

Posted October 28, 2008

This is the first newsletter of the post-CCC2 epoch, and was consequently delayed while we attended to the conference. We have had our hands full over the past several months! During this time, it seems that an increasing proportion of published papers in astrophysics is resorting to the terms "anomalous," "peculiar," "puzzling," "problem" and "difficult to explain in terms of the model." It is also pleasing to see that some CCC2 papers have already appeared on arXiv.

Note: this newsletter is now edited by Hilton Ratcliffe and Eric Lerner.

Microwave Background

Analyses of the WMAP data continue to pour in with the release of WMAP5. Many are finding anomalous results. Whilst sitting fog-bound at Port Angeles airport after CCC2, John Hartnett raised the very interesting point that conventional analysis holds that the radiation picture is frozen in time. If therefore, analysts could access the year-by-year WMAP data separately (data are currently released cumulatively), a telling comparison between data sets at different times could be made. According to the Standard Model, there should be no differences. In these three papers, peculiarities are found in the lack of large-angle correlations (Copi et al), distortions in the WMAP maps (Liu and Li), and spatial topology (Gurzadyan et al). Copi et all in particular conclude that there is a clear conflict with LCDM - the conventional dark matter, dark energy model.

Title: No large-angle correlations on the non-Galactic microwave sky.
Authors: Craig J. Copi, Dragan Huterer, Dominik J. Schwarz, and Glenn D. Starkman.
http://arxiv.org/abs/0808.3767

Title: Statistical and systematical errors in cosmic microwave background maps.
Authors: Hao Liu and Ti-Pei Li.
http://arxiv.org/abs/0806.4493

Title: Large Scale Plane-Mirroring in the Cosmic Microwave Background WMAP5 Maps.
Authors: V.G. Gurzadyan, A.A. Starobinsky, T. Ghahramanyan, A.L. Kashin, H. Khachatryan, H. Kuloghliyan, D. Vetrugno, and G. Yegorian.
http://arxiv.org/abs/0807.3652

Nucleosynthesis

Lithium remains the Achilles' heel of Big Bang nucleosynthesis. The June newsletter referenced papers by Burbidge, and by Frebel et al. Here we mention two more, selected examples of numerous studies indicating failure of the Big Bang evolutionary scheme. Cyburt et al report a "significant discrepancy between the primordial 7Li abundance as predicted by BBN theory and the WMAP baryon density, and the pre-Galactic lithium abundance inferred from the observation of metal-poor stars."

Title: The Puzzling origin of the 6Li plateau.
Authors: Carmelo Evoli, Stefania Salvadori, and Andrea Ferrara.
http://arxiv.org/abs/0806.4184

Title: A Bitter Pill: The Primordial Lithium problem.
Authors: Richard H. Cyburt, Brian D. Fields, and Keith A. Olive.
http://arxiv.org/abs/0808.2818

Expansion

At the very heart of the Standard Model of Cosmology is the notion of expansion. Andre Assis presented a paper at CCC2 illustrating Edwin Hubble's own scepticism about universal expansion and whether his own measurements supported the idea. Cosmic fractals pioneer Yurij Baryshev focuses on the physics (or lack thereof) of expanding space, pointing out the conceptual problems that arise with the suggestion that vacuum is continuously created. Here he develops the theme he presented at CCC1.

Title: Hubbles Cosmology: From a Finite Expanding Universe to a Static Endless Universe.
Authors: A.K.T. Assis, M.C.D. Neves, and D.S.L. Soares.
http://arxiv.org/abs/0806.4481

Title: Expanding Space: The Root of Conceptual problems of the Cosmological Physics.
Authors: Yu. V. Baryshev.
http://arxiv.org/abs/0810.0153

Quasars

QSOs have proven to be enigmatic from their discovery over 40 years ago. Two recent studies examine QSO HI absorption along line-of-sight, comparing foreground and background (Kirkman & Tytler) and find it difficult to reconcile the data with conventional models, except by a very short quasar lifetime. A second study shows that quasars do not fit a god Hubble relation of redshift and apparent magnitude

Title: The transverse proximity effect in the $z \sim 2$ Lyman-alpha forest suggest QSO episodic lifetimes of ~ 1 Myr.
Authors: David Kirkman and David Tytler.
http://arxiv.org/abs/0809.2277

Title: The Hubble diagram of high redshift objects, QSOs and AGNs.
Authors: C. E. Navia, C. R. A. Augusto, K. H. Tsui.
http://arxiv.org/abs/0807.0590

Large structure

The observed presence of large-scale structure is an embarrassment to the LCDM model, which relies on the Cosmological Principle for uniform expansion. Several studies have revealed additional features of large or supposedly distant structures that defy standard interpretations, because they are far too large to have formed since the Big Bang. John Hartnett uses Fourier analysis to show the existence of apparent huge onion-like structures. N.V. Nabokov and Yurij Baryshev also show structures of many hundreds of Mpc. Kashlinsky et al find large scale flows too large to accommodate with LCDM.

Title: Galaxy redshift abundance periodicity from Fourier analysis of number counts N(z) using SDSS and 2dF galaxy surveys.
Authors: John. G. Hartnett, Koichi Hirano.
http://arxiv.org/abs/0711.4885

Title: A search for super-large structures in deep galaxy surveys.
Authors: N.V. Nabokov and Yu. V. Baryshev.
http://arxiv.org/abs/0809.2390

Title: A measurement of large-scale peculiar velocities of clusters of galaxies: results and cosmological implications.
Authors: A. Kashlinsky, F. Atrio-Barandela, D. Kocevski, and H. Ebeling.
http://arxiv.org/abs/0809.3734

Size Evolution anomalies

Many studies are showing that large galaxies appear to be much smaller and denser at high redshift. This poses a problem since it is not clear how such large dense galaxies could have become less dense. One explanation is that the universe is not expanding. Expansion creates a distortion in the apparent size of galaxies. Without this assumption, galaxies at high redshift appear to be the same size as current galaxies. Alternatively, Fan et al attempt to explain the data in the conventional framework by quasar emission of large amounts of gas, reducing mass and causing increases in the size of galaxies with time.

Title: The dramatic size evolution of elliptical galaxies and the quasar feedback.
Authors: L. Fan, A. Lapi, G. De Zotti, and L. Danese.
http://arxiv.org/abs/0809.4574

Title: Size evolution of the most massive galaxies at $1.7 < z < 3$ from GOODS NICMOS survey imaging.
Authors: Fernando Buitrago et al.
http://arxiv.org/abs/0807.4141

Title: Red Nuggets at $z \sim 1.5$: Compact passive galaxies and the formation of the Kormendy relation.
Authors: Ivana Damjanov et al.
http://arxiv.org/abs/0807.1744

Title: Recent Structural Evolution of Early-Type Galaxies: Size Growth from z = 1 to z = 0.
Authors: Arjen van der Wel et al.
http://arxiv.org/abs/0808.0077

- - -

* This .pdf file was rebuilt from a .html file. L.M. 2018-6-29