



## Monthly Notes of the Alternative Cosmology Group – November 2010

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

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The ACG newsletter is distributed gratis to subscribers. Get onto our mailing list without obligation at [www.cosmology.info/newsletter](http://www.cosmology.info/newsletter). The current newsletter is a review of 1161 papers published on arXiv under astro-ph, together with 731 under gen-phys, for the month of October, 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](http://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](mailto:hilton@hiltonratcliffe.com)). Note that our spam filter rejects slash and colon in the text, so please write web addresses commencing “www”.

### **I. Editorial comment**

The policy changes within arXiv are having the effect they sought. Whilst I haven't quantified it or made any definitive statistical analysis, it is becoming apparent with each passing month that the LCDM model is used as a filter to exclude what we must assume are ongoing observational results that cast doubt upon the standard approximation in cosmology. Of course, we understand that research follows the money, and the money is always predominantly on models that are being taught at universities. Testing of theories or models for validity has become in most cases simply a matter of checking the formalism for consistency. The principles of Kuhn and Popper are being lost to science, and it is becoming harder by the month to find papers that meet our simple criteria for this newsletter. We have broadened the scope somewhat, but it is nevertheless sobering to look back over the past year and witness the diminishing quantity and quality of challenging observations being published. If it is indeed a trend that cannot be reversed, then we may soon find ourselves trapped in a one-dimensional science classroom.

## II. Plasma Cosmology

### 1. Title: Magnetic fields and the outer rotation curve of M31

**Authors:** [B. Ruiz-Granados](#), [J.A. Rubino-Martin](#), [E. Florido](#), [E. Battaner](#)  
[arXiv:1010.0270](#)

Quote: "Recent observations of the rotation curve of M31 show a rise of the outer part that can not be understood in terms of standard dark matter models or perturbations of the galactic disc by M31's satellites. Here, we propose an explanation of this dynamical feature based on the influence of the magnetic field within the thin disc. We have considered standard mass models for the luminous mass distribution, a NFW model to describe the dark halo, and we have added up the contribution to the rotation curve of a magnetic field in the disc, which is described by an axisymmetric pattern. Our conclusion is that a significant improvement of the fit in the outer part is obtained when magnetic effects are considered. The best-fit solution requires amplitude of  $\sim 4$  microG with a weak radial dependence between 10 and 38 kpc."

## III. Dark Matter

### 1. Title: On the Experimental Failure to Detect Dark Matter

**Authors:** [Joseph F. Messina](#)  
[viXra:1010.0003](#)

Quote: "It is argued that the failure of dark matter experiments to verify its existence may be attributable to a non-Planckian 'action,' which renders dark matter's behavior contradictory to the consequences of quantum mechanics as it applies to luminous matter. It is pointed out that such a possibility cannot be convincingly dismissed in the absence of a physical law that prohibits an elementary 'action' smaller than Planck's. It is further noted that no purely dark matter measurement of Planck's constant exists."

## IV. Black Holes

### 1. Title: The physical inconsistency of the Schwarzschild and Kerr solutions

**Authors:** [Kiselev, V. V.](#); [Logunov, A. A.](#); [Mestvirishvili, M. A.](#)

Theoretical and Mathematical Physics, Volume 164, Issue 1, pp.972-975

Quote: "The metric of a neutral stationary "black hole" does not satisfy the causality conditions formulated by Hilbert. As a consequence, a trial body falling freely, for instance, into a rotating "black hole" develops a speed equal to the speed of light on the ergosphere shell during a finite time in the reference frame of a distant observer, which results in physical inconsistency and indicates the principal drawback of the vacuum solution of Einstein's equation outside a source."

## V. Supernovae

### 1. Title: A Critique of Supernova Data Analysis in Cosmology

**Authors:** [Ram Gopal Vishwakarma](#), [Jayant V. Narlikar](#)  
[arXiv:1010.5272](#)

Quote: "Observational astronomy has shown significant growth over the last decade and has made important contributions to cosmology. A major paradigm shift in cosmology was brought about by observations of Type Ia supernovae. The notion that the universe is accelerating has led to several theoretical challenges. Unfortunately, although high quality supernovae data-sets are being produced, their statistical analysis leaves much to be desired.

*Instead of using the data to directly test the model, several studies seem to concentrate on assuming the model to be correct and limiting themselves to estimating model parameters and internal errors. As shown here, the important purpose of testing a cosmological theory is thereby vitiated.”*

## **VI. Stellar Evolution and Large-Scale Structure**

### **1. Title: Study of Faint Galaxies in the Field of GRB 021004**

**Authors:** [Yu. V. Baryshev et al](#)

[arXiv:1010.3910](#)

Quote: “We have built the curves expected in the case of a uniform distribution of galaxies in space, and obtained the estimates for the size and contrast of the possible super-large-scale structures, which are accessible with the observations of this type.”

### **2. Title: The Luminosity Function in Groups of Galaxies**

**Authors:** [R. Brent Tully](#)

[arXiv:1010.3788](#)

Quote: “In all well studied cases, the faint end slopes are in the range  $-1.35 < \alpha < -1.2$ , much flatter than the slope for the bottom end of the halo mass spectrum anticipated by  $\Lambda$ CDM hierarchical clustering theory.”

### **3. Title: Constraining the Redshift Evolution of FIRST Radio Sources in RCS1 Galaxy Clusters**

**Authors:** [Megan B. Gralla, Michael D. Gladders, H. K. C. Yee, L. Felipe Barrientos](#)

[arXiv:1010.6011](#)

Quote: “When we divide our sample into bins according to cluster richness, we do not observe any significant difference ( $> 1.5$  sigma) in the number of radio sources per unit of cluster mass for the galaxy clusters with  $0.35 < z < 0.65$  as compared to the galaxy clusters with  $0.65 < z < 0.95$ . Thus the entire sample can be characterized by the number of  $(L(1.4 \text{ GHz}) > 4.1 \times 10^{24} \text{ W/Hz})$  radio sources per unit ( $10^{14}$  solar masses) mass, which we measure to be  $0.031 \pm 0.004$ . We further characterize the population of galaxy cluster-related radio sources through visual inspection of the RCS1 images, finding that although the radio activity of brightest cluster galaxies (BCGs) also does not strongly evolve between our high and low redshift samples, the lower-redshift, richest clusters are more likely to host radio-loud BCGs than the higher-redshift, richest clusters or poorer clusters at the 2-sigma level.”

## **VII. Redshift**

### **1. Title: Ambiguous Red Shifts**

**Authors:** [Carl E. Wulfman](#)

[arXiv:1010.2139](#)

Quote: “A one-parameter conformal invariance of Maxwell's equations allows the wavelengths of electromagnetic waves to change as they propagate, and do so even in otherwise field-free space. This produces an ambiguity in interpretations of stellar red shifts. Experiments that will determine the value of the group parameter, and thereby remove the ambiguity, are proposed. They are based on an analysis of the anomalous frequency shifts uncovered in the Pioneer 10 and 11 spacecraft studies, and physical interpretation of an isomorphism discovered by E. L. Hill. If the group parameter is found to be non-zero, Hubble's relations will have to be reinterpreted and space-time metrics will have to be altered. The cosmological consequences of the transformations are even more extensive because, though they change frequencies, they do not alter the energy and momentum conservation laws of classical and quantum-electrodynamical fields established by Cunningham and by Bialynicki-Birula.”

## VIII. Method

### 1. Title: Gravitational Lensing

Authors: [Matthias Bartelmann](#)

[arXiv:1010.3829](#)

Quote: *"Gravitational lensing has developed into one of the most powerful tools for the analysis of the dark universe. This review summarises the theory of gravitational lensing, its main current applications and representative results achieved so far. It has two parts. In the first, starting from the equation of geodesic deviation, the equations of thin and extended gravitational lensing are derived. In the second, gravitational lensing by stars and planets, galaxies, galaxy clusters and large-scale structures is discussed and summarised."*

### 2. Title: Hertz's Ideas on Mechanics

Authors: [Henri Poincaré](#), [Nicolae Mazilu](#)

[viXra:1010.0059](#)

Quote: *"Rarely, if ever, was the human spirit under a closer critical scrutiny than in the following masterpiece of the great scientist of the 19th and 20th centuries, Henri Poincaré. The work itself is seldom cited. Yet, the reader can find in it all the objections that can be raised against the main scientific inventions of the human spirit. They are still valid today, exactly as they were more than a century ago, or three centuries ago, for that matter."*

## IX. Titles of the month

Title: [Moduli Thermalization and Finite Temperature Effects in "Big" Divisor Large Volume D3/D7 Swiss-Cheese Compactification](#)

Authors: [Pramod Shukla](#)

[arXiv:1010.5121](#)