error of Type Ia supernova method. In this way, we estimate if the distances are consistent in each case as well as we calculate the measurement of the universe's expansion.

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COSMOLOGY FROM THE ANGULAR CORRELATION FUNCTION AND GALAXY CLUSTERS

M. Lima[1], H. Camacho, M. Aguena, and DES-Brazil consortium

The large-scale clustering properties of galaxies allows us to investigate models which attempt to explain the recent acceleration of the Universe background expansion. These properties include the correlations of galaxies and the abundance of galaxy clusters. I will present some of the relevant aspects when using these probes to constrain cosmological models. If time allows I will also present some of our recent results on real data from the Sloan Digital Sky Survey DR8 and on mock catalogs of the Dark Energy Survey.

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THE GALAXY COSMOLOGICAL MASS FUNCTION

A. R. Lopes[1], A. Iribarrem[1], M. B. Ribeiro[2], and W. R. Stoeger[3]

The aim of this work is to present a semi-empirical relativistic approach which uses the general model connecting cosmological theory to observational data derived from galaxy surveys (Ribeiro & Stoeger 2003, ApJ, 592, 1) to study the galactic mass evolution. For this purpose we define a new quantity named the galaxy cosmological mass function (GCMF). We used the FORS Deep Field survey sample of 5558 galaxies in the redshift range $0.5 < z < 5.0$ and its luminosity function in the B-band, as well as this sample's stellar masses. We obtained that the GCMF behaves as a power-law given by $\zeta(z) \propto [\mathcal{M}_g(z)]^{-2.3\pm0.4}$, where $\mathcal{M}_g$ is the average galactic mass in the studied redshift interval. This result can be seen as an average of the galaxy stellar mass function pattern found in the literature, where more massive galaxies were assembled earlier than less massive ones.

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THE CFHT/MEGACAM STRIPE-82 SURVEY

B. Moraes[1], J.-P. Kneib[2], A. Leauthaud[3], M. Makler[1], L. Van Waerbeke[4], K. Bundy[3], T. Erben[5], C. Heymans[6], H. Hildebrandt[4,5], L. Miller[7], H. Y. Shan[8,9], D. Woods[4], A. Charbonnier[1], and M. E. Pereira[1]

The CFTH/MegaCam Stripe-82 Survey (CS82) is a joint Canada-France-Brazil project covering ~ 170 sq. deg. in the SDSS Stripe-82 area down to magnitude 24.1 in the optical i-band with a mean 0.6" seeing (PIs: J.-P. Kneib, A. Leauthaud, M. Makler, L. Van Waerbeke). Its main focus is the study of weak and strong gravitational lensing, with additional applications in other fields such as galaxy evolution and galaxy cluster science. Furthermore, the multitude of existing and future projects in Stripe-82, covering from the radio to the UV and including a large set of spectroscopic data, offers the possibility of exploring applications in many fields of astronomy, thereby enhancing the scientific value of the survey. In this Short Talk, we will give an overview of the main published and ongoing CS82 scientific projects. They include the measurement of the largest contiguous lensing convergence map to date and its peak statistics, providing direct information on the large scale dark matter distribution; the first CMB-lensing $\times$ shear cross-correlation measurement, probing the dark matter distribution at redshifts of order 1; galaxy-galaxy lensing measurements around SDSS-III/BOSS galaxies, constraining halo occupation distribution (HOD) models and obtaining complementary mass measurements in combination with BOSS spectroscopic data; the discovery of several new gravitational arc systems and more.

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HALO-BASED RECONSTRUCTION OF THE COSMIC MASS DENSITY FIELD

J. C. Muñoz-Cuartas[1], V. Müller[2], and J. E. Forero-Romero[3]

We present the implementation of a halo-based method for the reconstruction of the cosmic mass density field. The method employs the mass density distribution of dark matter haloes and its environments computed from cosmological N-body simulations and convolves it with a halo catalogue to reconstruct the dark matter density field determined by the distribution of haloes. We applied the method to the group catalogue of Yang et al. built from the Sloan Digital Sky Survey (SDSS) Data Release 7. As a result we obtain reconstructions of the cosmic mass density field that are independent of any explicit assumption of bias. We describe in detail the implementation of the method, present a detailed characterization of the reconstructed density field (mean mass density distribution, correlation function and counts in cells) and the results of the classification of large-scale environments (filaments, voids, peaks and sheets) in our reconstruction. Applications of the method include morphological studies of the galaxy population on large scales and the realization of constrained simulations.

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OBSERVATIONAL CONSTRAINTS ON A COUPLED QUINTESSENCE MODEL WITH A GENERALIZED DE EOS

R. C. Nunes[1] and E. M. Barboza Jr[1]

In this work we put constraints on a quintessence dark energy model that interacts with the dark matter fluid. By assuming a DE model described by the parameterization $w(a) = w_0 + w_1 \ln_\beta(a)$ and that the dark fluids follows the relation $\rho_m/\rho_x = a^{-\xi}$ we use the most recent data of SN Ia, BAO, CMB and H(z) to put constraints on the EoS parameters w_0, w_1 and $\Omega_{m,0}$ for selected values of β and ξ parameters. Although the standard ΛCDM model is in good agreement with our results, we show that scenarios with interaction in the dark sector can not be ruled out by currently available data.

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GRAVITATIONAL WAVES AND STABILITY OF COSMOLOGICAL SOLUTIONS IN THE MODIFIED STAROBINSKY INFLATION

A. M. Pelinson[1], J. C. Fabris[2], F. O. Salles[3], and I. L. Shapiro [3]

We consider the dynamics of metric perturbations in the gravity theory with anomaly-induced quantum corrections. Our first purpose is to derive the equation for gravitational wave in this theory on the most general homogeneous and isotropic background, and then explore the stability of such background with respect to metric perturbations. Our first purpose is to explore the stability of the classical cosmological solutions in the theory with quantum effects taken into account. There is an interesting literature about stability of Minkowski and de Sitter spaces and here we extend the consideration also to the radiation and matter dominated cosmologies. The consideration was based on explicit derivation of gravitational wave equations in the theory with anomaly-induced quantum corrections and on the use of both analytical and numerical methods to perform the detailed analysis of these equations. The main conclusion of our work is that the stability conditions are essentially related to the sign of the Weyl-squared term in the *classical* action of vacuum and do not manifest any essential dependence on the quantum contributions. Furthermore, we analyze the behavior of metric perturbations during inflationary period, in the stable phase of the Modified Starobinsky inflation.

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