

ESTADO ACTUAL DE LA FOTOMETRIA SUPERFICIAL DE GALAXIAS EN CORDOBA

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Se brinda un informe de las posibilidades actuales en materia de Fotometría Superficial de Galaxias en Córdoba, tanto en materia de hardware como de software, analizando así mismo la confiabilidad del sistema. Se presentan también los trabajos realizados en el tema y los proyectos futuros.

STATISTICAL PROPERTIES OF CDM GALACTIC HALOS

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We analyze cosmological N-body simulations of comoving regions of 4-6 Mpc/h radius in a standard biased cold dark matter (CDM) cosmology. We study intrinsic statistical properties of protogalactic halos and those related to the nearby distribution of neighbors. We have considered the dependence of the statistical results on the dimensionless spin parameter ℓ , velocity anisotropy, axial ratios and masses. The statistics shows that the major axis of a galactic halo is preferentially oriented with the directions to the nearby neighbors. We find also that the spin of an object tends to be perpendicular to the direction to the nearest neighbor. This signal is strongly suppressed when all neighbors other than the closest are considered. Although intrinsic properties of the halos are correlated with ℓ , we find no relevant differences in the statistical behavior of spin orientations with respect to the distribution of neighbors.

We discuss the possibility that galaxy properties were transferred from their host halos and we analyze observational correlations expected in this standard model.

COUNTS, COLORS AND CLUSTERING OF MEDIUM REDSHIFT GALAXIES

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As part of a study of large scale structure at intermediate redshifts, a catalog of faint galaxies has been derived for a 2.2 deg² area (maximum angular extent $\sim 2^{\circ}5 \times 2^{\circ}5$) near the North Galactic

Pole. Observations were carried out at the CFHT in Mauna-Kea, Hawaii. The data comprising the catalog are found to be complete to limiting magnitudes $J \simeq 24$ and $F \simeq 23$.

Galaxy counts and color distributions have been obtained from the catalog. A logarithmic slope of $d(\log N)/dm = 0.45$ was derived for J over $20 \leq J \leq 24$, and $d(\log N)/dm = 0.37$ for F over $19 \leq F \leq 23$. The galaxy counts in this catalog match almost perfectly onto counts over the range $15 \leq J \leq 20$ from the APM survey (Maddox et al. 1990, MNRAS, 247, 1P), and onto the faint CCD counts by Tyson (1988, AJ, 96, 1) at $J \geq 23$. These three data sets therefore provide a well-defined mean relation for galaxy counts in the J bandpass. No significant variations are seen in the mean number density of galaxies over our fields. It is shown that this constraint requires that the extent of large scale inhomogeneities ("sheets") in the galaxy distribution across the line of sight must be larger than about $25 h_{100}^{-1}$ Mpc – in reasonable accord with observations of large scale structure in the CFA survey. There is a dramatic change in the slope of the J and F counts fainter than $J \approx 22.5$ and $F \approx 21.5$. This implies a change in the properties (number count slope or mean color) of fainter galaxies relative to those at $J \leq 22$, and cannot be due solely to the presence of a new population of faint blue objects.

The 2-point angular correlation function of galaxies on scales $\leq 1^{\circ}$ down to $J \approx 24$ and $F \approx 23$ was derived. The most important results are as follows: (i) The slope $d \log(\omega)/d \log \theta$ decreases about 15% towards fainter limiting magnitudes. (ii) The amplitude A , after fitting $\omega(\theta) = A\theta^{-0.8}$ to the data, increases towards brighter limiting magnitudes. (iii) The power law behaviour of $\omega(\theta)$ breaks at angles which decrease with limiting magnitude. These results are consistent with a picture where there is evolution of clustering (galaxies were less clustered in the past), and with the existence of a characteristic scale size in the Universe.

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A NEW ABUNDANCE CALIBRATION FOR THE WASHINGTON SYSTEM AND SOME EARLY RESULTS

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A revised metal-abundance calibration for the Washington photometric system is presented which represents a significant improvement over previous