

RESUMENES/ABSTRACTS

GROUPS WITH APPARENT HIGH M/L RATIOS

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Dynamical analysis of galaxy systems, if assumed in a virialized state, show that their M/L ratios spread a range in values of order 50 for groups to about 400 for rich clusters. However, if dark matter is distributed inhomogeneously, this range could be larger in some (poorly studied) systems, presumably depending on factors at their formation epoch. Do systems with greater M/L ratios, or a higher proportion of dark matter, exist?

Spectra, taken with the multiobject spectrograph ARGUS at the CTIO 4m telescope, of 27 members of the group of faint galaxies around the dominant NGC 4782/3 pair, show a group velocity dispersion of 550 km s^{-1} within a projected 300 kpc radius ($H_0 = 100 \text{ km s}^{-1} \text{ Mpc}^{-1}$). This sample extends the previous 12 velocities measured by de Souza & Quintana (1990, AJ, 99, 1065). Most of the luminosity of the group is in the dumb-bell galaxy, implying an estimated $M/L \gtrsim 1000 (M/L)_\odot$. Velocity measurements with the Fiber spectrograph at Las Campanas 2.5-m telescope of 50 galaxies in the neighborhood of the 900 km s^{-1} relative velocity dumb-bell IC5049 at $z = 0.04$, showed that 13 galaxies form a tight group surrounding the dumb-bell, with a dispersion of 580 km s^{-1} . Here, the concentration of luminosity in the db is even greater than in the previous group, leading to a $M/L \sim 2000 (M/L)_\odot$. The region sampled, $1.5^\circ \times 1.5^\circ$, shows one other galaxy concentration with an internal dispersion of 330 km s^{-1} and a slightly 600 km s^{-1} higher redshift, located 0.5° SE of IC5049. The dynamics of both groups and surrounding concentrations was discussed assuming either bound or unbound states. In the first case the large values of M/L quoted were obtained. In the second, in which the slight bi-modality of the velocity histograms is taken as indicator of merging groups, the systems are explained as the collision of two elliptical galaxies each surrounded by smaller groups of satellites. Future observations to study the extensions of these groups and possible contamination by interlopers were also

described. Numerical simulations are in progress to study their evolution from a theoretical viewpoint.

A HIERARCHICAL ALGORITHM TO
DISENTANGLE NEARBY GROUPS
OF GALAXIES ($< 6000 \text{ km s}^{-1}$)P. Fouqué^{1,2}, E. Gourgoulhon³,
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A hierarchical algorithm, similar to Tully's (1987, ApJ, 321, 280) one, has been devised and applied to an all-sky sample of 4143 galaxies comprising all the objects with apparent diameter $D_{25} > 100$ arcsec and of known recession velocities $< 6000 \text{ km s}^{-1}$. This sample is at least 84% complete to these limits. The hierarchy is built on the mass density of the aggregates progressively formed by the method, corrected for the loss of faint galaxies with the distance; this correction represents the main improvement upon Tully's treatment. In the method, a group is defined as an entity having an average luminosity density higher than $8 \times 10^9 L_{B\odot} \text{ Mpc}^{-3}$, chosen as to ensure that it is gravitationally bound and does not follow the Hubble expansion.

264 groups of at least 3 members have been identified in this way, among which 82, having > 5 members and located at distances $< 40 \text{ Mpc}$, represent a more complete sub-sample. Our sample represents the deepest and richest collection of groups homogeneous over both hemispheres and whose global properties do not present significant biases with the distance; it can thus be used confidently for a variety of statistical studies.

A first analysis of the sample leads to the following conclusions: (i) almost all the crossing times are $< H_0^{-1}$, confirming the bound nature of our groups; however, the collapse times are generally larger than the age of the universe, showing that the majority of these groups is far from being virialized. (ii) The median value of the 1-D velocity dispersion is rather low, 73 km s^{-1} , without correcting for measurement errors of individual radial velocities. (iii) The median virial mass to blue luminosity ratio of the groups is $62 M_\odot L_{B\odot}^{-1}$, a high value, but lower than some obtained in previous studies; it

does not vary with the distance of the group. (iv) An estimate of Ω from this median M/L ratio amounts to 0.05. (v) We confirm clearly the increase of the M/L ratio with the group size; this can be taken as an indication of the presence of dark matter around galaxies to a distance of 500 kpc. (vi) A prediction of the Milgrom's (1983, ApJ, 321, 280) theory is not verified: the ratios of the virial mass to the fourth power of the velocity dispersion do not cluster around a constant value.

This catalog of groups of galaxies is being applied to the study of the kinematics of the Local Universe.

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CORRIMIENTO AL ROJO DE GALAXIAS AUSTRALES

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Se está desarrollando un programa para la medición de corrimiento al rojo de galaxias australes con el telescopio de 2.15-m y la Z-Machine en el Complejo Astronómico El Leoncito (CASLEO). Las observaciones comprenden a galaxias con $m < 15.5$ en la franja $-17 < \delta < -2$. Se comentan los alcances y los aspectos técnicos del programa.

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DISPERSION DE VELOCIDADES EN GALAXIAS ELIPTICAS

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Se ha iniciado un programa para la medición de dispersión de velocidades en galaxias elípticas ($m < 14.0$) del hemisferio sur con el telescopio de 2.15-m y la Z-Machine en el Complejo Astronómico El Leoncito (CASLEO). Se comentan los detalles técnicos y alcances del mismo.

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LARGE SCALE PECULIAR MOTIONS IN THE SOUTHERN SKY

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Distances from the Tully-Fisher relation have been measured with the Parkes radio telescope for eight southern clusters in the redshift range 2500-5000 km/s. All the clusters have large (average 1000 km/s) positive peculiar velocities in a comoving frame in the microwave background rest frame. Outflow is seen on both sides of the Galactic Plane. The source of the large scale flow, if gravitational in origin, lies at or beyond the limit of our sample.

We have also measured peculiar velocities for a sample of 48 late type spirals which are located in the general vicinity of the Great Attractor (GA). We have used an imaging Fabry-Perot to measure $H\alpha$ rotation curves for this sample. A non-linear infall model is used to predict the position of the caustic surface as a function of distance from the GA. The data are then compared directly to that prediction. We also use all available velocities to directly search for the caustics in redshift space. We explicitly incorporate distance errors into the models and adopt a Malmquist correction which is appropriate for a highly clustered distribution. Our results are: 1) we can not identify a symmetric infall pattern centered on the GA, 2) the signature of backside infall is very weak but can be enhanced by the use of an improper Malmquist correction, 3) galaxies in the vicinity of the Centaurus cluster have a mean observed peculiar velocity of 1500 km/s, 4) galaxies in the vicinity of OCA 3574 seem to participate in a small scale infall pattern, 5) a bulk flow "infall" pattern, centered on a kinematic distance of 4350 km/s, provides the best means of correcting the observed velocity so as to produce a Tully-Fisher relation with the least amount of scatter.

We conclude that the real GA is unlikely to be a distinct mass entity but rather represents the general collection of overdense regions in this portion of the sky. Consideration of the morphology of this region in redshift space, coupled with the large observed peculiar velocities in the vicinity of Centaurus, strongly suggests that this structure is a main contributor to the observed flows. However, positive velocity residuals continue to be seen in galaxies with distances as large as 80/h Mpc from the observer. The overall behavior of the data shows that we have not yet isolated the true source of the observed peculiar velocities.

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