$T_1) > \simeq$ 1.35 mag, equivalent to metallicities of $< [Fe/H] > \simeq -0.39$ and $< [Fe/H] > \simeq -1.35$ dex.

(iv) The spatial distribution of the red clusters is more strongly concentrated than that of the blue clusters. Taken in bulk, the globular cluster population shows a color gradient with $\Delta(C - T_1) \simeq 0.2$ mag in the range between 40″ to 180″ of galactocentric radius. This gradient is produced by the radially variable contribution of each of the two populations to the total sample. Taken individually, the mean colors of each of the two populations do not depend on the galactocentric projected radius.

(v) The results of this work strongly support the occurrence of two well defined globular cluster formation events against a continuous process.

A SURVEY OF THE ISM IN ELLIPTICAL GALAXIES: THE IONIZED GAS

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We present results of a CCD optical imaging survey of the ionized gas in 74 luminous elliptical and lenticular galaxies, selected from the RC3 catalog. For each galaxy we have obtained broad-band V and R images and narrow-band images centered at the Hα+[N II] emisson lines to derive the luminosity and amount of ionized gas. We found that a large fraction of E (67%) and SO (76%) galaxies in our sample contain ionized gas. The ionized gas morphology looks very regular for most galaxies, but for some of them ($\sim$ 8%), a very extended filamentary structure is observed. According to the gas morphology and size, the galaxies can be classified into three broad groups, named small disk (SD), regular extended (RE) and filamentary structure (F). The emitting region mean diameter ranges between 2 kpc and 12 kpc. The mass values range between 10^3 and 10^5 solar masses. A significant correlation between Hα+[N II] and X-ray luminosities is found for those galaxies (38% of the sample) for which we have detected ionized gas and are listed as X-ray sources. However, there are relatively strong X-ray emitting galaxies for which we have not detected Hα+[N II] emission and objects which show emission-lines but are not listed either in the EINSTEIN or in the ROSAT databases. Weak correlation between the infrared luminosity in the 12 μm band and L(Hα+[N II]) was found. A strong correlation was found between the Hα+[N II] flux and the flux in the B band inside the region occupied by the line-emitting gas. We use these correlations to explore the possible mechanisms responsible for the gas ionization and excitation, and analyze in particular the role of the post-AGB stars and the thermal conduction from the X-ray halo in providing the necessary source of ionization.

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HOST GALAXIES OF SEYFERT 1 AND 2

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We are carrying out a program to study the optical morphology of the galaxies in the CfA sample of Seyfert galaxies.

The aim of the project is to study in detail the morphological properties of the galaxies that host the AGN, and to look for differences between the Seyfert types 1 and 2 in a complete and statistically well defined sample of Seyfert galaxies.

All the objects (but a few of them) have already been observed in BVRI and Hα. The observations have been carried out at the Nordic Optical 2.5-m Telescope. Some objects though have been observed with the Spanish 1.5-m telescope in Calar Alto.

Most data have been collected under excellent seeing conditions (0.6–0.7 arcsec) and very good signal to noise ratios. Data reduction is in progress.

An extra feature of this program is to produce a uniform optical data base to be used in conjunction with the IR data of this same sample of objects that will be acquired by ISO in our guaranteed time.

1. Brightness Profiles. To analyse the contributions to the total flux of different regions, we are characterizing the brightness profiles of the sample objects. To obtain a better signal/noise ratio each profile is obtained taking an average of the flux contained in an elliptical angular sector centered in the nucleus along the major (and minor) axis of the galaxy. With this fit we create two-dimensional models for each component: nucleus, bulge and disc. Then, we can compare the contributions of the non-nuclear components to the total flux and their colors, to study the differences between host galaxies of Seyfert 1 and 2.

2. Colors. We have done B-V and R-I color maps of 16 galaxies of the sample. In the small subsample studied so far we observe that, as expected, the colors of the Seyfert 1 nuclei are usually bluer than those of the Seyfert 2 nuclei. However, NGC 3079, NGC 4388, NGC 5674 and

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NGC 5252 show a red nucleus, which indicate high nuclear extinction and therefore dust in front of these Seyfert nuclei. These four galaxies are Seyfert 2 type, thus this result supports the idea that the type 2 nuclei can be very reddened Seyfert 1 nuclei.

PHOTOMETRY OF THE CENTRAL REGIONS IN A SAMPLE OF BAUTZ-MORGAN TYPE I, I-II AND II ABELL CLUSTERS

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We report CCD photometry of the central regions of 209 Abell clusters of Bautz-Morgan type I, I-II and II. The areas covered from $5.'8 \times 5.'8$ to $20.' \times 20.'5$. We performed *Total* photometry in the *Gunn r* bandpass, classified stars and galaxies and obtained structural parameters for the images. We modelled realistic simulation of stars and galaxies and ran our classification algorithms to estimate photometric and structural errors. The magnitude errors range from rms $\leq \pm$ 0.07 mag at r = 17 to $\pm$0.3 mag at r = 21. Errors in the photometric zeropoints are negligible.

We estimated the absolute magnitude of the brightest cluster member (BCM) in each cluster by aperture photometry with radii of 16.0 kpc and 35.9 kpc (we adopted $H_o = 60$ km s^{-1} Mpc^{-1} and $q_o = 0.5$). The Digital Sky Survey was used to obtain accurate positions of BCM galaxies. Magnitudes were corrected for evolutionary, k —correction and absorption. We also have compared our metric fixed aperture data with values in the literature. More than 90% of the measured galaxies in common compare well (within 0.1 mag). The discrepancies seem to be due to the presence of dumbbell and multiple nuclei galaxies, which implies centering ambiguities. We derive the Hubble diagram for the clusters, which comprise a redshift range out to z = 0.25, from which we obtain a Hubble constant of $H_0 = 79 \pm 20$ km s^{-1} Mpc^{-1}.

The data will be used to analyze the environments of BCM's and to derive luminosity functions and density profiles of the sample.

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THE SHAPLEY SUPERCLUSTER: THE DENSEST NEARBY MATTER CONCENTRATION

H. Quintana[1,2]

The Shapley Supercluster is a complex comprising dozens of clusters of galaxies at z = 0.044 – 0.052 that forms the densest, most massive region within z $\leq$ 0.1. It is centered on A3558 and has a half dozen clusters at its core (A3558, A3552, A3556, A3562, SC1327–313 and SC1329–314) with an elongated E-W shape. We have sistematically measured redshifts of galaxies over an area 7° × 10°, and less sistematically over a wider field. From the distribution of more than 1000 velocities we have shown the supercluster to have a pancake shape. For 10 clusters with enough data we have calculated velocity dispersions and virial masses. A dynamical analysis sets a lower limit to the supercluster mass of 0.5×10^{16} h^{-1} $M_\odot$ and a likely upper limit of 10^{17} h^{-1} $M_\odot$, which is 2 to 9 times lower than needed to explain the local cosmic flow or the Cosmic Background anisotropy by the pull of the supercluster alone (Quintana et al. 1995, AJ 110, 463). A velocity survey of other probable cluster members shows that A3554 and A3577 are members, while A3524, A3531, A3542, A3545 and A3549 are background clusters, but A3581 is a foreground system (Quintana et al. 1996, A&A, submitted).

Photometry of galaxies on 16 SRC/ESO R survey plates, down to R = 18.5 and over an area 10° in radius is underway from scans done by the MAMA machine in Paris. Calibrations are based on stars and galaxies from 9 to 13 spots on each survey plate, already observed in several sessions using CCD's at Las Campanas and La Silla. Velocities for more than 3000 galaxies and density maps will be used to follow internal walls and filaments interconnecting clusters and groups. We expect to obtain a good model of the distribution of galaxies in the supercluster and to set limits for cosmological theories of the formation of galaxy structures.

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