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The 3CR WFPC2 HST Snapshot Survey

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galaxies with $I=18.5-23$. Using CFHT deep ($I \leq 24$) imaging of a 'blank' field we find a significantly lower pair fraction using the same criteria and approach as Burkey *et al.* This suggests that interactions of faint galaxies may not be as important a factor as originally thought. The colors and morphologies of our close pairs are discussed and we attempt to measure the pair fraction as a function of magnitude.

107.13

HST/WFPC-2 Observations of a Small Cluster of Galaxies in Ursa Major

J.L.Sandoval, E.M.Malumuth (CSC/GSFC)

We present HST/WFPC-2 images of a previously unknown small cluster of galaxies in Ursa Major. These images were obtained as part of the GTO parallel program. In this program, WFPC-2 images are taken using the F606W (wide V) and F814W (WFPC-2 I) filters in parallel with GTO observations using other HST instruments. The WFPC-2 images, obtained in parallel with FGS observations of BD+67°552 on April 22, 1994, contain a number of galaxies between 3" and 8" in diameter as well as a multitude of other smaller galaxies.

The cluster is dominated by eight large spiral galaxies in an area smaller than one Wide Field Camera chip ($80'' \times 80''$). We present V and I band photometry, V-I colors of each galaxy in the field, and V-I color gradients for the larger galaxies. The luminosity function and density morphology relationship is also discussed. Based on the luminosity function and linear diameter of the largest galaxies, we estimate the redshift of the cluster to be $z \sim 0.2$ ($H_0=75$ and $q_0=0$).

107.14

Young Star Clusters and CO Gas in the Galaxy Merger, NGC 7727 (Arp 222)

Dennis R. Crabtree, Tammy Smecker-Hane (DAO)

The morphology of NGC 7727 (Arp 222) in the optical and near infrared suggests that it is the product of a merger of two disk galaxies after approximately 1 Gyr that will become an elliptical galaxy. We have obtained high-resolution images of NGC 7727 from which we have identified 23 candidate young globular clusters. The mean colors of the clusters imply ages of 1 Gyr (modulo internal reddening) and we infer that the clusters formed in the merger. We discuss the surface brightness profile of the galaxy, and the bright, secondary nucleus that we found in the inner 5 arcmin. In addition, we have detected CO(2-1) emission from NGC 7727 corresponding to 1.0×10^8 solar masses of gas. NGC 7727 appears very similar to NGC 7252 in morphology and the presence of a young cluster population but appears to have a much smaller molecular gas content.

107.15

Tracing the Gas in the Merger Arp 105

Elias Brinks (NRAO), I. Felix Mirabel (Centre d'Etudes de Saclay), Pierre-Alain Duc (Centre d'Etudes de Saclay)

Arp 105 consists of an infrared luminous starburst spiral being torn apart by a massive elliptical, close to the centre of a cluster of galaxies. At the tip of a colossal, 100 kpc long tidal tail which emanates from the spiral and points almost due North, we find an irregular galaxy of Magellanic type. At the opposite end, a thinner and somewhat shorter tidal arm ends in a bright clump of recently formed stars, resembling a blue compact dwarf galaxy. We propose that these small galaxies are recycled objects being formed out of the tidal debris from the spiral. Our observations of the neutral (HI) and molecular (CO) gas in this system show that the collision has caused a marked separation of the cool and cold interstellar gas. The atomic gas from the spiral galaxy has been pulled out into intergalactic space and is mostly concentrated around the star forming small galaxies near the ends of the tidal tails, $\approx 6 \times 10^9 M_\odot$ for the northern and $\approx 5 \times 10^8 M_\odot$ for the southern object. Some 90% of the CO is found near the central region of the spiral.

107.16

Are Gradients in Intracluster Metals and Galaxy Morphology Related?

R.A. Dupke, R.E. White III (University of Alabama)

We present the preliminary results of a comparison between the morphological distribution of galaxies in clusters and the presence (or absence) of intracluster metal abundance gradients. The objective of such a comparison is to discriminate between possible metal injection mechanisms (e.g. winds, ram-pressure stripping) and sources (e.g. spirals, ellipticals and/or lenticulars).

107.17

The 3CR WFPC2 HST Snapshot Survey

S. de Koff (STScI), S. A. Baum (STScI), J. Biretta (STScI), D. Golombek (STScI), F.D. Macchetto (STScI), P.J. McCarthy (Carnegie Obs), G.K. Miley (Leiden Observatory), W. Sparks (STScI)

We present preliminary results of the reduction and analyses of the WFPC2 PC HST snapshot images of the 3CR catalog. The observations are done with a wide R filter (F702W) and typically use a 300 sec. exposure time. We get a resolution of $0.05''/\text{pixel}$.

At the moment we have obtained images of 160 radio sources, spanning a redshift range from 3C257 at a redshift of 2.474 to 3C272.1 at a redshift of 0.0031. The observations are still ongoing. We already have images which clearly show dust-lanes out to redshifts of 0.3, optical jets in nearby low luminosity sources, evidence for interaction at all redshifts, "fuzz" around higher redshift quasars, and emission that could be associated with jets/hotspots in powerful sources. Possible companion galaxies and associated clusters are seen in several of the high ($z > 1$) redshift galaxies.

The 3CR sample spans a wide range in redshift, including 89 sources at redshifts higher than one, as well as 84 sources at redshifts less than 0.1. The 3CR is extremely well studied. Thus, we have an excellent pre-existing database for correlation studies between the optical properties and observations at other wavelengths, from the radio to the X-ray.

The issues we want to address with this project are: What are the host galaxy morphologies- are there differences between FR-I and FR-II sources, nuclear cusps, tidal tails? How common are optical jets? Do optical continuum and radio structure align and is there detailed morphological correspondence? How common are dust-lanes and nuclear dust-discs, what is their orientation relative to the radio axis? Is there evidence that the high redshift sources are merging systems?

Session 108: Seyfert Galaxies Display Session, 9:20am - 6:30pm Tucson Convention Center, Exhibit Hall A

108.01

Continuous Monitoring of NGC4151 with CGRO/BATSE

A. Parsons, N. Gehrels (NASA/GSFC), W. Paciesas (U. of Alabama), A. Harmon, G. Fishman, C. Wilson (NASA/MSFC)

We will present the results of BATSE (15-200 keV) occultation measurements of the nearby Seyfert galaxy NGC 4151. This AGN is variable on time scales of a few days, but long-term daily monitoring has never been possible in X-rays or gamma-rays prior to BATSE. Earlier balloon experiments measured large variations in both intensity and spectral shape, while OSSE observations have reported only a 15% variation in spectral shape in the last few years. Long term monitoring is thus quite important. The standard occultation analysis allows detection of NGC4151 on few-day time scales and spectral measurements on week time scales. NGC4151 is well suited for this study because it is fairly isolated in the X-ray sky and is often observed