POSTER

1

ABSTRACT

ADAMI, Christophe
Laboratoire d'Astrophysique de Marseille (FR)

Low surface brightness features in Coma

There are two special classes of dwarf galaxies in clusters, the faint low surface brightness and the ultra-compact dwarf galaxies. We propose to present the corresponding populations in Coma, to describe their properties, and to compare these results with other clusters.

POSTER

2

ABSTRACT

AGUERRI, J. Alfonso L.
IAC - Instituto de Astrofisica de Canarias (ES)

FOssil Group Origins (FOGO) project: a multiwavelenth view of fossil galaxy systems

Fossil groups (FGs) are extreme galaxy associations in the Universe. They have assembled its mass in a sort time scale at z>1 due to an intense merger rate. At the end of this process the most massive and large galaxies of the Universe were placed at the center of the potential of these galaxy association. These central galaxies of FGs have not accreted mass in the last 8 -10 Gyr, being relics of structure formation at high redshift. This makes them ideal objects in order to study the structure formation in the Universe. We have started a project in order to carry out a systematic and multiwavelength study of a large sample of FGs. The first results of this work will be presented. In particular, we will present the structural properties of the brightest group galaxies, comparing them with normal elliptical galaxies. We will also show the dynamical and photometrical study of a FG located at z=0.5. Its LF shows evidences of a lack of L* galaxies in the central regions of the system. There are also hints of galaxies located preferentialy in radial orbits in its external regions, explaining its fossil nature. It is also relevant that this galaxy association is as massive as the Coma cluster but relaxed. This indicates that this system is an old, very massive and evolved galaxy cluster, completely assembled 6 Gyr ago. Few of these kind of systems have been found in cosmological simulations.

POSTER

3

ABSTRACT

ARRIGONI BATTAIA, Fabrizio
Università di Milano-Bicocca, Dip. di Fisica (IT)

The age of star-forming regions stripped from VCC1249 by VCC1226 (M49)

The system VCC1249-VCC1226 has been extensively discussed in the literature: HI gas, presumably belonging to VCC1249, has been found stripped off from this galaxy due to the interaction with M49. Some compact star-forming regions were found imbedded in the HI cloud. Triggered by a new GALEX NUV image of the two galaxies indicating significant ongoing star formation in these compact regions and taking advantage from high resolution, deep optical (u,g,i,z) imaging from NGVS and from spectroscopy obtained at Keck we tried to constrain the ages of these star-forming regions via SED-fitting of both the photometric and spectroscopic data.

POSTER

4

ABSTRACT

BOISSIER, Samuel
Laboratoire d'Astrophysique de Marseille (FR)

Deep UV and optical imaging of Virgo galaxies with HI tails

The VIVA surveys has provided deep HI images of Virgo galaxies with HI tails (Chung et al 2009; NGC 4294, 4299, 4302, 4330, 4388, 4396, 4424, 4654) probably due to an on-going stripping event due to ram-pressure. We will bring constraints on the amount of stars formed in the HI tail (and their eventual age) by combining the HI maps with deep optical and UV images taken respectively from the NGVS and GUViCS Virgo surveys. These data will bring constraints for models such as those presented by Kapferer et al (2009), in which new stars are formed outside of the optical disc.

POSTER

5

ABSTRACT

CARTER, David
Liverpool John Moores University (UK)

The spatial distribution and origin of the FUV excess in early-type galaxies

We present surface photometry of a sample of 52 galaxies from the GALEX and 2MASS data archives. We examine the spatial distribution of the Far Ultra-Violet excess in these galaxies, and its correlation with dynamical and stellar population properties of the galaxies. From aperture photometry we find that almost all galaxies show a positive gradient in the (FUV-NUV) colour determined from the GALEX images. The logarithmic gradient does not correlate with any stellar population parameter, but it does correlate with the central velocity dispersion. The strength of the excess on the other hand, correlates with both alpha enhancement and metallicity, but more strongly with the former.

POSTER

6

ABSTRACT

CHIES-SANTOS, Ana L.
Utrecht University (NL)

Unravelling ages and metallicity distributions of globular cluster systems in E/S0 galaxies

I will present the results of our investigation of ages and metallicity distributions of 14 globular cluster (GC) systems. We use archival ACS/HST optical imaging and newly derived LIRIS/WHT K-band photometry. For some of the galaxies where the optical distribution is clearly bimodal, the optical/near-infrared distributions appear unimodal. A bimodal (optical) colour distribution is not necessarily an indication of an underlying bimodal metallicity distribution. Simulations show that in the GC-rich systems, the near disappearance of bimodality in red colours, when it is the case, is not due to observational scatter. The shape of some of the GC optical colour distributions, such as NGC 4486 may indeed be due to the non-linearities in certain colour-metallicity relations, as suggested by Yoon et al. (2006). The GC system of NGC 4649 is the best case for having a bimodal metallicity distribution. No signi?cant difference is detected in the mean ages of GCs among elliptical galaxies. S0 galaxies on the other hand, show evidence for younger GCs. Surprisingly, this appears to be driven by the more metal-poor clusters. Padova SSPs with recently released isochrones for old ages (14 Gyrs) show less of an o?set with respect to the photometry than previously published models.

ABSTRACT

CHUNG, Jiwon
Chungnam National University, Astronomy and Space Science, Daejeon (KR)

Probing the Merging Blue Compact Dwarf Galaxies from Element Abundances and Star Formation Rate

We present elemental abundances of 95 blue compact dwarf galaxies (BCDs) at z=0.2~0.35 using Sloan Digital Sky Survey (SDSS) DR7. We derive various element abundances using Te method. We found that nitrogen abundance of BCDs showing merging features are more enriched than normal BCDs due to the contribution of fast rotating young massive stars in the galaxy. On the other hand, neon and oxygen abundances for merging BCDs are slightly lower than the normal BCDs. This might be resulted from the dilution by metal-poor gas infall during the interaction. We estimate FUV and NUV star formation rate (SFR) from the GALEX GR6 data along with H alpha SFR from the SDSS spectroscopic data. Merging BCDs also show systematically lower H alpha to FUV SFR and FUV to NUV SFR. Considering element abundance anomalies and distinct SFR ratios, we suggest that merging BCDs experience prolonged star formation histories due to the episodic dynamical event with neighboring object (e.g., fly-by interaction).†

POSTER

8

ABSTRACT

COCCATO, Lodovico
ESO-Garching

Stellar populations in the outskirts of brightest cluster galaxies

We studied the stellar population at large galactocentric radii in the brightest cluster galaxies NGC 4489 (Coma cluster) and NGC 3311 (Hydra I cluster). Our findings support the scenario that the inner and outer regions formed during two separate phases: the central parts formed first, "in situ" (or through a single major merger), while the halo is accreted later through a series of minor mergers.

In the particular case of NGC 3311, the halo stellar velocity dispersion radial profile is rising rapidly, meaning that the kinematics is dominated by the contribution of intra-cluster stars. We also identified a region where the stellar population properties are different from the rest of the halo. We associate this feature in stellar population to the presence of a photometric substructure which was detected in the same area. Simulations are consistent with the scenario that this substructure was formed by disrupted dwarf galaxies, supporting the idea that the build-up of the stellar halo around NGC 3311 is still ongoing.

POSTER

9

ABSTRACT

CORSINI, Enrico Maria
Università di Padova, Dip. di Astronomia (IT)

The dynamical structure and stellar populations of early-type galaxies in Abell 262 cluster

This work aims to study the distribution of luminous and dark matter in a sample of early-type galaxies of Abell 262. We compared dynamically-derived stellar mass-to-light ratios based on Schwarzschild's orbit superimposition technique with completely independent results from simple stellar population models. Even in dynamical models with dark matter halos the amount of mass that follows the light increases more rapidly with galaxy velocity dispersion than expected for a constant stellar initial mas function. This could be due to a change in the initial mass function or to an increasing amount of dark matter following a spatial distribution similar to that of light. Implications for galaxy structure and assembly are discussed.

POSTER

10

ABSTRACT

COTE, Patrick
NRC - Herzberg Institute of Astrophysics (CA)

The Next Generation CFHT: A Wide-Field Spectroscopic Facility for the Coming Decade

The 3.6m Canada-France-Hawaii telescope (CFHT) saw first light in 1979. Since that time, it has proved to be a highly productive and versatile research facility, making excellent use of one of the world's premier astronomical sites. Since 2003, CFHT has enjoyed success by focusing on wide-field optical and IR imaging. However, the coming decade will see an explosion of new wide-field imaging facilities, both on the ground and in space, as well as the launch of the GAIA astrometric telescope. At present, there is no large aperture, wide-field telescopic suitable for a comprehensive spectroscopic follow up of these missions and surveys, which will be essential for maximizing their scientific impact. In this poster, I describe a plan to upgrade CFHT, by 2020, to a 10m segmented mirror telescope equipped with a highly multiplexed, wide-field (1.5 sq. deg.) spectrograph. Dedicated to high- and low-resolution spectroscopy of faint stars and extragalactic sources, this "Next Generation CFHT" would build upon the many imaging and astrometric surveys planned for the coming decade and enable a comprehensive investigation of two of the most pressing scientific questions of our time: the nature of dark energy and the formation history of the Milky Way.

ABSTRACT

DALLA BONTÀ, Elena
Università di Padova, Dip. di Astronomia (IT)

Photometric analysis of Abell 1689

We present a photometric decomposition of early type galaxies in Abell 1689, based on observations in the rest-frame V-band with the Advance Camera for Surveys on board the Hubble Space Telescope. We performed a two dimensional photometric decomposition of each galaxy surface-brightness distribution using the GASP2D fitting algorithm. We compared the results derived by adopting a Sersic law and a de Vaucouleurs law. S0 galaxies were analyzed also taking into account a disk component described by an exponential law. The derived photometric parameters, together with the ones obtained with the curve of growth method, have been used to analyze the fundamental plane of Abell 1689 and quantify how it is affected by the use of different decomposition techniques.

POSTER

12

ABSTRACT

DE PROPRIS, Roberto
CTIO, La Serena (CL)

The luminosity function of galaxies in clusters, from the NUV to K

I present composite luminosity functions in the K-band and the NUV (2500A) band for ~20 clusters, where galaxy members are identified from a highly complete (>90%) spectroscopic sample. Luminosity functions are also split according to spectral type and compared with the field. The most significant result is that the stellar mass function of galaxies in clusters is largely universal and does not depend on environment; the values we measure are identical to the field's. In the NUV, the LF is dominated by a population of lower-mass starforming galaxies.

POSTER

13

ABSTRACT

DURRET, Florence
Institut d'Astrophysique de Paris (FR)

Atypical faint galaxies in Coma: the spectroscopic side

Based on deep multiwavelength imaging and ESO-VLT spectroscopy, we have analysed the color-magnitude relation and galaxy luminosity function down to very faint magnitudes in various regions of Coma in the framework of environmental effects in the cluster. We propose to present our results here and to compare them with those found for other clusters, both relaxed and unrelaxed.

POSTER

14

ABSTRACT

FAIFER, Favio Raul
Universidad Nacional de La Plata - IALP-CONICET (AR)

Globular cluster system of the NGC7626/NGC7619 pair of giant elliptical galaxies in the Pegasus I group

NGC 7619 and NGC 7626 are the two dominant elliptical galaxies in the Pegasus I group (~50 Mpc, Tonry et al. 2001). This group includes about 13 members (Ramella et al.,2002) and firm evidence that it hosts an ongoing major merger was found by Randall et al.(2009). This kind of event is one of the most powerful ways of modifying the galaxies and group structure, morphologies and contents. The globular clusters (GCs) are known to be good tracers of the galaxies formation and evolution. In this context, we present the first complete analysis of the GC system (GCS) surrounding the NGC 7619/7626 pair, based on recently obtained deep Gemini+GMOS images in the g', r' and i' bands. A mosaic of four fields has been taken along the line that joins both galaxies and high quality psf photometry has been achieved. We characterize the GC integrated colour distribution, studying the presence of bimodality, as well as the spatial projected distribution. Through the analysis of this GCS, we search for clues that may give information about the main process taking place in this group. The relative proximity on the sky of this two galaxies allows us to compare, in a straightforward manner, some photometric characteristics and the presence of the blue tilt phenomenon. The likely existence of some Ultra Compact Dwarf candidates is also considered.

ABSTRACT

FERRIERE, Etienne
CEA Saclay, SAp (FR)

Extragalactic archaeology applied to understanding Early-Type Galaxies' formation within the NGVS and Atlas3D surveys

(Etienne Ferriere, Pierre-Alain Duc, Jean-Charles Cuillandre) Short Poster Abstract (please do not use carriage returns in the text!): Fine-scale structures are the faint surrounding tracers of galaxy accretion processes, such as shells, streams, rings and tidal tails. Function of the nature of these mass assembly mechanisms, monolithic collapses, disk instabilities, minor or major mergers, the frequency and properties of these structures will strongly vary. Extragalactic archaeology therefore consists in their study, in order to reconstruct these processes' recent histories and better understand the question of galaxy formation. Using the CFHT's and MegaCam camera's performances, the NGVS and Atlas3D surveys are probing in the optical the Virgo cluster and the neighbouring galaxy groups to a depth of g ~ 29 mag/arcsec^2. These are able to reveal low surface brightness fine structures around low redshift early-type galaxies, for which the hierarchical cosmological (ΛCDM) scenario predicts a merger dominated formation mechanism. We will present these surveys' ultra-deep images of a sample of about ninety galaxies, with a preliminary analysis of the variations of their fine structure index as a function of the galaxy morphology and environment.

POSTER

16

ABSTRACT

FRANK, Matthias
Astronomisches Rechen-Institut - ZAH, Heidelberg (DE)

A close look at ultra-compact dwarf galaxies in the Fornax and Virgo clusters

Ultra-compact dwarf galaxies (UCDs), found in nearby galaxy clusters and groups, populate the previously unoccupied parameter space between globular clusters on the one side and early-type dwarf galaxies and compact ellipticals on the other side. One of their most intriguing features is that on average, their dynamical mass-to-light ratios are 30-50 per cent higher than the predictions of canonical stellar population models. Depending on their nature, whether they are galaxies or star clusters, possible scenarios for an extra, under-luminous mass component include: Dark matter, super-massive black holes, and variations of the stellar mass function leading to an overabundance of stellar remnants or of low-mass stars. Using the FLAMES, ISAAC and SINFONI spectrographs at ESO's VLT, we study in detail a select sample of UCDs in the Fornax and Virgo galaxy clusters in order to test these scenarios. The results I will present include the first spatially resolved kinematics of an UCD, as well as a UCD showing tentative evidence for a bottom-heavy stellar mass function.

ABSTRACT

GIRARDI, Marisa
INAF-Osservatorio Astronomico di Trieste (IT)

Merging Clusters of DARC Sample: studying the simultaneous formation of galaxy systems and their brightest galaxies

Extended, diffuse radio emissions (halos and relics) embedded in galaxy clusters are rare phenomena. Here I present a few results of the DARC program, aimed to study the internal Dynamics Analysis of "Radio"-Clusters mainly based on a TNG program (spectroscopic data for 20 clusters at z=0.1-0.3). The study of kinematics of member galaxies show that DARC clusters are examples of very substructured systems and allow us to detect and weight the intervening subclusters as well as to determine their relative motions and projected geometry. The brightest galaxies in DARC clusters are (often) related to the subclusters we detect through our 3D analysis. In the case of Abell 545, the presence of a very bright, diffuse, asymmetric intracluster light is connected with the cluster merger and discussed in relation to a likely forming brightest cluster galaxy.

POSTER

18

ABSTRACT

GRAHAM, Alister
Swinburne Univ. of Technology, Centre for Astrophysics & Supercomputing (AU)

Massive black holes, nuclear star clusters, partially depleted cores and the connection with the host spheroid

Until 2003, additional stellar components at the centers of galaxies were typically excluded from the analysis of the light distribution. Moreover, the models used to approximate the host galaxy's central light distribution provided no connection with the bulk of the galaxy's stellar mass at larger radii. Introduction of the core-Sersic model, coupled with the simultaneous modeling of additional nuclear components, resolved these issues and enabled the determination of robust structural parameters for galaxy nuclei. In addition to discussing past and current progress on this front, and the relations between galactic nuclei and their host galaxy, I will present results from 2008 to 2010 which revealed how barred (and disc) galaxies do not follow the M-sigma relation defined by non-barred (and elliptical) galaxies. Quantifying, and understanding, these relations provides insight into how galaxies assembled and matured.

POSTER

19

ABSTRACT

HERNANDEZ, Jonatan D.
Instituto de AstrofÌsica de AndalucÌa (CSIC), Granada (ES)

Dissentangling environmental processes in galaxy clusters

We build a sample of galaxy clusters nearby enough to contain galaxies as faint as M_B∼-18. This sample is observed up to 7 Mpc from cluster centre by the main galaxy surveys from UV to FIR (GALEX, SDSS, 2MASS and IRAS). We derive galaxy properties (SFR, M_*, etc.) using GRASIL, a spectrophotometric code which includes dust effects with a particular care. We study the behaviour of *NUV*-r distributions from the brightest ones to Mr'∼-18 galaxies in three spatial regions; virial region, infall region and the field. Using this approach, we propose the environmental processes that affect galaxies depending on their luminosity. Also, we study the SSFR-Mr' relation in the three spatial regions and observe a significant quenching of SSFR in the virial region and a possible change of trend around Mr'≒-18.

POSTER

20

ABSTRACT

HOUGHTON, Ryan
University of Oxford, Astrophysics (UK)

The Fundamental Plane of Abell 1689 compared to Coma

We present the Fundamental Plane (FP) for elliptical galaxies in Abell 1689 (z=0.18) as observed with ACS/HST and GMOS/Gemini-North and compare it to archival Coma data. The effects of internal colour gradients are included when transforming Coma data (Re and Ie) to the rest frame of the A1689 observations. We investigate various fitting techniques described in the literature to recover the FP parameters of both clusters, as well as a new Markov-Chain Monte Carlo mixture model. We look at the changes in the fitted FP parameters when we apply a rigorous error analysis, fully accounting for the covariance between effective radius Re and surface brightness Ie. We also use isotropic Jeans Models to calculate mass-to-light ratios (M/L) and compare to M/L derived from the standard approach.

POSTER

21

ABSTRACT

HUGHES, Thomas
Kavli Institute for Astronomy and Astrophysics, Peking Univ. (CN)

The mass-metallicity relation in different environments

We investigate the stellar mass-metallicity (M-Z) relation for a complete volume-limited sample of nearby galaxies in different environments (from isolated galaxies to Virgo cluster members), using a combination of integrated optical spectroscopy, ultraviolet to near-infrared photometry and HI 21cm line observations. We reconstruct cluster and field M-Z relations via a new approach for measuring the oxygen abundance. The overall shape and scatter of the relation is shown to be invariant to the environment, in agreement with recent studies. We demonstrate how some gas deficient cluster spirals may only appear to be more metal rich compared to their field counterparts due to a selection effect arising from the removal of gas via the interaction with the intracluster medium. In fact, we observe a relationship between gas fraction and metal content, whereby gas rich galaxies are typically metal poor. The evidence suggests that the M-Z relation may be reproduced using an increasing efficiency of star formation with increasing mass.

POSTER

22

ABSTRACT

JACHYM, Pavel
Astronomical Institute, Prague (CZ)

Cluster environments: ram pressure stripping

Using N-body hydrodynamic simulations we study galaxies interacting with intra-cluster medium. Due to its dynamical pressure a substantial amount of ISM can be swept out of the galaxies. We model observed Virgo galaxies and search under which conditions long, thin tails with peculiar kinematics can be formed. In combination with millimeter observations we discuss the fate of the molecular component of the stripped ISM.

POSTER

23

ABSTRACT

KIM, Suk
Chungnam National University, Astronomy and Space Science, Daejeon (KR)

Extended Virgo Cluster Catalog using SDSS DR7 Data

We present new catalog of galaxies in the Virgo cluster, extended Virgo cluster catalog (EVCC), using homogeneous SDSS DR7 data. The Virgo cluster is defined by a region of RA = 175 deg ~ 200 deg and DEC = -4 deg ~ 25 deg (750 deg^2), which is larger than that of the Virgo cluster catalog (VCC). We focus on the sample galaxies with radial velocities that are available in the SDSS spectroscopic data. The selected member galaxies are those with heliocentric radial velocities less than 3,000 km/sec. We secure 1,304 galaxies, from which 526 galaxies are new objects not included in the VCC. Using SDSS imaging and spectroscopic data, we introduce two kinds of galaxy morphological classification which are complementary each other. In addition to traditional morphological classification by visual inspection of the images ("Primary Classification"), we also attempt to classify galaxies with the spectroscopic features ("Secondary Classification"). The primary classification is basically based on the scheme of galaxy morphological classification of VCC using visual inspection of the SDSS g, r, i color images. The Secondary classification relies on the shape of spectral energy distribution and presence of distinct emission and absorption lines returned from the SDSS. Furthermore, we obtain photometry of all galaxies in the u, g, r, i, z bands of the SDSS using SExtractor. Considering the limit of the radial velocity of 3,000 km/s for a membership, some galaxies defined as members and possible members in the VCC are found to be having larger radial velocities (about 13% and 28% for members and possible members, respectively). On the other hand, about 10% of background objects in the VCC are within the limit of the radial velocity. We found that coordinates of many galaxies presented in the VCC are discrepant to the real centers of the galaxies. Among 2,096 galaxies in the VCC, 586 galaxies (about 28%) show that their differences of coordinate between EVCC and VCC are larger than 10 arcsec. The EVCC will allow to extend previous studies on the star formation and evolutionary histories of various galaxies in the Virgo cluster, complementing ongoing or planned Virgo cluster surveys at various wavelength.

POSTER

24

ABSTRACT

KOSHY, George
Kapteyn Astronomical Institute (NL)

Recent star formation in cluster early type galaxies

The Fundamental Plane scaling relation can be used to understand the stellar mass assembly history of early type galaxies (ETGs). The tightness of this relation coupled with the assumption of homology and a systematic tilt from the Virial Plane implies mass to light ratio of ETGs should be well behaved. The impact of any recent star formation in ETGs should then account for the small intrinsic scatter on this relation. Independent determination of star formation history using advanced stellar population models should confirm this scenario. We had constructed Fundamental Plane and star formation histories for ETGs belonging to Abell 550 cluster at redshift ~ 0.1 using high signal-to-noise data from VLT/VIMOS. The scatter on the Fundamental Plane relation can be attributed to the effect of star formation in the recent past and ETG evolution is a complex and ongoing process.

ABSTRACT

LAGERHOLM, Carina
ESO-Garching

Stellar Populations and Kinematics of Early Type Galaxies - a 2-D view with VLT/VIMOS

We present the first results of our SINFONI and VIMOS-IFU study of four nearby fast rotating early-type galaxies. So far we have constructed velocity and velocity dispersion maps from the optical data and derived line-strength indices. We link the results of our stellar population analysis to the observed kinematics. In a second phase of the project we will use the K-band SINFONI data of these galaxies, together with the optical VIMOS data, to derive accurate Black-Hole (BH) masses. With the BH mass information we can compare these galaxies with the general BH - mass relation and also e.g. investigate how the dynamics of the BH influences the stellar populations.

POSTER

26

ABSTRACT

LÄSKER, Ronald
MPI für Astronomie, Heidelberg (DE)

Total magnitude superior to bulge magnitude as Black Hole mass predictor

The correlation between masses (M_{BH}) of central Supermassive Black Holes (SMBH) and the bulge luminosities (L_{bul}) of their host galaxies has been widely used as a SMBH mass predictor in black hole demographic studies and as a constraint in galaxy evolution models. It has been claimed that its intrinsic scatter even matches that of the M_{BH} − sigma relation, in both optical and near-infrared (NIR) bands. These relations were based on either poorly resolved and relatively shallow data (2MASS), or on inhomogeneous data sets with mixed techniques of measuring L_{bul} . By means of new, deep and highly resolved wide-field NIR imaging, a dedicated NIR-sky substraction procedure, and detailed 2D image decomposition, we extract bulge and total magnitudes from a galaxy sample spanning all morphological types. We show that the intrinsic scatter of the M_{BH} − L_{bul} relation is at least as high as that from relating M_{BH} to the textittotal luminosity. We further find that many bulges cannot be reliably extracted via a ”standard” bulge+disk decomposition, but require more detailed decompositions. Even so, ambiguity in determining L_{bul} often remains. In conclusion, usage of bulge magnitudes as SMBH mass indicator is practically inferior to total magnitudes, and questionable as a ”fundamental” relation of galaxy-SMBH co-evolution.

ABSTRACT

LEE, Youngdae
Chungnam National University, Astronomy and Space Science, Daejeon (KR)

Ultraviolet Properties of Galaxies in the Fornax Cluster

We present ultraviolet (UV) properties of galaxies in the Fornax cluster in comparison with Virgo cluster. We construct the UV color-magnitude relations (CMRs) of galaxies in the Fornax cluster based on the Galaxy Evolution Explorer (GALEX) GR6 UV photometric data matched with Fornax Cluster Catalog (FCC). Majority of UV-detected dwarf galaxies in the Fornax are early-type system and constitute a distinct red sequence with red UV-optical colors (NUV?B >3 and FUV?B >4). Their colors are consistent with those of early-type dwarf galaxies in the Virgo cluster. Some dwarf ellipticals (dEs) in the Fornax cluster show a hint of residual or on-going star formation with blue UV colors (NUV ? B < 3 and FUV ? B < 4). While the Virgo cluster shows distinct sequence of dwarf lenticulars (dS0s) extending to bluer colors separated from that of ordinary dEs , the sequence of dS0s in the Fornax cluster appear to be indistinguishable from that of dEs. A predominance of early-type system with red UV-optical colors in the Fornax cluster is likely consistent with its dynamically evolved system compared to the Virgo cluster. We also discuss UV properties of galaxies regarding galaxy density, substructures of the cluster, and intracluster medium.

POSTER

28

ABSTRACT

LISKER, Thorsten
Astronomisches Rechen-Institut - ZAH, Heidelberg (DE)

SMAKCED: Stellar content, MAss and Kinematics of Cluster Early-type Dwarfs

Once believed to be simple systems, early-type dwarf galaxies (dEs) were recently shown to exhibit an intriguing diversity in structure and stellar content. Do they have multiple origins, based on both environmental physics and LCDM structure formation? Using dEs as probes of galaxy evolution mechanisms, we are conducting a large international project for near-infrared imaging and spectroscopy of dEs - a milestone on the way to understand this dominant galaxy population in clusters. The stellar population properties, masses and kinematics of a large, representative sample of Virgo cluster early-type dwarfs allow us to construct fundamental scaling relations for each region in the complex dE parameter space, disentangling their origin(s) and evolutionary relations to other galaxy types.
Authors: T. Lisker and the SMAKCED collaboration
(16 Coauthors)

POSTER

29

ABSTRACT

LOUBSER, Ilani
North-West University, Centre for Space Research (ZA)

Mg2 gradients as a signature of brightest cluster galaxy evolution

We have fitted the Mg2 absorption index gradients for 21 brightest cluster galaxies (BCGs), in the nearby Universe, for which we have obtained high signal-to-noise ratio, long-slit spectra on the Gemini telescopes. This is a sub-sample of a large optical, spatially-resolved, spectroscopic sample of BCGs which allows possible connections between the kinematical, dynamical and stellar population properties to be studied. We investigate the existence of a correlation between the Mg2 (and therefore metallicity) gradients and mass of the BCGs, and whether such a correlation is the consequence of the special location of these galaxies in the centre of the cluster gravitational well.

POSTER

30

ABSTRACT

LYSKOVA, Natalya
MPI für Astrophysik, Garching (DE)

A simple recipe for estimating galaxy masses from minimal observational data

Using a sample of 66 elliptical galaxies drawn from Cosmological numerical simulations we have tested a simple and robust method for estimating the mass profile of a galaxy. The method requires only the information on the optical surface brightness and projected velocity dispersion profiles and therefore can be applied even in case of poor observational data.

Results: (i) Massive elliptical galaxies σ 200-400$ km/s) in the sample have an almost isothermal rotation curves in quite broad range of radii, (ii) the method recovers the circular speed in such galaxies with an accuracy of 15% or better. For least massive ellipticals σ 100$ km/s) the accuracy is ~20%. (iii) For the same sample we also derived a circular velocity profile from the hydrostatic equilibrium equation for a hot gas in a galaxy. The accuracy of this estimate is about 15% for massive objects.

POSTER

31

ABSTRACT

MENDEZ-ABREU, Jairo
IAC - Instituto de Astrofisica de Canarias (ES)

Bar formation in different environments: field, Virgo, and Coma

Galaxy mergers and interactions are mechanisms which should drive the formation of bars. However, the observational proofs about the influence of the environment on bar formation and/or evolution are still rare. In a recent work, we have not found any difference between the local density of barred and unbarred galaxies for a volume limited sample of nearby galaxies in the field. To extend this conclusion to higher density environments, we have investigated the fraction of barred galaxies present in the two nearby benchmark clusters: Virgo and Coma. In both clusters, we found a bar fraction in their bright galaxy population consistent with that in the field. In addition, we have found that bars are hosted by galaxies in a tight range of masses which seems to be the same in these two different clusters, indicating that also the presence of dynamically cold disks is constrained to this mass range. In this talk, I will discuss the consequences of these results which point towards an scenario where the formation and/or evolution of bars depend mostly on internal galaxy processes rather than external ones.

POSTER

32

ABSTRACT

MEYER, Hagen Thilo
Astronomisches Rechen-Institut - ZAH, Heidelberg (DE)

Properties and evolution of late-type galaxies and the connection to early-type dwarf galaxies in the Virgo galaxy cluster

In galaxy clusters, like the Virgo or Coma cluster, the most common type of galaxies at high environmental density are early-In galaxy clusters, like the Virgo or Coma cluster, the most common type of galaxies at high environmental density are early-type dwarf galaxies (dE). These dEs do not form a homogeneous class, rather one finds dEs with spiral structure, bars or disk features. In contrast, regions with lower density host gas rich spirals or irregular (late-type) galaxies with active star formation. The physical processes causing a possible transformation from late-type into early-type galaxies are still not well understood. To investigate the properties and the future morphological evolution of Virgo cluster late-type galaxies, we derived their tructural properties (such as effective radius, magnitude and surface brightness) and color characteristics from SDSS data. We applied a special algorithm to Blue Compact Dwarf galaxies (BCDs), which enables us to distinguish between the star-forming and the low-surface-brightness (LSB) component. The latter dominates the galaxy's mass and is therefore crucial for the dynamical evolution of the BCDs. To simulate the evolution of late-type galaxies we used the evolutionary synthesis models GALEV. Applying a star formation history adapted to the galaxy type we are able to trace the evolution of every galaxy and compare these results with the dE population of the Virgo cluster.

In my talk I will present the results of this project, thereby showing how the different types of late-type galaxies distribute in the parameter space and how they will evolve with time. Using the results of our analysis we are able to conclude whether late-type galaxies are connected to early-type galaxies in the Virgo cluster or not.

POSTER

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ABSTRACT

MONELLI, Matteo
IAC - Instituto de Astrofisica de Canarias (ES)

Star formation history of Local Group galaxies and the ELT perspective

We summarize the results of few projects aimed at deriving the star formation history of Local Group galaxies. Our method, based on the comparison of observed and synthetic color-magnitud diagrams using the IAC-pop code, is presented. Based on the results obtained, we discuss the potentiality of our approach using E-ELT data of nearby clusters.

ABSTRACT

MONREAL-IBERO, Ana
Instituto de AstrofÌsica de AndalucÌa (CSIC), Granada (ES)

The interplay of gas and stars in dwarf galaxies of very nearby groups

One of the key aspects that remains to be fully understood of the theory of formation and evolution of galaxies is the conditions under which the star formation (SF) episodes take place and what are the consequences for their surrounding interstellar medium. In particular, environment on different scales plays an important role, since it can trigger or quench this SF. Dwarf galaxies are particularly sensitive to this environment since they are relatively fragile systems in comparison to massive spirals. Thus they constitute suitable laboratories for the study of the connection of gas and stars in the SF cycle. To this purpose, unbiased 2D high quality spectroscopic observations able to resolve the different elements (i.e. gas, star, dust) playing a role in this process are needed. We are carrying our a program that intend to study in a homogeneous (i.e. same instrumental set-up) and detailed (linear scale∼20 pc/") manner the stellar populations as well as the physical and chemical conditions of the ionized gas of a sample of dwarf Irregulars covering a range in environment, morphology and range of star formation using the VIMOS Integral Field Unit. Here, I intend to present a very preliminary view of the data obtained so far.

ABSTRACT

MORELLI, Lorenzo
Università di Padova, Dip. di Astronomia (IT)

Multiband photometric decomposition of nuclear stellar disks in 3 Virgo cluster galaxies

Small and bright stellar disks with scale lengths of few tens of parsec are known to reside in the center of galaxies. They are believed to have formed in a dissipational process as the end result of star formation in gas either accreted in a merging (or acquisition) event or piled up by the secular evolution of a nuclear bar. Using archival Hubble Space Telescope (HST) imaging, we investigated the photometric parameters of the nuclear stellar disks hosted by three early-type galaxies in the Virgo cluster. We aimed at constraining the process of formation of their stars. The location, orientation, and size of the nuclear disks is the same in all the images obtained with the WFPC2 and ACS. The scale length, inclination, and position angle of each disk are constant within the errors in the observed U, B, V, and I passbands, independently of their values and of the properties of the host spheroid. We interpret the absence of color gradients in the stellar population of the nuclear disks as the signature that star formation homogeneously occurred all through their extension. A inside-out formation scenario is, instead, expected to produce color gradients and therefore is ruled out.

POSTER

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ABSTRACT

MORGANTI, Lucia
MPI für extraterrestrische Physik, Garching (DE)

Dark matter and dynamics of intermediate-luminosity elliptical galaxies

The outer haloes of elliptical galaxies attract great interest because they are generally dark matter-dominated, and because they preserve the imprint of formation mechanisms in the distribution of stellar orbits. We use NMAGIC, a chi2 made-to-measure particle code, to construct dynamical models for a sample of intermediate-luminosity elliptical galaxies embedded in dark matter haloes, combining a wide range of observational data. In particular, we include velocity measurements of planetary nebulae as discrete tracers for the stellar distribution, which extend the kinematic information to the outer galactic regions. This combined study of individual ellipticals allows to investigate the general properties of dark matter haloes and orbital distributions, in order to compare them with the predictions of galaxy formation simulations in the current concordance model.

POSTER

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ABSTRACT

NIGOCHE-NETRO, Alberto
Instituto de AstrofÌsica de AndalucÌa (CSIC), Granada (ES)

Deep Wide Field Imaging of Pegasus I cluster in r and Halpha bands

The Pegasus I cluster has been studied until now using catalogues containing relatively few objects and reaching low completeness limits. In this work we present a study an extended area of the cluster of approximately 1 deg^2 centered in the region of the Pegasus I cluster performed with the Wide Field Camera of the Isaac Newton Telescope. We have produced a deep catalogue of galaxies in r and Halpha bands. With this catalogue we are able to produce a deeper study of the Luminosity Function of Pegasus I and several related properties.

POSTER

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ABSTRACT

NUNEZ, Carolina
ESO-Garching

Could XMMU J2235.3-2557 at z=1.39 be destined to evolve into a Coma like cluster in the local Universe?

XMMU J2235.3-2557 (XMM2235) is the most massive X-ray selected galaxy cluster known to date in the distant universe (z>1). The sole existence of a cluster like this calls into question our current understanding of the cosmology and makes of this object a quite distinct cluster. At 1/3 of the current age of the Universe, XMM2235 represents a mature system in terms of evolution and surprisingly, resembles the structure of nearby galaxy clusters. The large sample of spectroscopic members, allows one to study in detail the galaxy population within the densest environments. Further more, due to its wavelength coverage, which includes from the restframe region UV to NIR, direct comparison with clusters in the local Universe can be done. In this talk, I will present a new structural and photometric analysis of XMM2235 based on HST/ACS, HST/WFC3 and high resolution VLT/HAWK-I data, focusing particulary in the role the stellar mass and environment play in shaping the morphology and stellar activity in cluster galaxies. I will show how the results obtained for XMM2235 compare to the results of studies performed in local clusters, tracing back the assembly history of the most massive galaxies to z=1.39. The properties of the BCG of XMM2235 and its similarities/differences with local BCGs will also be discussed.

POSTER

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ABSTRACT

OKAMURA, Sadanori
University of Tokyo, Dep. of Astronomy (JP)

Observation of Diffuse Intracluster Light in the Coma Cluster

We have made a deep imaging observation of a 51x51 arcmin region near the center of the Coma cluster in order to map the diffuse intracluster light using a CCD camera attached to the 105-cm Schmidt telescope at the Kiso Observatory. Resulting V+R band image of about 22-hour exposure reveals, to an unprecedented depth, the large scale distribution of the intracluster light showing several faint clumps around the flattened main body.

ABSTRACT

PAK, Mina
Chungnam National University, Astronomy and Space Science, Daejeon (KR)

Ultraviolet and Optical Properties of Dwarf Galaxies in the Ursa Major Cluster

We present ultraviolet (UV) and optical properties of dwarf galaxies in the low density environment system, Ursa Major cluster. We have constructed SDSS DR7/GALEX GR5 matched optical/UV catalog for dwarf galaxies with various morphologies in the Ursa Major cluster. Membership selection of galaxies was made by hierarchical grouping method using SDSS spectroscopic and photometric data. We classified morphologies of dwarf galaxies using the combination of visual inspection of the images (primary classification) and spectral features returned from SDSS data (secondary classification). The fraction of late-type dwarf galaxies classified by secondary classification is higher than the case of primary classification. In contrast to the case of the Virgo cluster, majority of dwarf galaxies in the Ursa Major cluster are late-type galaxies which lie in the blue cloud of the UV color-magnitude relations (CMRs) implying strong recent or on-going star formation. However, we see no distinct difference of FUV star formation rate of late-type galaxies between Ursa Major and Virgo, indicating no dependence of SFR on global cluster environment. Handful galaxies are early-type dwarf galaxies which reside in the red sequence of the UV CMRs. We discover that some dwarf elliptical galaxies (dEs) in the Ursa Major cluster show hidden substructures such as disk/bar or blue center. The existence of these peculiar dEs in the Ursa Major cluster indicates that the formation of some dEs is very likely to be caused by transformation of late-type progenitors even in low density environment.

POSTER

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ABSTRACT

PAUDEL, Sanjaya
Astronomisches Rechen-Institut - ZAH, Heidelberg (DE)

On the nature of stellar population properties of dEs, Are they special?

I have studied the stellar population properties of a sample of early-type dwarf galaxies (dEs) in Virgo cluster. I derived the simple stellar population (SSP) parameters, age and metallicity using the method of Lick indices. I will present the results in the context of morphological dependency of the stellar population properties in dEs. I found that not all dEs exhibit the same stellar population properties. The dEs with disc features are relatively younger and more metal enhanced than dEs without disc. I also found the nuclei of dEs have smaller ages and higher metal content than the respective galactic main bodies. In addition, I will present a comparison of the stellar population properties of different classes of early-type galaxies, namely Es, dEs, dSph as well as UCDs.

POSTER

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ABSTRACT

PELETIER, Reynier
Kapteyn Astronomical Institute (NL)

The Spitzer [3.6]-[4.5] colour for stellar population studies in local galaxies

Abstract missing.

POSTER

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ABSTRACT

REY, Soo-Chang
Chungnam National University, Astronomy and Space Science, Daejeon (KR)

Ultraviolet Color-Magnitude Relations of Early-type Dwarf Galaxies in the Virgo Cluster

We present ultraviolet (UV) color,Äìmagnitude relations (CMRs) of early-type dwarf galaxies in the Virgo cluster, based on Galaxy Evolution Explorer (GALEX) UV and Sloan Digital Sky Survey (SDSS) optical imaging data. We find that dwarf lenticular galaxies (dS0s), including peculiar dwarf elliptical galaxies (dEs) with disk substructures and blue centers, show a surprisingly distinct and tight locus separated from that of ordinary dEs, which is not clearly seen in previous CMRs. The dS0s in UV CMRs follow a steeper sequence than dEs and show bluer UV,Äìoptical color at a given magnitude. We also find that the UV CMRs of dEs in the outer cluster region are slightly steeper than that of their counterparts in the inner region, due to the existence of faint, blue dEs in the outer region. We explore the observed CMRs with population models of a luminosity-dependent delayed exponential star formation history. We confirm that the feature of delayed star formation of early-type dwarf galaxies in the Virgo cluster is strongly correlated with their morphology and environment. The observed CMR of dS0s is well matched by models with relatively long delayed star formation. Our results suggest that there are different star formation histories among different subclasses of early-type dwarf galaxies in the Virgo cluster related with their morphology and environment. Furthermore, dS0s are most likely transitional objects at the stage of subsequent transformation of late-type progenitors to ordinary red dEs in the cluster environment. In any case, UV photometry provides a powerful tool to disentangle the diverse subpopulations of early-type dwarf galaxies and uncover their evolutionary histories.

POSTER

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ABSTRACT

RICHTLER, Tom
Universidad de Concepcion, Astronomia (CL)

NGC 1316 and its cluster system

We present wide-field photometric (Washington system) and kinematical data of globular clusters in the merger remnant NGC 1316. We discuss the population structure of the cluster system and its global dynamics.

POSTER

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ABSTRACT

ROEDIGER, Joel
Queen's University, Physics & Astronomy (CA)

The Stellar Populations of Virgo Cluster Galaxies

We use deep optical and near-infrared imaging to study the radially-resolved stellar populations of a morphologically diverse sample of 300 Virgo cluster galaxies. We characterize the typical radial variations in stellar populations for different galaxy types, as well as correlations between their stellar population diagnostics (age, metallicity, and gradients thereof) and their structural and environmental parameters. We interpret our results in terms of star formation histories and chemical evolution to obtain simple constraints on the formation and evolution of Virgo cluster galaxies.

POSTER

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ABSTRACT

RYŚ, Agnieszka
IAC - Instituto de Astrofisica de Canarias (ES)

Dynamics of early-type dwarf galaxies in the Virgo Cluster - a SAURON perspctive

We will present the results for four bright nucleated dwarf ellipticals (dEs) from our ongoing integral-field spectroscopic study of dEs in the Virgo Cluster. We have already shown that the quality of the data enables us to recover reliable kinematic and stellar population parameters. Our velocity maps reveal features like kinematic and photometric axes misalignment or significant galaxy flattening coupled with no observable rotation. We have obtained age, metallicity and abundance estimates for our dwarfs and compared them with those of Virgo giant ellipticals from the SAURON project. In this contribution we will present the dynamical models we have constructed for our objects. The total (dark a nd baryonic) matter distribution of galaxies can be inferred by fitting models to the observed kinematics of their stars (and gas when present). We have fitted the observed velocity and velocity dispersion of our galaxies adopting solutions of the Jeans equations. We have also used the recent implementation of Schwarzschild's orbit-superposition technique, which allows the mass distribution to freely vary between spherical and triaxial. This technique has been used for detailed modeling of (nearby) elliptical galaxies and we are now extending it to dwarf ellipticals. The combination of the results from the ancillary imaging with those from the models enables us to discuss the level of the velocity anisotropy and the orbital structure in these systems and constrain their mass distribution, including any possible contribution from dark matter. Beyond dynamical modelling, we are planning to compare our findings with numerical simulations of dwarf galaxies. The kinematical signatures and the existence and strength of the metallicity gradients are expected to allow us to distinguish between different formation scenarios of dwarf ellipticals.

POSTER

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ABSTRACT

SANCHEZ-JANSSEN, Ruben
ESO-Chile

Globular cluster systems and the origin of early-type cluster dwarfs in Virgo

Early-type dwarfs (dEs) are by far the most abundant galaxy population in nearby clusters. Whether these objects are primordial, or recent end-products of the different physical mechanisms that can transform galaxies once they enter these high-density environments, is still a matter of debate. Here we present a novel approach to test the latter scenario by comparing the properties of the globular cluster systems (GCSs) of Virgo dEs and their potential progenitors with simple predictions from gravitational and hydrodynamical interaction models and more detailed numerical simulations. Current data in the literature do not favour violent mechanisms, but gentle processes with long timescales or that took place at the early stages of galaxy formation. Furthermore, we show that GCSs can be used to estimate dwarfs total masses and thus constrain their dark matter content. GCSs are therefore powerful tools with which to study galaxy evolution in high-density environments.

POSTER

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ABSTRACT

SCOTT, Nicholas
University of Oxford, Physics (UK)

An IFU study of early-type galaxies in the Coma Cluster

We present an IFU study of a sample of early-type galaxies (ETGs) in the Coma Cluster. We observed a sample of 14 ETGs with the Oxford-built SWIFT IFU on the 200" Hale telescope at the Palomar observatory. The SWIFT field of view allows us to cover most objects out to 1 Re. We extract stellar kinematics from the Calcium Triplet absorption feature at ~8500 ≈ and produce maps of the stellar velocity and dispersion. From these maps we determine the 'lambda R' parameter and identify our galaxies as fast (FR) or slow rotators (SR). We compare our FR/SR fraction for the Coma cluster to that from the ATLAS3D survey to study the environmental dependence of this kinematic classification. The Coma cluster is ~25 times denser than the most dense environment covered by the ATLAS3D survey, the Virgo cluster, significantly increasing the range of densities we are able to probe. We also make use of optical photometry to a) measure the Fundamental Plane (FP) parameters, Re and Ie and b) produce Jeans Anisotropic MGE (JAM) dynamical models of all our objects. We determine the FP for our sample from the observed quantities, as well as the M/L-sigma relation and Mass Plane using our dynamical models. We compare these results to those of more local integral-field surveys of early-type galaxies and again search for any environmental dependence.

POSTER

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ABSTRACT

SERRA, Paolo
ASTRON, Dwingeloo (NL)

The MeerKAT Fornax Survey

This is a very deep HI survey of an 11 deg_2 strip from the centre of the Fornax cluster to the location of Fornax A. The survey is expected to start in 2015. It is one of the 9 key projects allocated time on MeerKAT, the South African SKA precursor. X-ray imaging and optical spectroscopy suggest that Fornax is currently growing by accretion of numerous galaxy sub-groups, among which the one hosting Fornax A. With this survey we will be able to observe to unprecedented depth and resolution how galaxies' ISM interacts with the IGM during the assembly of this cluster. We will witness for the first time the variety of on-going gas accretion and stripping processes that, so far, have mostly been observed in the very different environment of Virgo. We will also be able to detect HI in the cosmic web filaments feeding cluster growth down to column density of 10^{18} cm^{-2}, and study its connection to the in-falling galaxies.

POSTER

50

ABSTRACT

SMITH CASTELLI, Analia Viviana
Universidad Nacional de La Plata - IALP-CONICET (AR)

Exploring the globular cluster content of the Hickson Compact Group 44

The influence of the environment in the formation of the galaxies we see today is still a key question. The mechanisms involved an the moment at which they occur in the field or in clusters and groups of galaxies have not been clearly identified yet. In this context the study of stellar systems belonging to high and low density environments becomes relevant to provide clues about these important issues.

In particular, the study of compact groups is interesting as their galaxy space density is similar to that found in the central regions of rich clusters. In addition, they show low velocity dispersions which allow to observe gravitational interactions in progress.

The idea that globular clusters (GCs) harbour important clues in relation with the early stages of galaxy formation is a widely accepted concept. GCS are used today to trace the early history of galaxy formation processes. But, on the other hand, Hickson groups are excellent laboratories to test the influence of the environment on the GCs formation itself and how the continuous gravitational encounters modify their characteristics.

In this context we present the first study of the globular cluster population of galaxies in the Hickson compact group HCG 44, in order to investigate the effect of this high-density environment on the formation and evolution of globular cluster systems. This work is based on high quality multi-band photometry performed by psf fiting on g', r', i' and z' images obtained from deep Gemini+GMOS images. The total globular cluster population, specific frequency, integrated colour distribution and radial projected spatial profiles of the GCs belonging to the four galaxies present in the fields.

POSTER

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ABSTRACT

SMITH, Rory
Universidad de Concepcion, Astronomia (CL)

Ram pressure drag - effects of ram pressure on dark matter and stellar dynamics

We investigate the effects of ram pressure stripping on gas-rich disk galaxies in the cluster environment. Ram pressure stripping principally effects the atomic gas in disk galaxies, stripping away outer disk gas to a truncation radius. We demonstrate that the drag force exerted on truncated gas disks is passed to the stellar disk, and surrounding dark matter through their mutual gravity. Using a toy model of ram pressure stripping, we show that this can drag a stellar disk and central dark matter off centre within it's dark matter halo by several kiloparsecs. The force transfer from the truncated gas disk to the stellar disk and central dark matter is an inevitable consequence of Newton's third law. We provide a simple analytical description for this process, and demonstrate that it is successful in predicting the relative magnitude of cusp dragging to first order for varying ram pressures and disk galaxy properties. The motion of the disk can result in temporary deformation of the stellar disk. However we demonstrate that the key source of stellar disk heating is the removal of the gas potential from within the disk. This can result in disk thickening by approximately a factor of two in gas-rich disks.

POSTER

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ABSTRACT

SUNG, Eon-Chang
Korea Astronomy & Space Science Institute, Daejeon (KR)

The Environments of Star-burst Activities of Blue Compact Dwarf Galaxies

We present a study of the local and global environments of star-burst activities for a sample of ~6,000 blue compact dwarf galaxies (BCDs) from SDSS DR7. We classified the sample by a plausible classification scheme based on the local environments of BCDs which was introduced by Sung et al. (2002). We found that more than 60% of nearby BCDs ($z < 0.02$) have regular shaped outer envelopes. BCDs spend most their life time on the regular shaped BCD stage. At least ~70% of our sample within the detection limits are classified interacting or merging in progress. There are not great differences in the local environments from both of regular shaped (N type) and disturbed (D type) BCDs except mergers. At the redshifts of $0.1 < z < 0.2$, the Merging type is higher fraction than nearby sample. This result is due to luminosity effects, that is the brighter objects are likely higher merging rate. On the contrary, less luminous objects are more common in detached interacting type. For the detached Interacting type, the ratios between dwarf-dwarf interacting and interacting as satellites of larger galaxies are different as morphology and redshifts. These results imply that tidal forces under the local environments should be important role of BCD activities and its evolution, and galaxy mass or luminosity are also important factors on the evolution of BCDs.

POSTER

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ABSTRACT

TORTORA, Crescenzo
Universität Zürich, Institut für Theoretische Physik (CH)

Dark matter content in the central regions of early-type galaxies

The debate on the formational history of early-type galaxies is still open, since the theoretical models and simulations do not give a definite picture and from the observational point of view the lack of easily interpretable dynamical tracers has made the mass mapping of these systems not easy. we will discuss our recent findings about the central dark matter content in early-type galaxies and show the correlations existing between central dark matter and mass (stellar and dark), galaxy size and stellar population parameters. The results are connected to some main physical ingredients involved in the galaxy assembly like the initial mass function, the response to adiabatic contraction and formation epoch which have some major effect in the dark matter distribution inference and tilt of the FP. We will concentrate on the comparison with LambdaCDM toy models, determining a fundamental connection between galactic structure and star formation history, which we have proposed to be a consequence of variations with mass and formation epoch of either dark matter halo contraction or initial mass function.

POSTER

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ABSTRACT

VANDERBEKE, Joachim
ESO-Chile / University of Ghent (BE)

A New Look at the Galactic Globular Cluster System

This project is based on ugriz observations with a 0.9m telescope of about 150 Galactic Globular Glusters (GGCs). We would like to present the main goals of this project, which are: 1) to measure the colour-metallicity relation for GGCs in the Sloan filter system,2) to produce 'cleaned' color-magnitude diagrams for the clusters using color information to reduce contamination from non-member stars, 3) to determine profile parameter fits for the clusters. Some preliminary results, focusing on 1) and 3), will also be presented.

POSTER

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ABSTRACT

VANDERBEKE, Joachim
ESO-Chile / University of Ghent (BE)

Optical and near-infrared velocity dispersions of early-type galaxies

In Vanderbeke et al. (2011), we have carried out a systematic, homogeneous comparison of optical and near-infrared dispersions. Our magnitude-limited sample of early-type galaxies (ETGs) in the Fornax cluster comprises 11 elliptical and 11 lenticular galaxies more luminous than MB = –17. We were able to determine the central dispersions based on the near-infrared CO absorption band head for 19 of those galaxies. The velocity dispersions range from less than 70 km/s to over 400 km/s. We compare our near-infrared velocity dispersions to the optical dispersions measured by Kuntschner. Contrary to previous studies, we find a one-to-one correspondence with a median fractional difference of 6.4 per cent. We examine the correlation between the relative dust mass and the fractional difference of the velocity dispersions, but find no significant trend. Our results suggest that early-type galaxies are largely optically thin, which is consistent with recent Herschel observations.

POSTER

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ABSTRACT

VENTIMIGLIA, Giulia
MPI für extraterrestrische Physik, Garching (DE)

The kinematics of the intracluster light in the core of the Hydra I cluster

In the current cosmological scenario structure formation happens in a hierarchical way. Galaxies form first and then they assamble to form clusters. During this assamble process galaxies interact among them and with the cluster potential well and they can lose part of their stars. These lost stars form what is called Intracluster Light (ICL). The kinematics of this component results therefore to be a sensitive probe of galaxy evolution in galaxy clusters. Many are the open questions related to ICL. Interesting questions are connected to the mechanisms involved in the formation of ICL and to the relation between ICL and the halo of cD galaxies. Here I concentrate on the results obtained on Hydra I, a cluster in the Southern hemisphere at a distance of ~50 Mpc. The combined analysis of (i) the velocity dispersion profile of the central cD galaxy of the cluster, NGC 3311, (ii) the kinematics of the Planetary Nebulae tracing the light in the core of the cluster and (iii) the light distribution in the central region of the cluster have shown that (a) the halo of NGC 3311 is dominated by ICL and (2) the formation of ICL is an ongoing process also at z=0. We see, in fact, an excess of light, in respect to a symmetric light distribution, in the NE part of NGC 3311. This excess is related to a group of galaxies that have probably been stripped in a recent close passage near the dense cluster core.

POSTER

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ABSTRACT

WANG, Zhong
Smithsonian Astrophysical Observatory, Cambridge (US)

An Infrared Imaging Survey of Galaxies in the Nearby Universe

We describe a new survey of star-forming galaxies in the nearby universe based on their neutral hydrogen (HI) gas contents. With the post-cryo Spitzer Mission's Infrared Array Camera (IRAC), we plan to better measure the spectral energy distribution, warm dust content and spatially resolved extinction in these galaxies. This survey will extend the reach of comprehensive Spitzer galaxy studies to include several important nearby clusters.

POSTER

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ABSTRACT

WEST, Michael
ESO-Chile

Remnant Globular Cluster Streams in Galaxy Halos

Stellar tidal streams in the halo of the Milky Way and other nearby galaxies provide strong evidence that large galaxies grow by cannibalizing smaller ones. Similar streams of globular clusters should be detectable in galaxy halos. A novel technique to identify remnant globular cluster streams is described and results presented for galaxies in Virgo and other nearby systems.

POSTER

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ABSTRACT

WU, Xufen
MPI für extraterrestrische Physik, Garching (DE)

The line-of-sight kinematics of low redshift galaxies from cosmological simulations

We study the line-of-sight kinematics of 48 galaxies at z=0 from the resimulation of cosmological mergers (Oser et al. 2010). The enclosed stellar mass within 10% r_{vir} of these galaxies range from 2.0×10^{10} to 3.8×10^{11} $M_{\odot}$. There are a few thousands to one million particles for each galaxy. We compute time-averaged line-of-sight kinematics which avoids the fluctuations of particles in one snapshot. We predict the line-of-sight velocity fields $\bar{v}$, dispersion profiles σ of stars and dark halo particles for different inclination angles, and then obtain the angular momentum parameter λ profiles of the stars. We find that 75% of the galaxies in the simulation are intrinsically fast rotators (edge-on view) and the rest are slow rotators. The λ profiles for the fast rotators are almost flat from 2 R_e and the values of λ at large radii (5 R_e) are very similar to that at 1 R_e . For the case of slow rotators, some of the galaxies have flat and small λ at all radii, while others have significantly increasing λ at large radii, which could be related to their merging history. We also predict the λ parameters of the dark halo particles for all galaxies. We find that the shapes of the dark halo λ_{DM} profiles are almost unique, most decrease with radius in the star-dominated centres and remain flat in the outer parts.

ABSTRACT

YI, Wonhyeong
Chungnam National University, Astronomy and Space Science, Daejeon (KR)

Surface Photometry and Structural Parameters of Galaxies in the Extended Virgo Cluster Catalog

We present structural parameters of galaxies included in the Extended Virgo Cluster Catalog (EVCC), new catalog of galaxies in the Virgo cluster using homogeneous SDSS DR7 data. EVCC covers more extended region of the Virgo cluster than that of Virgo cluster catalog (VCC) and presents more specific morphologies of galaxies using multi-band images and spectral features. We obtain the surface brightness profiles of 1332 galaxies using ellipse task in IRAF. Based on the analysis of surface brightness profile, we construct a catalog of various structural parameters of galaxies; effective radius, mean effective surface brightness, sersic index, ellipticity, and major axis position angles. Taking advantage of these structural parameters and various parameter spaces, we refine criteria of dividing giant and dwarf galaxies and select a sample of compact elliptical galaxies in the EVCC.

ABSTRACT

YOSHIDA, Michitoshi
Hiroshima University, Astrophysical Science Center (JP)

Kinematics and excitation of the ram pressure stripped ionized gas of galaxies in the Coma cluster

We present the results of deep spectroscopic observations of very extended ionized gas ("EIG") around four member galaxies, RB199, IC4040, GMP2923 and GMP3071, of the Coma cluster of galaxies. The EIGs were serendipitously found by H-alpha narrow band imaging survey of the central region of the Coma cluster. The radial velocities of the EIGs increase almost monotonically with the distance from the galaxies, reaching 400 - 600 km/s at around 40 - 80 kpc from the galaxies. We found a very high velocity filament at the south eastern edge of the disk of IC4040. This filament has a velocity of 1000 km/s relative to the systemic velocity of the galaxy. Some of bright compact knots in the EIGs of RB199 and IC4040 have blue continuum and strong H-alpha emission. The equivalent widths of the H-alpha emission exceed 100 A. The emission line intensity ratios of the knots are basically consistent with those of metal poor HII regions. These facts indicate that intensive star formation occur in the knots. Some filaments including the high velocity filament of the IC4040 EIG exhibit shock like emission-line spectra, suggesting that shock heating play an important role in ionization and excitation of the EIGs. The one sidedness morphology and velocity field of the EIGs are consistent with the prediction of numerical simulations of ram pressure stripping.

POSTER

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ABSTRACT

ZARATTINI, Stefano
IAC - Instituto de Astrofisica de Canarias (ES)

From nearby clusters to Fossil Groups. Clues through their luminosity functions

Fossil groups (FGs) are extreme structures in the Universe. They are characterized by a large magnitude gap (at least 2 magnitudes in the r-band) between the two brightest galaxies of the system. The Fossil Groups Origins (FOGO) is a large observational program with the aim to carry out a systematic, multiwavelength study of a sample of 34 FGs selected from the Sloan Digital Sky Survey (Santos et al. 2007). Recently, we have obtained unprecedently deep r-band images of the entire sample using the NOT and INT telescopes (La Palma, Spain) which allow us to reach the faint end of the luminosity function of these systems. Here, we will present the LFs for the whole sample of FGs and their comparison with that of Virgo and Coma clusters.