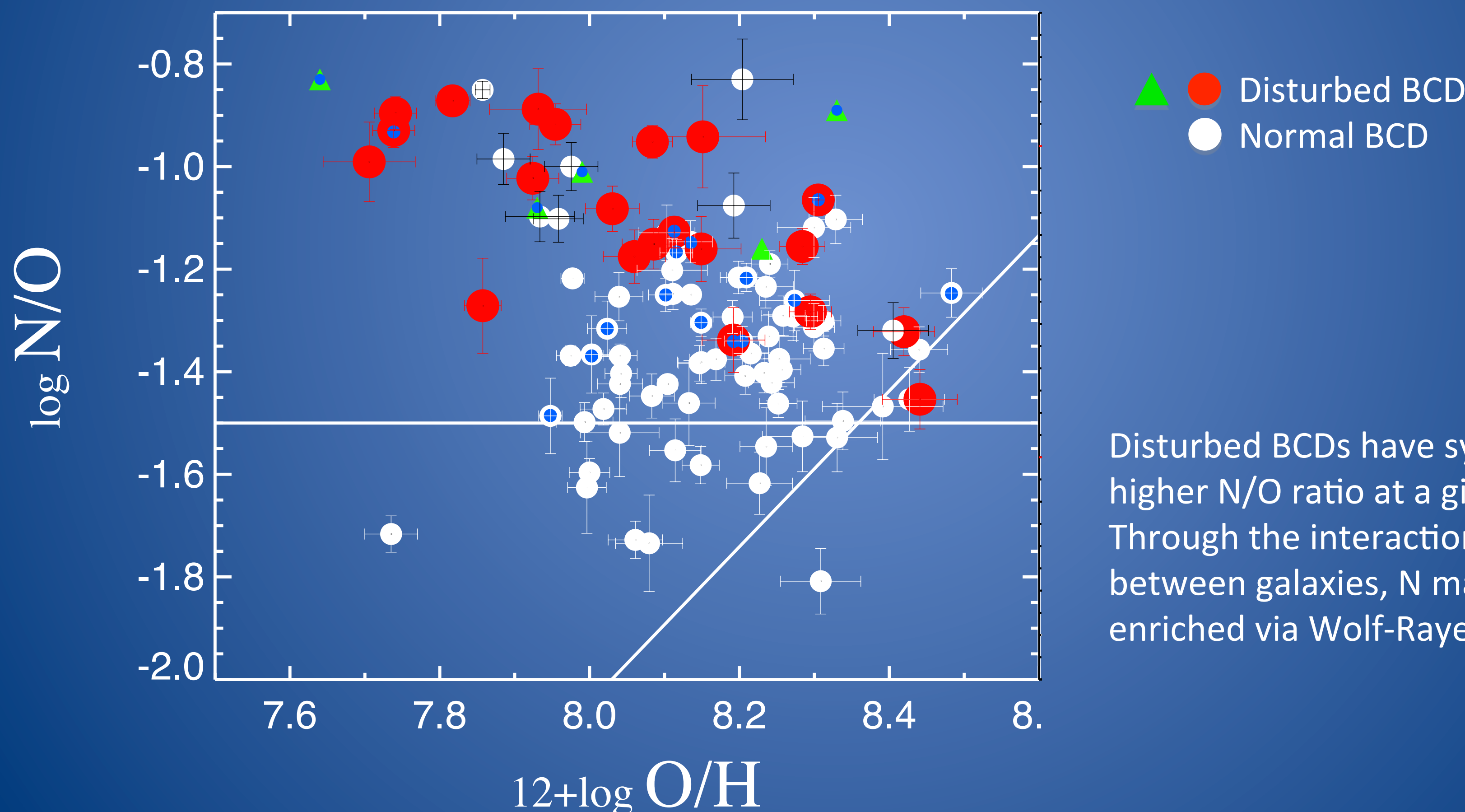
Element abundance of Blue Compact Dwarf Galaxies from SDSS DR7

Jiwon Chung et al. Chungnam National University, Korea



Disturbed BCDs have systemically higher N/O ratio at a given O/H. Through the interaction or merger between galaxies, N may be enriched via Wolf-Rayet star.

Atypical faint galaxies in Coma: faint imaging view

Florence Durret, Christophe Adami et al.

Low surface brightness galaxies (LSBs): deep imaging

- 735 faint galaxies with absolute magnitudes B=-13 to -9 and central surface brightness as faint as 27 mag arcsec2
- grouped around NGC 4889 and NOT around NGC 4874
- Some of the LSBs associated with the western X-ray overdensities
- Large scale diffuse light structures are detected around NGC 4874
- LSBs are remnants of normal galaxies transformed into LSBs by galaxy harassment and tidal stripping

Spectral energy distributions

- Coma cluster LSBs are predominantly young (age < 2.3 Gyr) non-starburst objects
- A significant fraction of these LSBs is dusty (A_V > 1.5)
- They are low stellar mass objects, with stellar masses comparable to globular clusters for the faintest ones

The very faint end of the galaxy luminosity function

- The slopes of the GLFs are very steep (α~-2) and show no dip, and are consistent with debris from brighter disrupted and harrassed galaxies
- The faint western galaxies are mainly blue, and therefore late-type or issued from late-type galaxies in the infalling layers
- LSBs around the two main galaxies are predominantly blue, possibly coming from disk-like disrupted disks

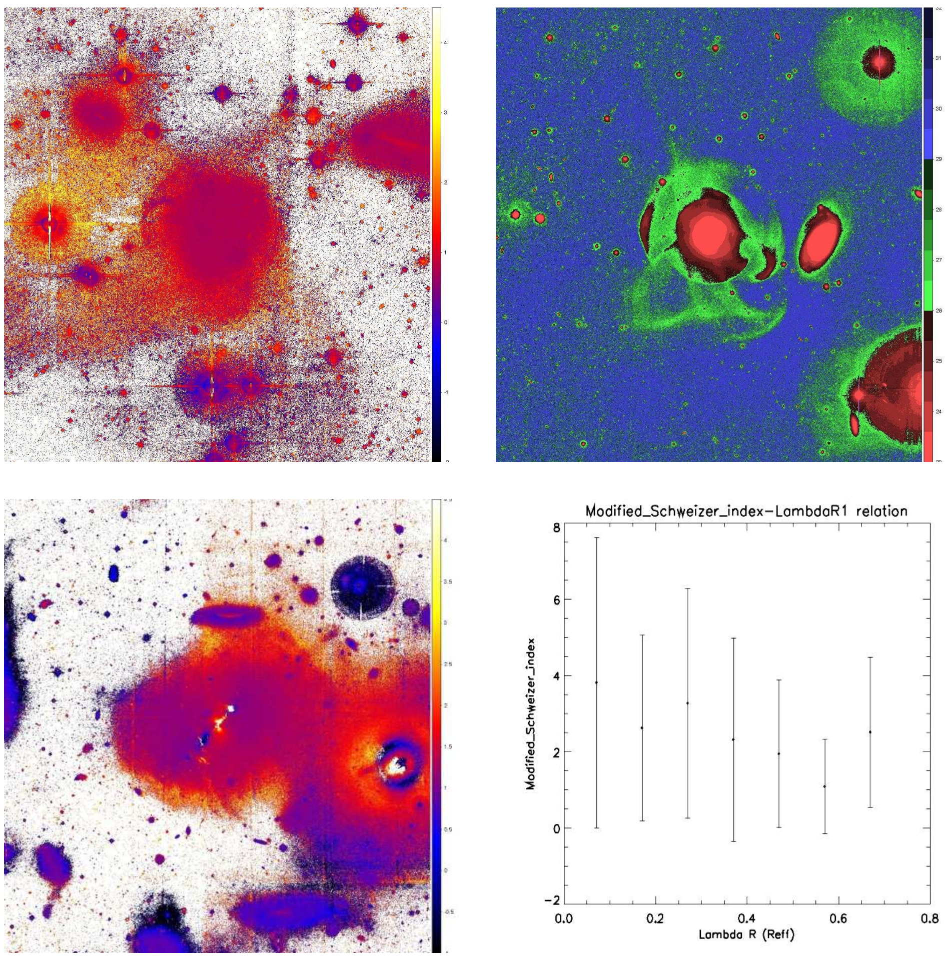
5 candidate ultra compact dwarfs spectroscopically confirmed in Coma

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

E. Ferriere, P-A. Duc. S. Mei
AIM (CEA/IRFU/SAp), GEPI (Observatoire de Paris)

Fine-scale structures are the faint surrounding tracers of galaxy environmental effects. Extragalactic archaeology therefore consists in their study, in order to reconstruct merger histories and their impacts on galaxy evolution and formation.

With the CFHT and Megacam, the NGVS and Atlas3D surveys are bringing ultra-deep optical images (g ~ 29 mag/arcsec²). Statistical work has been done over 46 Virgo and 69 local field ETGs, for which these have revealed low surface brightness fine structures. This study has been made throughout multi-component fitting (Galfit) and fine structure counts, to correlate their existence to galaxy physical parameters and numerical simulation predictions, to fulfill its theoretical goal.



Top, left to right : NGC0680 g-r color map, g surface brightness map, both from the Atlas3D.

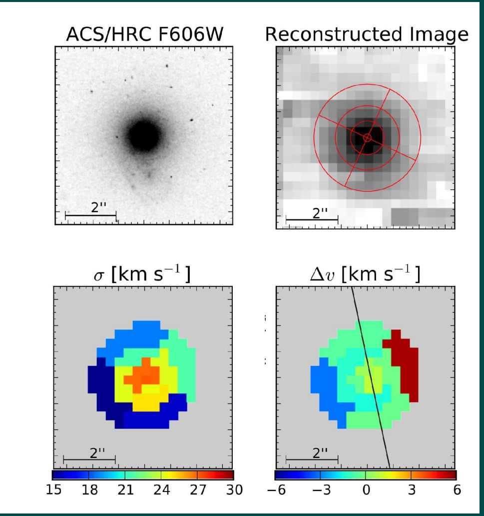
Bottom, left to right : NGVS Galfit residuals g-i map, average perturbation degree vs specific angular momentum diagram (whole sample).

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

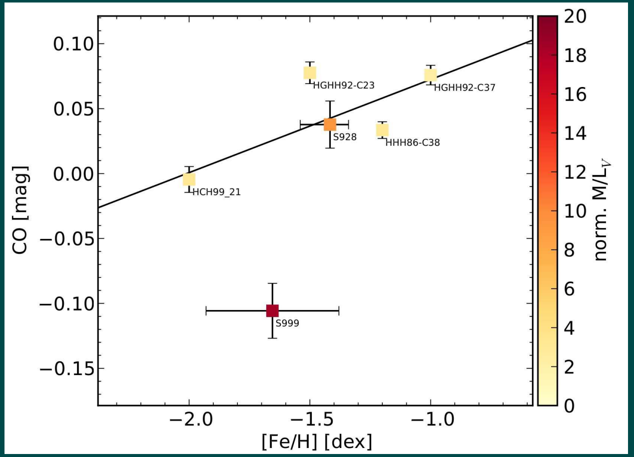
Matthias Frank (Heidelberg)

Michael Hilker (ESO)
Steffen Mieske (ESO)
Holger Baumgardt (UQueensland)
Pavel Kroupa (Bonn)
Eva K. Grebel (Heidelberg)

The first UCD with spatially resolved kinematics



A bottom-heavy stellar mass-function in the UCD with the highest M/L?



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

Alister W. Graham (Swinburne University of Technology)

Galaxy Nuclei

Central Stellar Deficits
Additional Nuclear Components
(Central Massive Object)-(Host Spheroid) mass relation

$\mathcal{M}_{Elliptical}$–μ_0 diagram

$\mathcal{M}_{bh}$–σ diagram

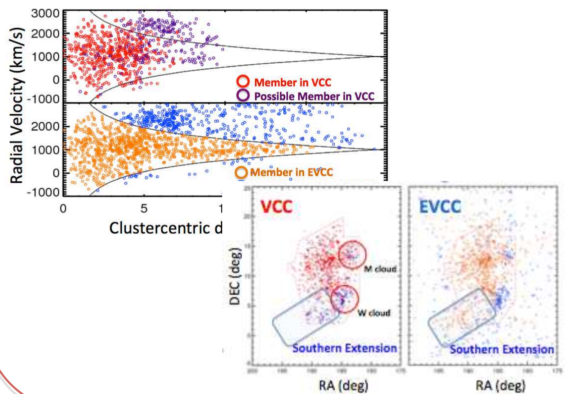
Fornax, Virgo, Coma et al. (ESO Garching, 27 June - 1 July, 2011)

Extended Virgo Cluster Catalog et al.

Suk Kim[1], Soo-Chang Rey[1], Eon-Chang Sung[2], Thorsten Lisker[3], Helmut Jerjen[4],
Wonhyeong Yi[1], YoungDae Lee[1], Jiwon Chung[1], Mina Pak[1], and Jaemann kyung[2]

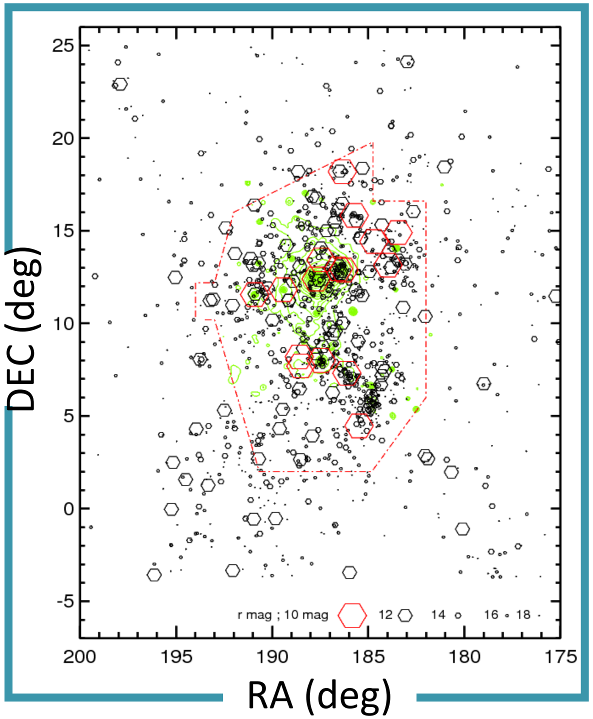
CNU KASI ZAH ANU

Membership



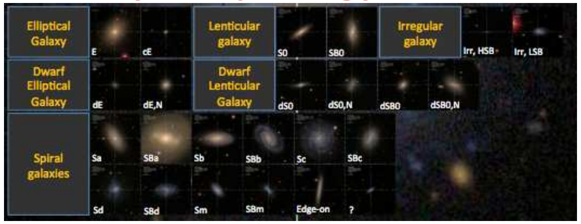
EVCC

based on SDSS DR7

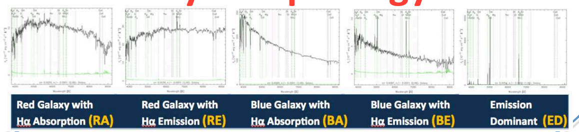


Morphology

Primary Morphology

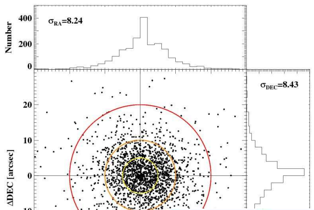


Secondary Morphology



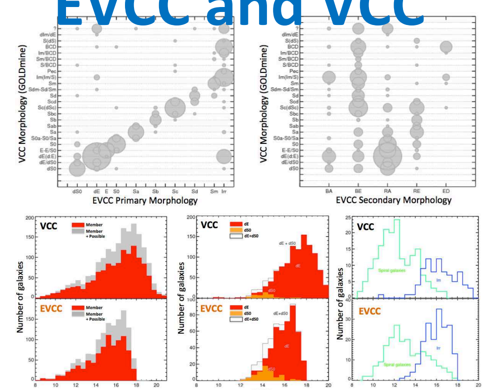
Issues on the VCC :

Astrometry and Membership



	Member	Possible Member	Background	Total
V_r < 3000km/s	532	221	23	776
V_r > 3000km/s	83	84	206	373
Total	615	305	229	1149

Comparison between EVCC and VCC



Ultraviolet Properties of galaxies in the Fornax cluster

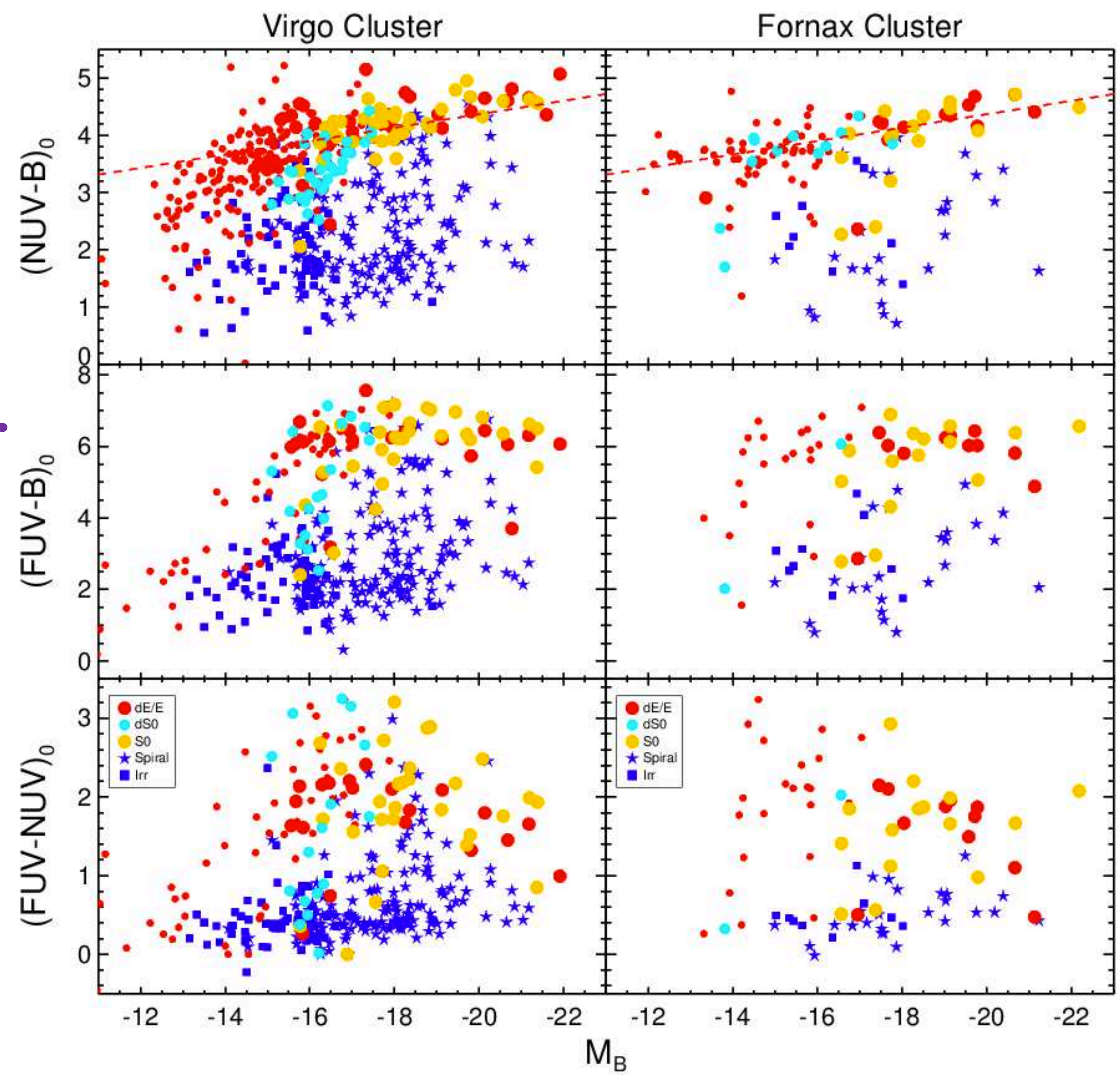
Youngdae Lee[1], Soo-Chang Rey[1], Mina Pak[1], Suk Kim[1], Eon-Chang Sung[2], Wonhyeong Yi[1], Jiwon Chung[1]

[1]Department of Astronomy and Space Science, Chungnam National University, Daejeon, Korea
[2]Korea Astronomy and Space Science Institute, Daejeon, Korea

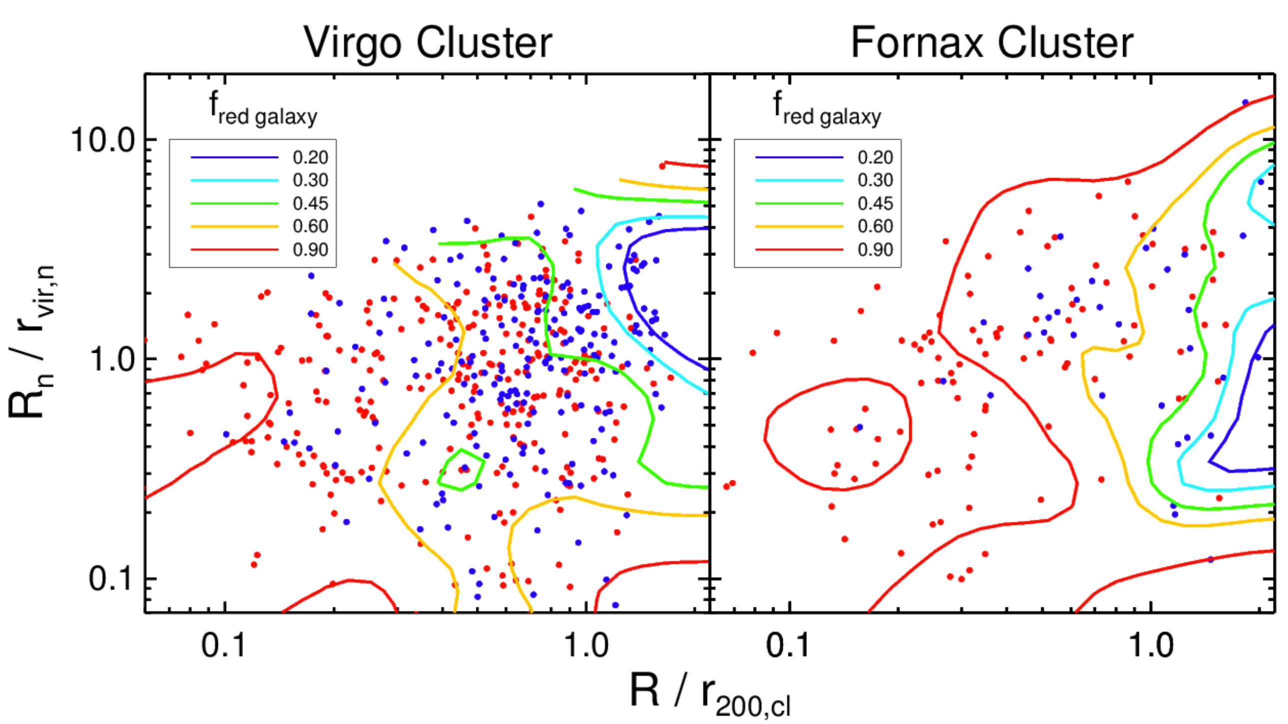
1. Data

	Virgo cluster	Fornax cluster
UV data	GALEX (FUV,NUV) GR6 - RA(deg): 192 ~ 181, DEC(deg): 2 ~ 19 - Field : 97 fields - 80 fields : 50sec ~ 1,000sec - 17 fields : 1,000sec ~ 3,000sec	GALEX (FUV,NUV) GR6 - RA(deg): 46 ~ 60, DEC(deg): -40 ~ -30 - Field : 126 fields - 100 fields : 88sec ~ 1,000sec - 26 fields : 1,000sec ~ 34,814sec
Optical data	HyperLeda databases (B band)	HyperLeda databases (B band)

2. UV CMR



3. Environmental Effect

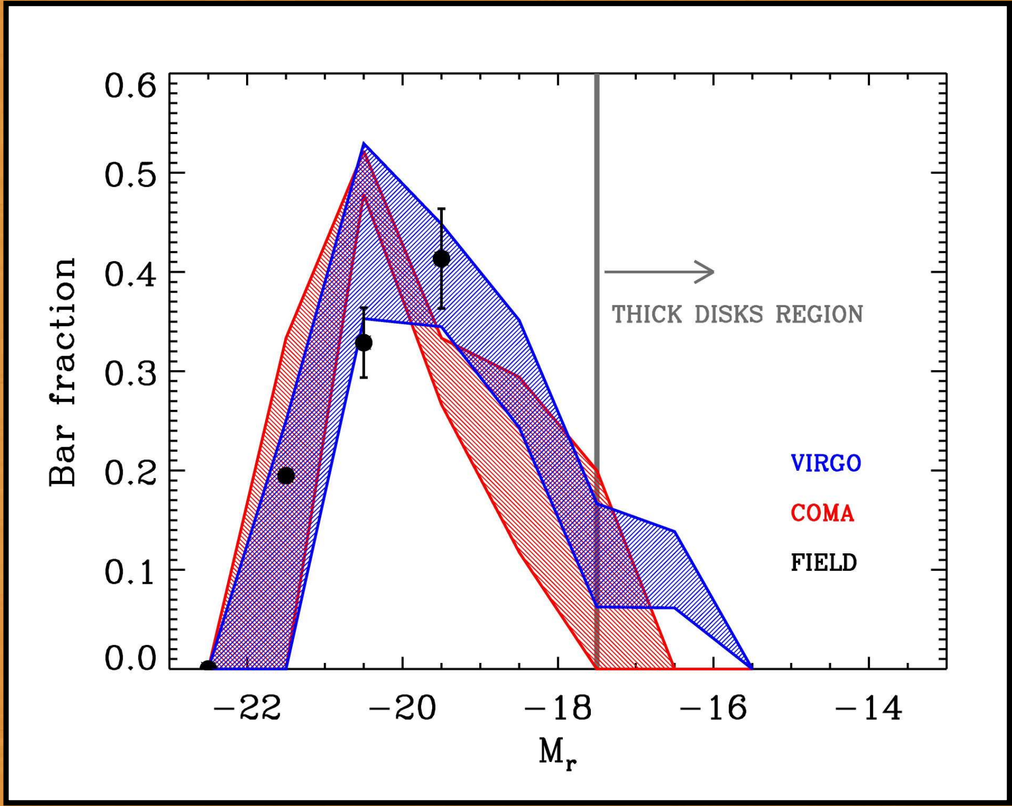


BAR AND DISK FORMATION IN DIFFERENT ENVIRONMENTS: VIRGO, COMA & FIELD

J. Méndez-Abreu

R. Sánchez-Janssen, J. A. L. Aguerri, E. M. Corsini, S. Zarattini

Optical bar fraction of **Coma** (Red shaded region) and **Virgo** (Blue shaded region) galaxies as a function of the galaxy absolute magnitude in *r*-band. Black circles represent the bar fraction of the **field** sample by Aguerri et al. (2009). The grey line indicates the limiting magnitude below which low-mass galaxies start to be systematically thicker (Sánchez-Janssen et al. 2010).



FIELD Aguerri et al. (2009, A&A, 495, 491); *THICKS DISKS REGION* Sánchez-Janssen et al. (2010, MNRAS, 406, 65); *COMA* Méndez-Abreu et al. (2010, ApJ, 711, 61); *VIRGO* Zarattini et al. (2011, in prep)

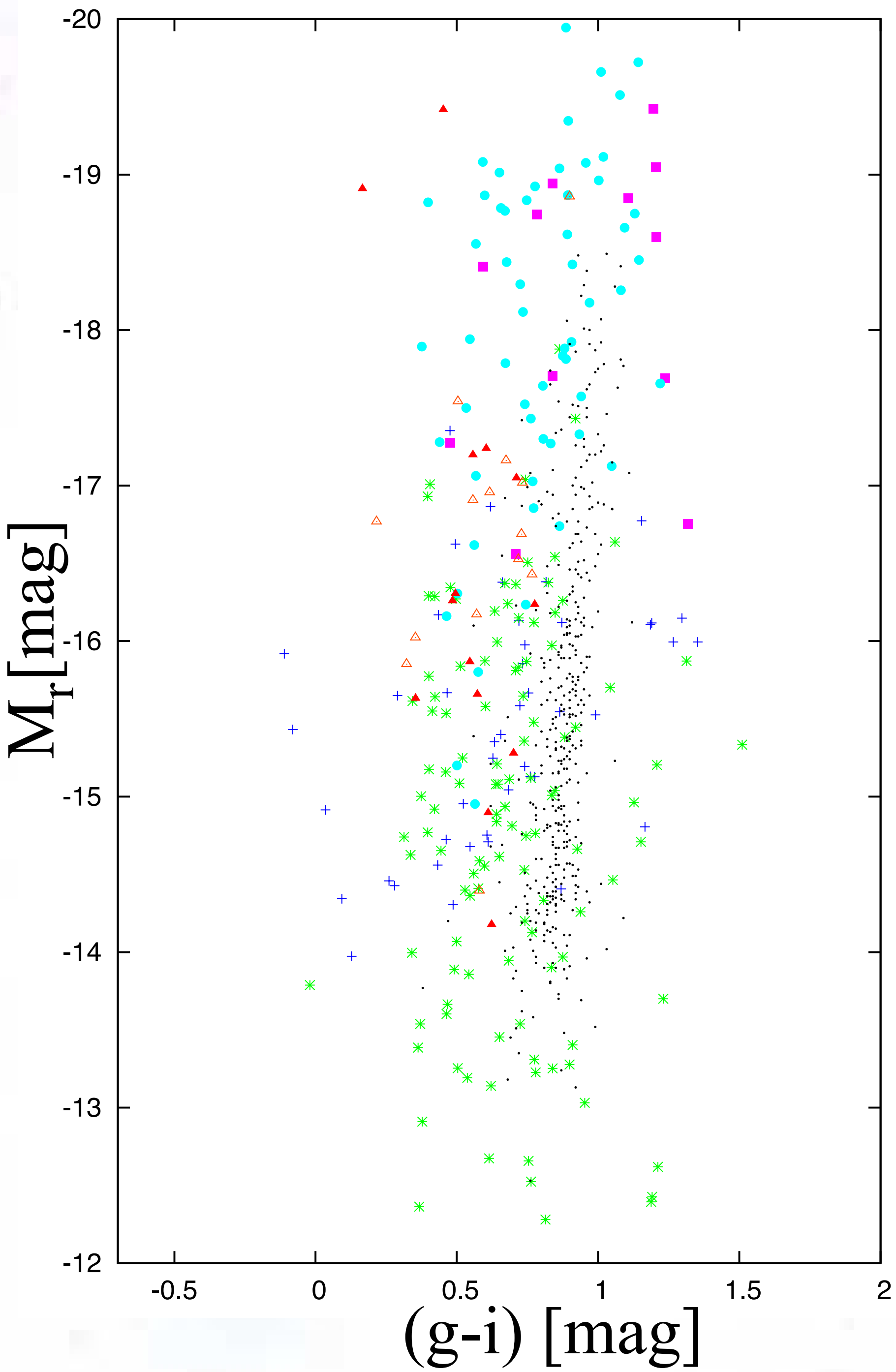
PROPERTIES AND EVOLUTION OF VIRGO LATE-TYPE GALAXIES

H.T. Meyer[1], T. Lisker[1]

[1]ARI, Zentrum für Astronomie, University of Heidelberg

ARI ITA LSW

EXtragalactic Astronomy Research Group
http://x-astro.net



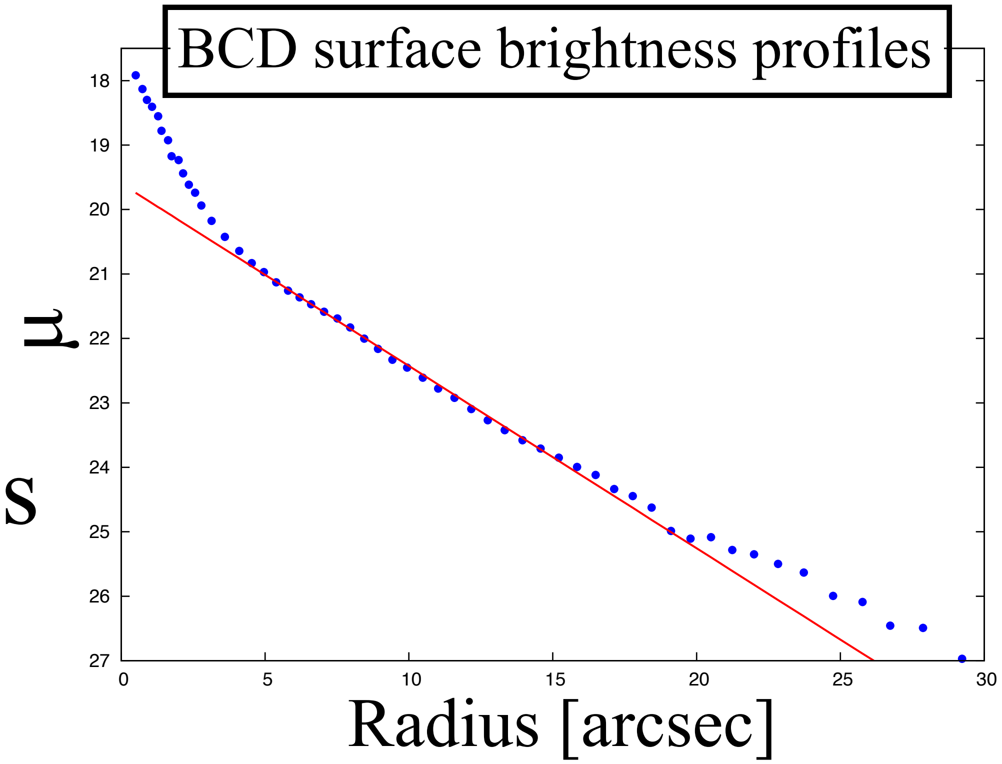
Analysis of

structure properties

and

colours

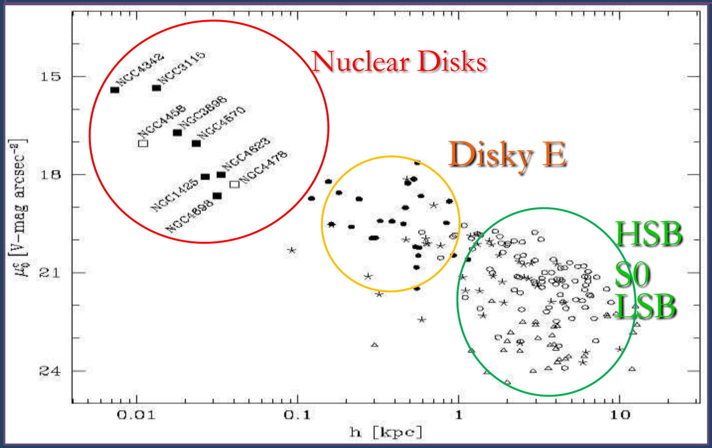
of late-type galaxies



PAST, PRESENT, AND FUTURE OF NUCLEAR STELLAR DISCS

Lorenzo Morelli (Dip. Astronomia, Università di Padova)

WHAT ARE NUCLEAR STELLAR DISCS (NSDs)



WHY TO STUDY NSDs

- ✓ They are common structure (up to 23% in early type galaxies) and present in all morphological types.
- ✓ They are, together with NSCs, the only bright structures in the very central region of galaxies.

WHAT WE CAN STUDY OF NSDs

- ✓ Size
- ✓ Light profiles and geometry
- ✓ Kinematics
- ✓ Dynamics
- ✓ Stellar populations
- ✓ Star formation

WHAT WE CAN LEARN FROM NSDs

- ✓ To understand the internal/external processes regulating their formation and evolution.
- ✓ To improve our knowledge on the formation, evolution and end (NSD will not survive to a major merging) of galaxies.
- ✓ To infer important clues in the coevolution between the galaxy and its BH.

1) **Nuclear stellar disks in spiral galaxies**, Pizzella, A., Corsini, E. M., Morelli, L., Sarzi, M., Scarlata, C., Stiavelli, M., & Bertola, F.,2002 ApJ, 573 131P.

2) **Nuclear stellar discs in low-luminosity elliptical galaxies: NGC 4458 and NGC 4478**, Morelli L., Halliday, C., Corsini, E. M., Pizzella, A., Thomas, D., Saglia, R. P., Davies, R. L., Bender, R., Birkinshaw, M. & Bertola, F., 2004 MNRAS, 354, 753M

3) **Multiband photometric decomposition of nuclear stellar disks**, Morelli, L., Cesetti, M., Corsini, E. M., Pizzella, A., Dalla Bontà, E., Sarzi, M.,Bertola, F. 2010, A&A, 518, 32M.

4) **A census of nuclear stellar disk in early-type galaxies**, Ledo, H. R., Sarzi, M., Dotti, M., Khochfar, S., Morelli, L., 2010, MNRAS, 407, 969L.

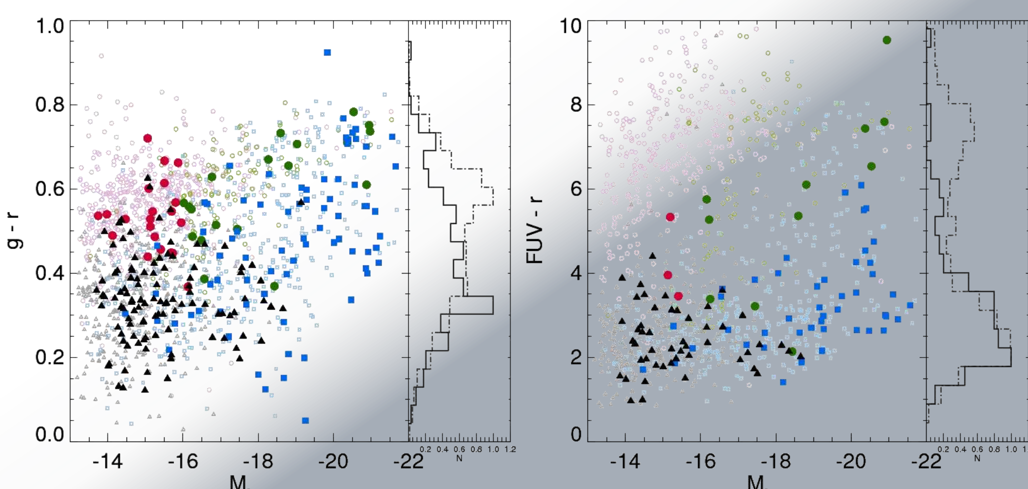
Ultraviolet Properties of Galaxies in low density environment : Ursa Major cluster

Mina Pak[1], Soo-Chang Rey[1], Youngdae Lee[1], Suk Kim[1], Eon-Chang Sung[2], Thorsten Lisker[3] Helmut Jerjen[4]

Data

- Optical data : SDSS DR7
- Ultraviolet data : GALEX GR5
- $V_0 < 1700$km/s

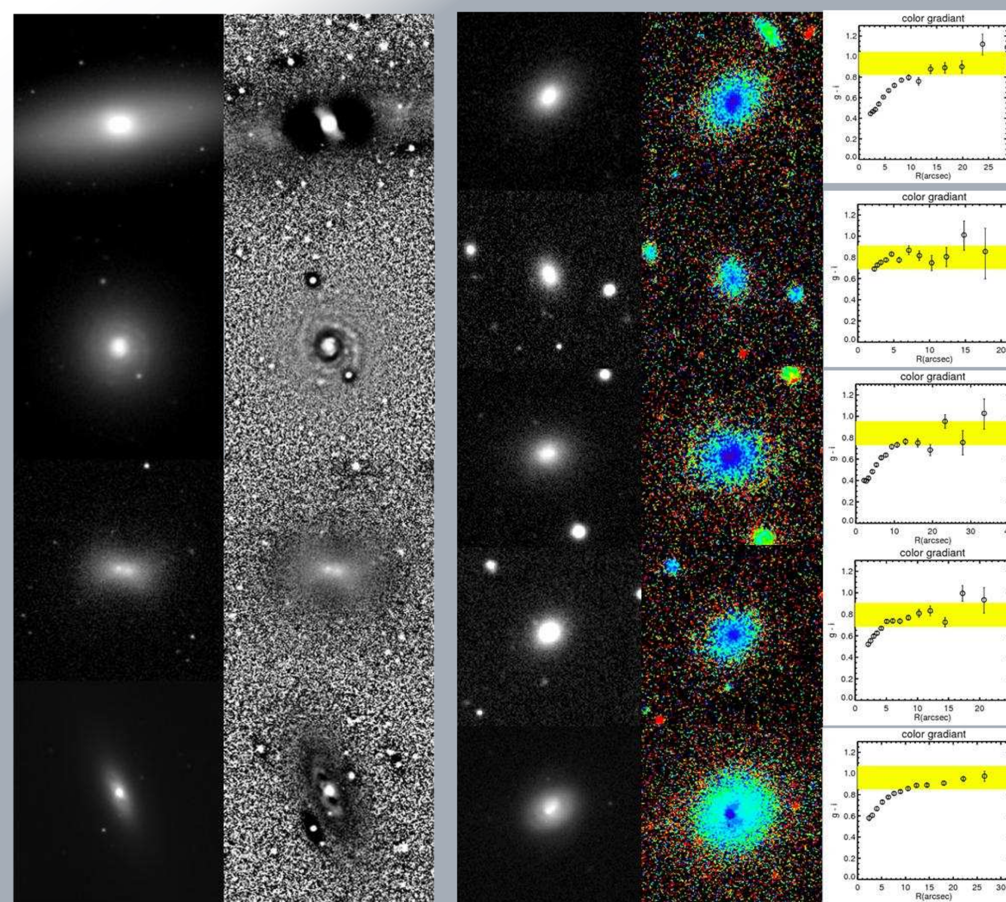
UV Colour -Magnitude Relations



Peculiar Early-type Galaxies

Early-type galaxies with disk

Early-type galaxies with blue centre



An Infrared Imaging Survey of Star-Forming Galaxies in the Nearby Universe

(A program prepared for the IRAC observations of the Spitzer Warm Mission)

by Zhong Wang (Smithsonian Astrophysical Observatory)

Sample selection: based on the ALFALFA Survey of HI-rich galaxies (Giovanelli et al. 2005), out to *z=0.06*

Total number of galaxies: ~4,600,. Depth of exposure: ~26.5^{m} (AB)/arcsec ^{2} (240sec per pointing).

Spitzer observing time required: ~ 760 hours. Complementary data: optical (SDSS-S), UV (Galex), and radio.

Main Scientific Goals:

1) Tracing the star-forming galaxy population as traced by gas and dust, irrespective of optical brightness/morphology;

2) Studying the star formation laws and their dependence on stellar as well as the gas mass density;

3) Surveying the environmental effects (clustering and voids) of star formation and galaxy evolution;

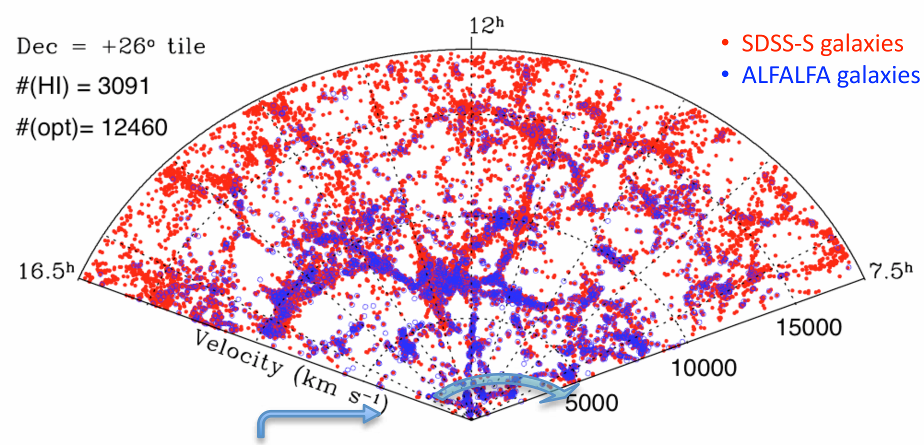
4) Exploring the continuous accretion and feedback mechanisms of ISM in the history of mass assembly.

Highlights:

Mid-IR is a much better tracer of stellar mass and also provides a measure of dust extinction in galaxies.

This proposed survey program will make efficient use of the capabilities of the Spitzer Warm Mission and vastly expand the distance horizons of the currently available surveys in the infrared.

Because of the IRAC's sensitivity to surface brightness, we will be able to reach *comparable* galaxy radius as those in other large IR surveys (e.g., SINGS).



Volume covered by existing large Spitzer surveys of the nearby universe

Graphics courtesy of M. Haynes and R. Giovanelli