with Galaxy Zoo 1 data and the star formation history fitting models from Bruzual & Charlot (2003).

We found an underpopulation of spiral and disk like galaxies and an overpopulation of interacting galaxies, the last seems consistent with the scenario where, at low z, the interaction mechanism is responsible for at least part of the E+A galaxies.

The star formation history (SFH) fits most of the spectra indicating an increased star formation around 2 Gyr in the past. Additional parameters like dust internal extinction need to be included to improve the fitting.

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THE ROLE OF THE COROTATION RESONANCE IN THE SECULAR EVOLUTION OF DISKS OF SPIRAL GALAXIES

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The corotation resonance plays an important role in the evolution of the disks of spiral galaxies, and in particular, of our Galaxy. Its effect on the chemical abundance gradients is even a tool to estimate the age of the present spiral arm structure, which we find to be long-lived, contrary to a recent common belief. The metallicity gradients usually decrease in the inner regions and become flat or rising at larger radii. In several galaxies, including the Milky Way, one observes not only a change in the slope of the abundance gradient, but also an abrupt step in metallicity at corotation. This step is because the corotation resonance separates the disk of a galaxy in two regions (inside corotation and outside corotation) which are isolated one from the other, so that the two sides evolve in an independent way. The barrier between the two regions is the result of the flow of gas in opposite directions on the two sides and by the ring-shaped void of gas observed at corotation. We investigated a sample of galaxies, which have a known corotation radius, and for which there are measurements of abundance gradients of Oxygen available in the literature. A very good correlation is found between corotation radii and the radii at which there is a break in the slope of the gradients. Besides this, an independent effect of corotation is a minimum of star formation associated with the minimum velocity at which the interstellar gas feeds the spiral arms (seen as potential wells and star-formation machines). Still another effect is the scattering of stars by the resonance, which causes their migration to different galactic radii.

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STAR FORMATION HISTORY OF CALIFA GALAXIES IN THE OPTICAL AND UV

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CALIFA is a spectroscopic survey of 600 nearby galaxies ($0.005 < z < 0.03$). CALIFA provides a unique and very useful set of data for galaxies covering the color-magnitude diagram from Mr = -23 mag to Mr = -18 mag, a large range of masses (109-12 $M_{\odot}$) and morphological types (from E to Sc), and allow us to obtain the spatially resolved properties of galaxies. The spectral range of the CALIFA sample is ideal for studying stellar populations because it contains the Balmer series and the 4000 Å break, among other useful tracers. However, there are age-metallicity-extinction degeneracies, which produce uncertainties in estimation of the physical properties of the stellar population. So we combine CALIFA spectroscopic data with photometric data in the ultraviolet range obtained with the GALEX mission in order to break these degeneracies, including data that provide additional information about the young stellar populations, which contribute to a lesser extent in the optical range. We perform a full spectral synthesis at the optical range plus the two UV GALEX filters with a new version of the fitting code STARLIGHT.

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THE SOAR GRAVITATIONAL ARC SURVEY

XIV Latin American Regional IAU Meeting (Florianópolis/SC, Brazil, 25-30 November 2013)
Editors: A. Mateus, J. Gregorio-Hetem & R. Cid Fernandes

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We present the first results of the SOAR Gravitational Arc Survey (SOGRAS). The survey imaged 47 clusters in two redshift intervals centered at $z = 0.27$ and $z = 0.55$, targeting the richest clusters in each interval. Images were obtained in the g', r' and i' bands with a median seeing of 0.83, 0.76 and 0.71 arcsec, respectively, in these filters. Most of the survey clusters are located within the Sloan Digital Sky Survey (SDSS) Stripe-82 region and all of them are in the SDSS footprint. We present the first results of the survey, including the 6 best strong lensing systems, photometric and morphometric catalogs of the galaxy sample, and cross matches of the clusters and galaxies with complementary samples (spectroscopic redshifts, photometry in several bands, X-ray and Sunyaev Zel'dovich clusters, etc.), exploiting the synergy with other surveys in Stripe-82. We apply several methods to characterize the gravitational arc candidates, including the Mediatrix method (Bom et al. 2012) and ArcFitting (Furlanetto et al. 2012), and for the subtraction of galaxy cluster light. Finally, we apply strong lensing inversion techniques to the best systems, providing constraints on their mass distribution. The analyses of a spectral follow-up with Gemini and the derived dynamical masses are presented in a poster submitted to this same meeting (Cibirka et al.).

Deeper follow-up images with Gemini strengthen the case for the strong lensing nature of the candidates found in this survey.

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THE ENVIRONMENTAL PROPERTIES OF GALAXIES PROBED BY MARKED STATISTICS

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Galaxies are generally treated as point particles in clustering analysis. However, these objects have physical and stellar population properties that must be taken into account if one wants to study the environmental effects on galaxy evolution. In this work, we applied a statistical method to investigate the role of environment in driving galaxy properties based on the marked correlation function. This methodology was applied to a galaxy sample drawn from the Sloan Digital Sky Survey Data Release 7, where the clustering of galaxies was weighted by particular galaxy properties, like luminosity and stellar mass, thus more directly quantifying the correlations between these attributes and large-scale environment. We show that marked statistics are powerful to reproduce environmental trends for variables like luminosities and stellar masses, as well as to quantify the relative importance of them with respect to the environment. For low density regions in the local universe, mark correlations relative to the mean are stronger compared to dense regions. This implies that the clustering of stellar mass, for instance, is more sensitive to environments associated to individual halos in close galaxy pairs than to massive halos found in clusters, where the correlations don't show any difference relative to the mean. We conclude that in nearby galaxy clusters, dominated by massive objects, galaxies are equally clustered (marked correlation = average clustering). On the other hand, galaxies in low density regions span a wide range in stellar mass (halo sizes) where the correlations appear more dramatically.

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A NEW CLASS OF GALAXIES (?): ULTRA-COMPACT DWARFS

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I propose to give a review on ultra-compact dwarf galaxies (UCDs), a new class of stellar systems defining the interface between star clusters and dwarf galaxies. UCDs are believed to be either the most massive star clusters in the universe, tidally truncated galaxies, or, both. After a brief overall summary, I will focus in particular on two aspects. 1. The specific frequencies of UCDs - a recently introduced quantity that allows to test whether the luminosity distribution of UCDs follows the bright tail of the globular cluster luminosity function. Can all UCDs