

ABSTRACT ONLY

THE EVOLUTION OF THE RED-CLUSTER SEQUENCE IN LOW X-RAY LUMINOSITY GALAXY CLUSTERS

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This abstract summarizes our oral contribution to the conference.

In this work we investigate the properties of the optical colour-magnitude relation in a sample of 60 Low X-ray Luminosity Galaxy Clusters from redshift $z=0.7$ to $z=0$, in order to determine the evolution of the Red-Cluster Sequence of galaxies (RCS) in low and intermediate mass galaxy clusters.

We base our study, in a sample of galaxy clusters observed from Las Campanas Observatory (LCO), Cerro Tololo Interamerican Observatory (CTIO) and Gemini Observatory and complementary data extracted from the SDSS-DR12, and selected from the catalogue of 223 galaxy clusters serendipitously detected in the ROSAT PSPC pointed observations (Vikhlinin et al.; 1998). This catalogue of extended X-ray sources was revised by Mullis et al. (2003) using optical imaging and spectroscopy to classify 200 galaxy clusters, excluding 23 false detections. Were selected those clusters with X-ray luminosities in the [0.52.0] keV energy band (rest frame), close to the detection limit of the ROSAT PSPC survey, ranging from 0.1 to $50 \times 10^{43} [erg/s^1]$, a range of luminosity associated by different authors, as a low and intermediate mass galaxy clusters range (e.g. Balogh et al. 2002).

We define the RCS for each cluster, following Gladders et al. (1998), where a linear regression plus an iterated 3σ -clipping provides the most stable results to define the RCS sample. Then, using a least-square regression, the RCS slope and zeropoint for each cluster were obtained, with errors being estimated using 10.000 bootstrap resampling

We find remarkable differences between the sample at $z>0.4$ and the clusters at $z<0.2$ in the color

magnitude space. While clusters at $z<0.2$ have the presence of a well defined RCS with an extension of at least 4 magnitudes, and an absence of blue/disk galaxies. Clusters at higher redshift present a less important RCS with a smaller extension, but with a clear presence of the blue population. It is interesting to note also, that the morphology of the galaxies located in the edge between the RCS and the blue cloud in clusters at $z>0.4$, tend to be dominated by disk shape galaxies, supporting the idea presented by Mendez et al (2011), about a transition regime between the blue cloud and the RCS at this redshift range.

Future works will include a detailed analysis of the galaxy morphology of the clusters member populations, and a re analysis of the photometric data, based on Point-Spread Function photometry (PSF) obtained with the Astromatic packages PSFEx.

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