INTERACTING ELLIPTICAL GALAXIES

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Interacting galaxies show useful properties to contrain models of dark matter haloes. In general, these haloes seem to be as big as 200 h^{-1} kpc of radius in elliptical galaxies (Bahcall & Tremaine 1981; Charlton & Salpeter 1991; Zaritzky et al. 1993; Bahcall et al. 1995). But, we have a very poor information on the density profiles which determine the gravitational potential of those objects.

The dumbbell galaxies, two ellipticals of similar luminosities sharing a common luminous halo, are simpler than spiral pairs to study using N-body simulations. Since ellipticals have simpler morphological and internal dynamics the simulations produce less complicate distortions to be compared with observations. However, to perform these simulations it is required to know the initial condition of the encounter, the kind of distortion to be reproduced and take into account possible differences due the environment where the pair is located.

We present in this work results of a statistical, spectroscopic and photometric study of a sample of dumbbell galaxies in clusters (38% of the sample), groups (50%) and isolated (12%) (Ramírez et al. 1994). The dynamical analysis of the environment of one of these dumbbell pairs (NGC 4782/3) is in complete agreement with the existence of an extensive dark halo and the presence of a satellite system acting as test particles in the halo potential (Quintana et al. 1996). The analysis of the photometric data on a sub-sample shows pairs with distortions as offcentering isophotes and haloes with tails (18% of the sample) and bridges (56%), produced by tidal forces. In four pairs we found signs of a stellar population between the two components, possible due to new star formation region or exchange of stellar material (Ramírez & de Souza 1995).

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DISTRIBUTION OF INTERACTING GALAXIES IN A TEST SAMPLE OF CLUSTER OF GALAXIES

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We present a study of the distribution of interacting galaxies in a test sample of clusters of galaxies. We propose a morphologic identification of the phenomena of interaction according to the visual appearance in the J plates of the ESO/SERC Southern Sky Survey. The test sample has 19 clusters of galaxies belonging to the South Hemisphere ($\delta < -16°$), classified according to the Bautz-Morgan classification scheme. We studied the radial profile of the distribution of interacting galaxies to establish if the interaction has an intrinsic behavior related to the dynamic of the cluster more than a simple interaction between galaxies.

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NARROW-BAND IMAGERY OF NGC 4736

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In this work we study the galaxy NGC4736, using narrow band interference filters imaging centered at the emission lines [O II]$_{\lambda\lambda 3727+3729}$, H$\beta$, [O III]$_{\lambda 5007}$, H$\alpha$, [S II]$_{\lambda 6716+6730}$ and [S III]$_{\lambda 9070}$ and nearby continua at λ3812 Å, λ4556 Å, λ5276 Å, λ6269 Å, and λ9193 Å. We used a CCD camera attached to the Cassegrain f/15 focus of the 1.0-m Jacobus Kapteyn Telescope, in the Roque de los Muchachos Observatory, La Palma, Canary Islands. The detector used was a GEC CCD 400×590 pixels (1 pixel = 22 μm).

We have obtained sizes, positions, emission line absolute fluxes, and continua intensities for 90 H II regions, mainly distributed in a ring-like structure of 3.2 kpc in diameter. The Hα luminosities are in the range $37.3 \leq \log L_{H\alpha} \leq 39.4\,\mathrm{erg\,s^{-1}}$. H II region diameters were measured in Hα image after a seeing deconvolution procedure. We obtained core and halo diameters (D_c and D_{100}, respectively) for each H II region. The H II regions size distribution presents a characteristic diameter D_o = 115 pc and follows

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