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BVRI SURFACE PHOTOMETRY OF ISOLATED GALAXIES IN THE LOCAL UNIVERSE

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We present preliminary results of multi-color broadband CCD (BVRI) photometry for a sample of 230 isolated (elliptical and spiral) galaxies drawn from the Catalog of Isolated Galaxies (CIG) by Karachentseva (1973). Images were acquired at the San Pedro Mártir (OAN-SPM) National Optical Observatory in Baja California, Mexico. We estimated total magnitudes and colors at various circular apertures, as well as global structural/morphological parameters: *Concentration, Asymmetry and Clumpiness (CAS).*

Isolated Galaxies are those that have not suffered any interaction with another galaxy of comparable size, or with a group environment over a Hubble time or at least since approximately half of their mass was assembled. The study of isolated galaxies is important because they can be used as comparison objects in studies of the environmental effects on galaxies belonging to groups and clusters, and they are ideal for confronting with theoretical and model predictions of galaxy evolution.

In order to discuss the optical morphology (that could be modified by the presence of bars, rings, etc. or external factors) and its relationship with the global photometrical properties, the images for each isolated galaxy were re-evaluated through optical and filtered R band images, $(B-I)$ color index maps, RGB image from the Sloan Digital Sky Survey and archived near-IR JHK images from the Two Micron All Sky Survey.

To complement the morphological classification, a surface photometry analysis was carried out. A bar signature is recognized if the ellipticity radial profile $\mathcal{E}$ rises to a maximum $\mathcal{E}_{max}$ required to be above that of the outer disk, while the P.A. radial profile shows a plateau (within $\pm$ 20°) along the bar (Wozniak et al. 1995). This is illustrated in Figure 1.

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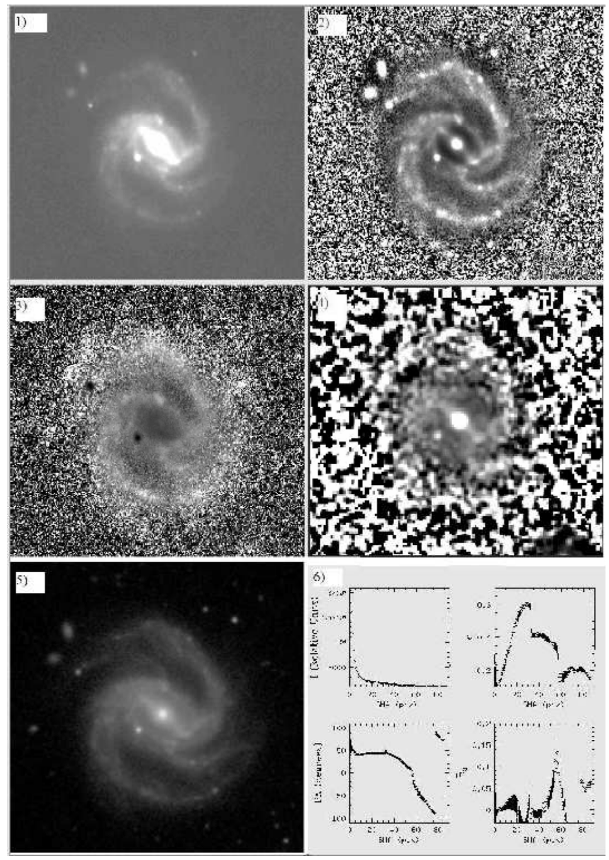

Fig. 1. *Spiral* (1) Gray scale R-band image displayed at full intensity to look for faint external details; (2) R-band sharp-filtered image to look for internal structure (star forming regions and/or structure embedded into dusty regions); (3) $(B-I)$ color index map to visualize the spatial distribution of the SF (light-gray for blue colors; dark-gray for red colors); (4) Composed NIR JHK image (2MASS); (5) RGB image (SDSS); (6) Surface brightness, ellipticity, position angle and harmonic B_3 radial profiles.

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