

PRELIMINARY PHOTOMETRIC AND MORPHOLOGICAL INVESTIGATION OF GALAXIES IN PISCES-CETUS VOID¹

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A search for galaxies in voids has been carried out since 1992 under the joint project between MPI Astronomy, Heidelberg and the Department of Astronomy, Bulgarian Academy of Sciences [1-3]. The galaxies were usually identified on plates taken on the 2.2 m telescope on the Calar Alto Observatory, on the 2 m RCC telescope at NAO Rozhen and rarely on CCD frames at 3.5 m telescope at Calar Alto. Low resolution CCD-spectra were obtained at Calar Alto for some other interesting galaxies [4]. With this study we begin a photometric and morphological investigation of galaxies in the direction of Pisces-Cetus Void [5].

The galaxy we present here was chosen because of its interesting morphology — it looks like two colliding galaxies or like two merging systems on the B CCD frame. The basic data were taken using CCD frames and CCD spectra with the 3.5 m telescope at Calar Alto [6], Table 1.

Table 1

$$\begin{aligned}\alpha &= 00^h 58^m 45^s \\ \delta &= +10^{\circ} 08' 33'' \\ B &= 19.42 \\ R &= 18.78 \\ z &= 0.1488\end{aligned}$$

Surface photometry of the galaxy was performed using MIDAS package in MPIA by B.K.; Richter's adaptive filtering algorithm was chosen [7] and ellipse fittings applied to study the distribution of the surface brightness [8].

In Figure 1 we present the dependence of the integrated magnitudes in colours R (circles) and B (crosses) from the angular diameter of the galaxy. In Figure 2 we summarize the dependencies of the surface brightness (mag/sq.arcsec), colour index (B-R), axial ratio B/A and position angle PA from the major axis. In Figure 3a,b we present the lines of equal intensity in B and R colours respectively. Fitting ellipses are overlaid following [6]. In Figure 4a,b the differences between the real profiles and the ellipse fitting are shown.

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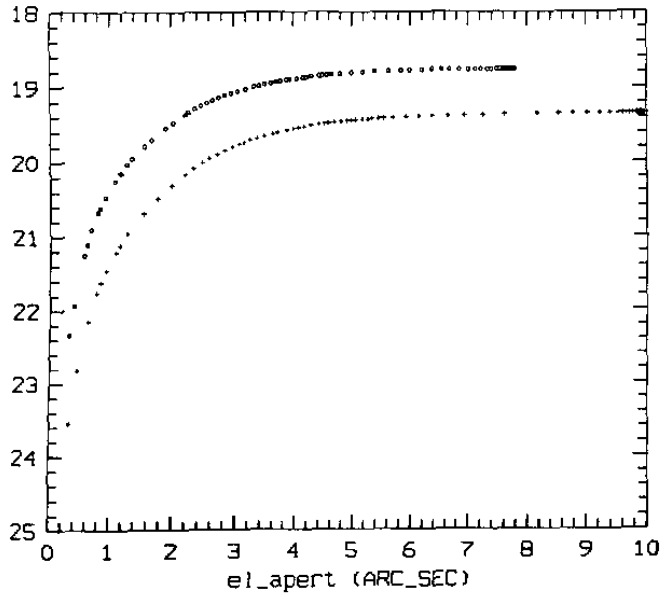


Fig. 1

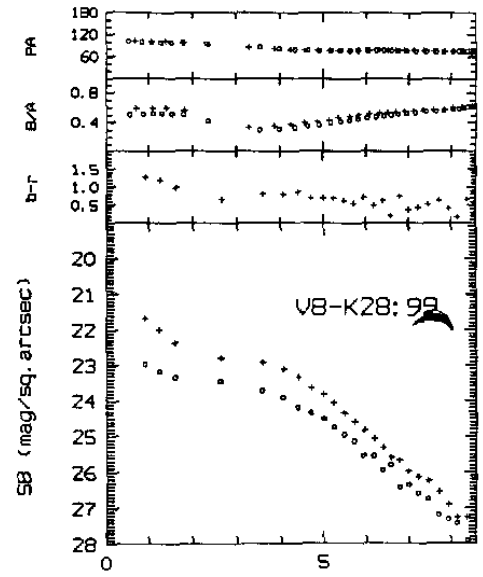


Fig. 2

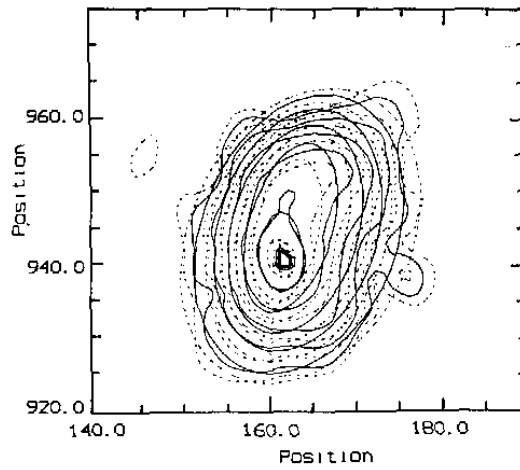


Fig. 3a

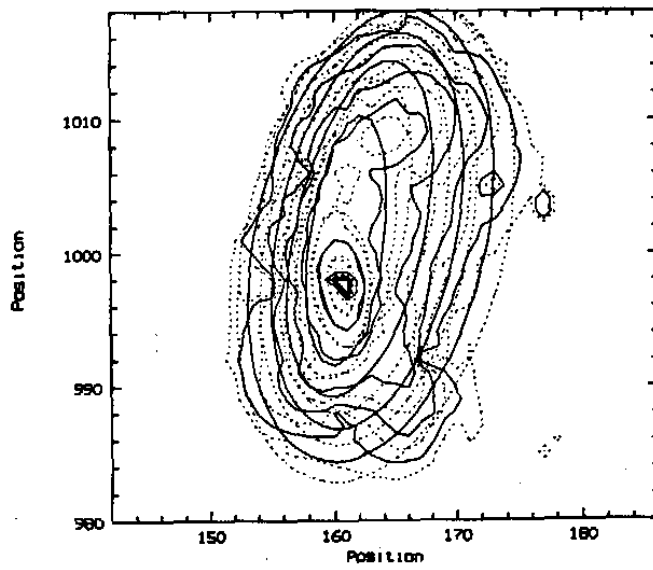
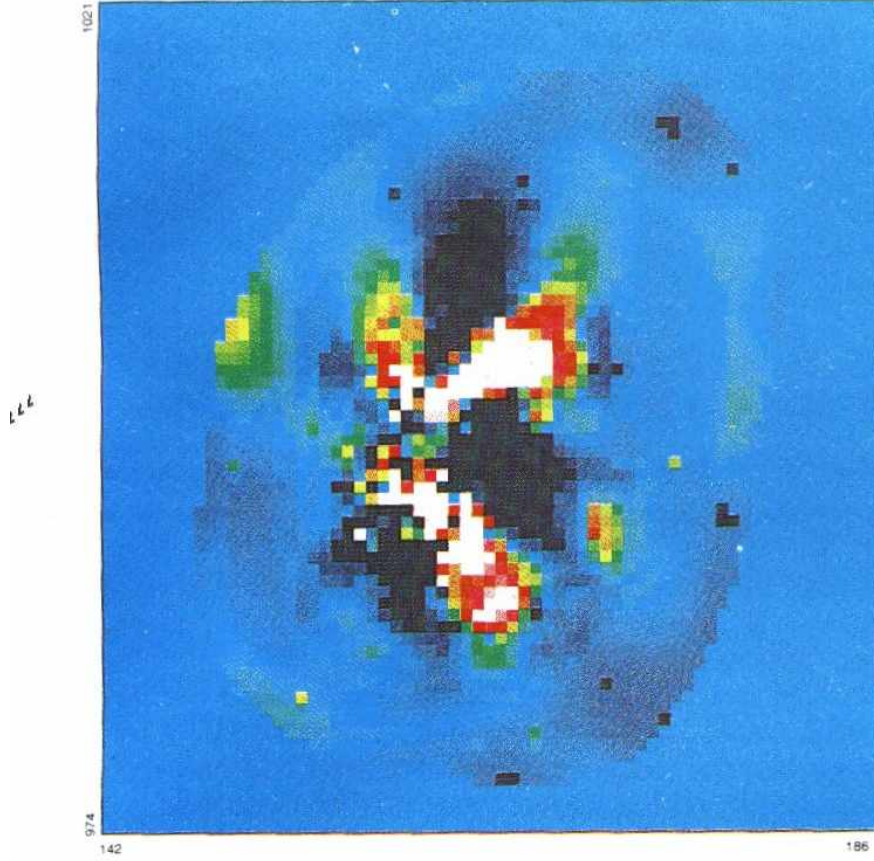


Fig. 3b

Mo, 16 May 1994 18:36:44

MIDAS version: 92NOV



Su, 22 May 1994 14:38:11

MIDAS version: 92NOV

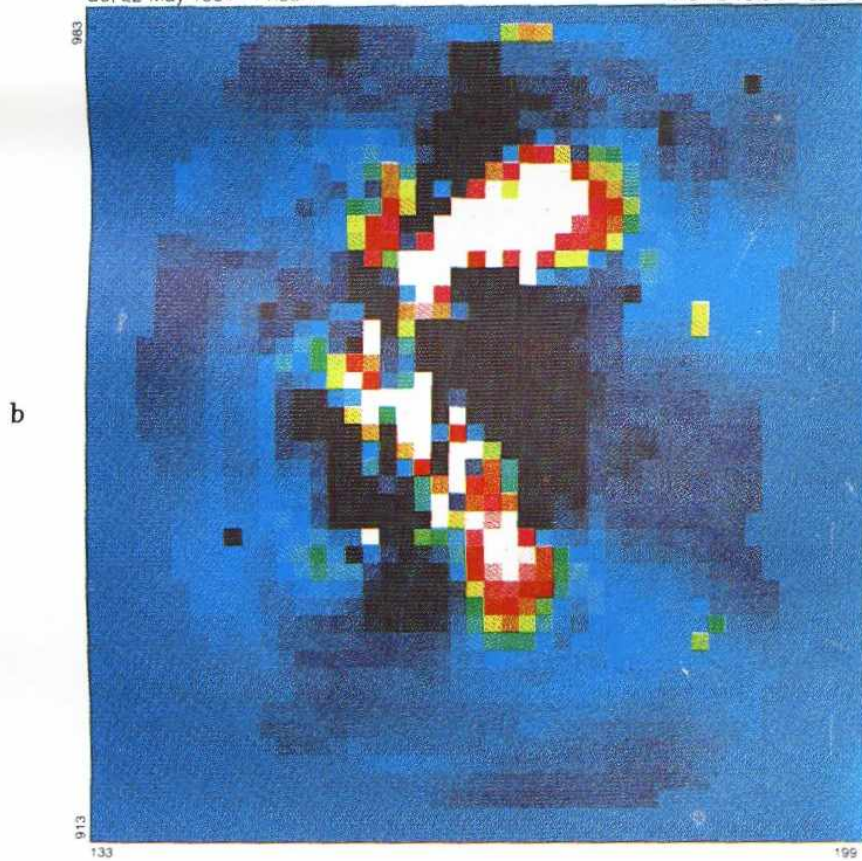


Fig. 4

As a result a pure exponential disk profile must be rejected. One can see a small bulge in the central regions and a large disk.

There is practically no colour gradient. Non-disk profiles in both colours and interesting "double nuclei" structure are clearly seen. Similar results were reported in [9].

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