

A new dwarf member of the local group?

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Resumen: Se describe un nuevo objeto, posible mente una galaxia enana, o un cúmulo globular intergaláctico hallado en la constelación de Reticulum sobre placas de la colección Maksutov del Departamento de Astronomía de la Universidad de Chile.

During a search for interesting objects in the Maksutov Plate Collection at Cerro Calan Observatory in Santiago, we found last February an extended, resolved object of low surface brightness in

RA = 4^h 34^m.7 Dec. = -58° 58' (1950.0)

From the distribution of the resolved stars see figure 1) we deduced an apparent diameter $d = 5'$ whilst the size of the object seems to come up to $d = 12'$ when observed on small scale reproduction of the original Maksutov plates. In this latter case it is also possible to estimate the total integrated luminosity of the object. In fact, three nearby field stars (SAO 233575-6-7) provide a fairly good comparison from where we deduced $m_s = 9.0$ (pg).

The problem arises now of whether this object belongs to our galaxy or is of extragalactic nature. Last month we took some

Newtonian plates at Bosque Alegre with the 154 cm telescope and estimated the apparent photographic magnitude of the brightest resolved stars in the object. We got

$$m_s = 19.0 \pm 0.25$$

after comparison with a sequence in NGC 121 (Tifft, 1963) on plates taken the same night and kindly loaned to us by R.Laborde. Figure 2 is a plot of two observables, namely the apparent magnitude of the brightest stars in clusters (Arp, 1965) and dwarf galaxies (van der Bergh, 1968) versus log of the apparent radius. The galactic globular cluster follow a strip in the diagram whose width depends on the intrinsic dispersion of the parameters and the galactic absorption. The location of two intergalactic clusters (Burbidge and Sandage, 1958) is marked by an error box, as well as that of the object we are discussing. From the place where the latter is located, we deduce that it could be considered as a "bona fide" dwarf elliptical galaxy, like the Leo I and II systems. If so, a distance of 150 kpc follows (see Table) from the apparent magnitude of the brightest stars and $M_s = -2.2$ (pg) and the galactic absorption in the area. The inner diameter is 0.23 kpc and the overall one 0.55 kpc. An absolute magnitude $M_s = -12.2$ places this object between the not very faint members of its class.

T A B L E

RA = 4 ^h 34.7	Dec. = -58° 58'	(1950.0)
l = 235°3	b = -39°8	$A_{pg} = 0.37$
Apparent diameter: = 5' (core)		12' (overall)
$m_s = 9.0$ (pg)	$m_{brgst} = 10.0 \pm 0.25$ (pg)	
$(m - M) = 21.1$ (pg)	$(m - M) = 20.8$	
Distance: 0.15 Mpc	$M_s = -12.2$	
Diameter: 0.23 kpc (core)		0.55 kpc (overall)

* Under contract with CONICET, Bs. Aires.



Figura 1

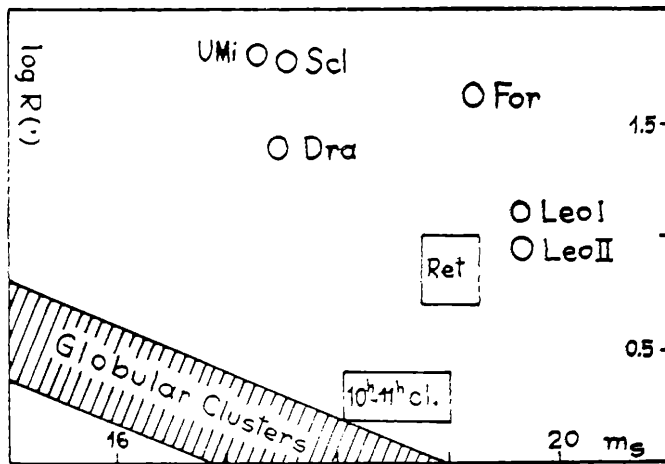


Figura 2

Acknowledgement:

The author acknowledges to Prof. C. Aniguita the opportunity to inspect the Makutov Plate Collection during a five months visit to Cerro Calan Observatory last summer 1973.

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Nota agregada cuando este trabajo ya había sido enviado para publicación.

El Dr. S. van der Bergh, en comunicación privada al autor, le hizo llegar los siguientes comentarios, con motivo del anuncio hecho en la IAU (Sydney, 1973) del descubrimiento de este objeto:

"My personal feeling is that object which "inter-galactic" globular cluster Palomar Nº 4. I would estimate a somewhat smaller distance than that which you suggest in your paper: for $B = 19.0$ and $B-V = 1.3$ it follows that $V = 17.7$ for the brightest cluster stars. Adopting $M_V = -2.5$ for these stars and $A_V = 0.2$ then yields $m - m = 20.0$ corresponding to a distance of 100 ipc. Inspection of your print suggests that about half of the cluster stars are located within a diameter of 3 arc minutes. This value is not very dissimilar to the diameter of 2.5 minutos which is obtained for

Palomar 4, which is also situated at a distance of 100 kpc.

At first sight the assumption that your new object is a globular cluster is contradicted by the observation that the integrated magnitude of this object $B = 9.0$, which yields $M_B = -11$. From your published photograph I would guess that this value yields possibly be an overestimate. Again judging from your print it would appear that the cluster contains 100 stars with $\langle V \rangle = 19$. The integrated magnitude of all of the stars is therefore $V = 14$. Making some allowance for the integrated brightness of stars below the plate limit might yield $V \sim 13$, which corresponds to $M_V = -7$ for the integrated cluster brightness. This value is quite reasonable for a globular cluster".

Sobre un grupo de galaxias en Antlia

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Abstract: Spectroscopic and morphological observations suggest that we are dealing with an unstable group of galaxies, one of whose members, NGC 3354, is a compact galaxy.

Las principales características del grupo de galaxias constituido por NGC 3347, 3354 y 3358 son su probable asociación física y los rasgos peculiares de uno de sus miembros.