

HI OBSERVATIONS OF 73 CANDIDATES BLUE COMPACT DWARF GALAXIES

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HI observations are reported for a new sample of 73 candidates BCDGs. HI emission have been detected from 53 of them. The distributions of HI parameters are given for detected objects.

1. *Introduction.* Genuine Blue Compact Dwarf Galaxies (BCDGs) are objects with low metal content and high ratios of HI to total mass, forming stars prodigious rates, low luminosity and small size.

In order to enlarge the sample of genuine BCDGs and help to understand their nature we have started a multi-wavelength study of the new sample of the candidates of BCDGs. The new sample was build on the base of Byurakan First (FBS), Second (SBS) and also Case Blue, Kiso's, Wasilewsky's, UM surveys. The selection criteria for our sample of about 200 candidates of BCDGs are:

- (I) $M_p > -17^m$, $H_0 = 75 \text{ km s}^{-1} \text{ Mpc}^{-1}$.
- (II) Compact structure. Clear absence of spiral arms or a obvious irregular morphology, confirmed by high resolution imagery.
- (III) The existence of very strong, sharp and narrow emission lines.

Since star formation normally requires the presence of high amount of neutral gas, we have carried out a study of the HI content of a sample in order to determine the amount of neutral gas.

2. *Observations and data reduction.* The observations were carried out at March 1993 and April 1994 at Nancay radio telescope, which has a collecting area equivalent to that of a 94m diameter parabolic dish.

We used a two-channel, dual polarization 21 cm spectrometer as a receiver which was used in the integration mode and was splitted into two banks of 512 channels each

with channel width, corresponding to 2.64 km s^{-1} . After boxcar smoothing the final resolution is a typically 10 km s^{-1} . The two polarizations were detected independently and averaged to improve sensitivity. The half-power beam width at 21 cm is $3.6'(\text{EW}) \times 22'(\text{NS})$ at zero degree declination.

The observations were made in the standard total-power mode, consisting of cycles of 2 min on-source and 2 min off-source integrations. The position of comparison field was approximately $20'$ eastward from the source. The number of cycles for one transit was between 8 and 15 but usually 12. The calibration of the telescope was obtained by measuring strong radio sources with accurately known fluxes at different declinations.

Data reduction was done using spectral line package DRAWSPEC developed by H.S.Liszt at NRAO. For each final spectra HI profile parameters (the systemic velocity, the line width at the 50% and 20% level of the maximum, the area under the profile) were extracted by fitting of the Gaussian.

3. Results. In total on Nancay radio telescope have been observed 73 galaxies. HI emission have been detected from 53 of them. For these 53 galaxies the following parameters are determined: (i) HI heliocentric radial velocity, (ii) HI radial velocity derived from observed HI heliocentric velocity through a spherical Virgo flow model according to the formalism of Bottinelli et al [1], (iii) HI line width measured at 50% and 20% of the maximum intensity, (iv) Area under the HI profile (v) HI mass in solar units.

In Fig. 1 the radial velocities distribution of the sample is presented. The distribution of HI masses in solar units computed assuming $H_0 = 75 \text{ km s}^{-1} \text{ Mpc}^{-1}$ is shown in Fig. 2.

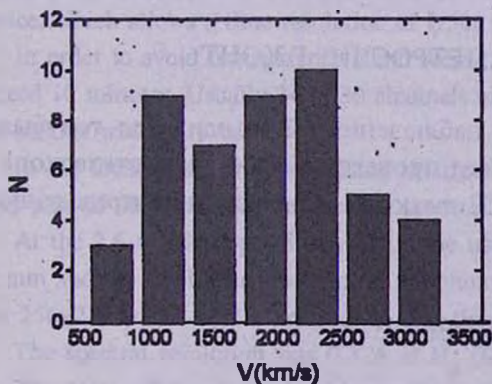


Fig. 1. The heliocentric velocity distribution of 53 detected galaxies.

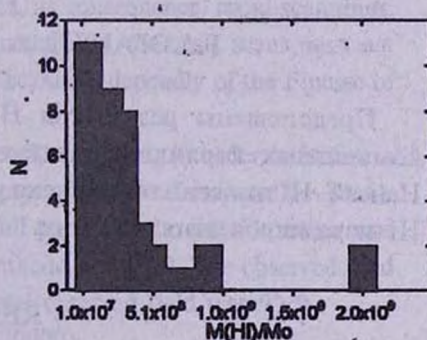


Fig. 2. The distribution of HI masses in solar units for 53 detected galaxies.

In Fig. 3 the distribution of optical magnitudes of detected objects is presented. The median value of the optical magnitudes is equal to 16.0^m . For 20 undetected objects optical magnitudes lie in the range of $15.0^m - 17.0^m$ with median value equal of 16.5^m .

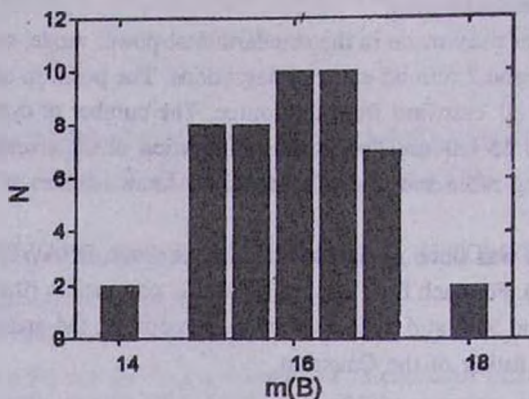


Fig. 3. The optical magnitude distribution of detected objects.

The examination of confusion effect on Nancay radio telescope shows, that only 8 galaxies from 53 detected objects are possibly confused by companions which lie within the beam sizes of Nancay telescope.

A complete analysis of these results with optical data will be presented in forthcoming papers.

НІ НАБЛЮДЕНИЯ 73 НОВЫХ КАНДИДАТОВ ГОЛУБЫХ КОМПАКТНЫХ КАРЛИКОВЫХ ГАЛАКТИК

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Представлены результаты НІ наблюдений 73 кандидатов голубых компактных карликовых галактик, проведенных на радиотелескопе Нансей. НІ эмиссия обнаружена у 53 галактик. Приводится распределение НІ параметров этих галактик.

REFERENCE

1. *L.Bottinelli, L.Gouguenheim, P.Teerikorpi, Astron. and Astrophys., 156, 157, 1986.*