АСТРОФИЗИКА

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SPECTROSCOPY OF SOME SBS GALAXIES

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1. For the determination of the nature of the objects, discovered during SBS their medium resolution spectra were obtained at prime focus of 6m telescope of the Special Astrophysical Observatory of the Russian Academy of Sciences with UAGS spectrograph connected with the UMK-91B image tube. A dispersion about 90A/mm (spectral resolution is about of 5A) has been used. For calibration of the spectra standard star BD+33°2642 [1] has been observed.

The spectra were registrated on the microphotometer PDS-1010A of the Byurakan Observatory and were processed by software package AIDA.

2. *Results.* *a) Objects description.* *SBS1122+610.* According to [2] it is a "starlike, blue object". In the spectra of the galaxy [SII] λλ6731,6717, [NII] λ6584, H_α, [OIII] λλ5007, 4959, H_β, HeII λ4686, [OII] λ3727, weak [OIII] λ4363, H_γ emission lines and absorption lines of H and K CaII were identified.

SBS1133+597. According to [2] it is a "starlike, blue object". In the spectra of the galaxy [SII] λ6731, 6717, [NII] λ6584, H_α, [OIII] λ5007, 4959, H_β, [OII] λ3727 were identified.

Table 1

SBS	α(1950)	δ(1950)	Vr (km/s)	SIZE	m	SURVEY TYPE	M
1122+610	$11^h\ 22^m.11$	+61° 03'	9866	5"	$18^m.5$	sc	$-17^m.4$
1133+597	1133.8	+59 43	2280	13 x8"	17.5	sd2c	-15.2
1139+601	11 39.9	+60 06	12638	9 x6"	18.0	sc	-18. 4

SBS1139+601. It is a spherical, blue object [2]. Emission lines [SII] λλ6731, 6717, [NII] λ6584, H_α, [OIII] λλ5007, 4959, H_β, weak [OIII] λ4363, H_γ, [OII] λ3727 were observed.

Table 1 lists the integral parameters of the studied SBS galaxies. Column 1 gives SBS designation [2]. Column 2 and 3 give right ascensions and declination of the objects. Column 4 gives galactocentric radial velocities. Column 5 and 6 give measured on POSS size and apparent blue magnitudes of the galaxies. Column 7 gives Markarian spectral type [3] and column 8 gives corrected for extinction absolute blue magnitudes of the galaxies for H=75km s^{-1} Mpc^{-1}.

b) Line widths. The full widths at half maximum (FWHM) of the strongest emission lines in spectra of galaxies were measured. Obtained data are corrected for instrumental profile. Averaged by strongest emission lines FWHMs are presented in Table 2.

Table 2

Physical parameters	SBS		
-	1122+610	1133+597	1139+601
Te	5710±740	-	11621±+1003
ne	$3.9x10^3$	-	-
FWHM(km/s)	413±80	159±74	433±90
[OIII]5007/H_β	2	1.5	0.32
[NII]/H_α	0.21	0.33	0.32
[SII]/H_α	0.21	0.33	0.24
12+LOG(O/H)	8.66	-	8.24
12+LOG(N/H)	7.49	7.65	7.64
EW(H_β)	14.1	5.96	4.21
<E>	0.097	-	0.06
[OII]λ3727/0[III]λ5007	0.97	-	3.15

c) *Emission line ratios. Photoionization mechanism and chemical abundance*. To determine physical conditions, the excitation mechanism and estimate heavy element abundances in the objects selected line ratios, in particular [NII]/H_α, [SII]/H_α, [OII] λ3727/[OIII] λ5007 were calculated. Results are presented in Table 2. The position of all three galaxies on two dimensional diagrams of ([OIII]/H_β versus [OII]/[OIII] and [NII]/H_α versus [OII]/[OIII]) agrees well with the position occupied with HII galaxies [3].

On the Classification diagrams of Veilluex and Osterbrock [4] two galaxies, SBS1122+610 and SBS1139+601, lie in the region of NELGs, third one, SBS1133+597 lies in the region of HII galaxies.

It is important to note, that for all three galaxies the observed [SII]/H_{α} ratios are rather large compared to more conventional HII regions. The oxygen and nitrogen abundances in the galaxies are determined according to the empirical relations described by Petrosian [5]. [OIII]+[OII]/H and [NII]/H line intensity ratios were used. The results are given in Table 2. The oxygen and nitrogen abundances for SBS1122+610 correspond to that for HII regions in Sc/m galaxies [5].

For SBS1139+601 abundances correspond to HII Nuc [5]. For SBS1122+610 the oxygen abundance corresponds to HII regions in giant irregular galaxies.

3. *Conclusions*. On the base of FWHM of emission lines observed in the spectra of SBS1122+610 and SBS1139+601, the position of emission lines in Baldwin et al. [3], Veilleux and Osterbrock [4] diagrams show that these galaxies are NELGs. SBS1133+597 is HII galaxy.

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Спектроскопия некоторых SBS галактик. Представлены результаты спектроскопии трех галактик из Второго Бюраканского Обзора. Спектры получены в первичном фокусе 6-и метрового телескопа САО АН России со спектрографом UAGS и ЭОП УМК-91В в диапазоне λλ3700-7400. Изучение этих спектров показывало, что все три объекта являются галактиками с узкими эмиссионными линиями.

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