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ASTRONOMIE

SEARCHING FOR GALAXIES IN VOIDS

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(Submitted by Corresponding Member W. Andrejtscheff on May 8, 1992)

The program of studying of voids was started two years ago as a joined work between Max Plank Institute of Astronomy, Heidelberg, Germany and the Department of Astronomy of the Bulgarian Academy of Sciences. The voids chosen and the details of observational technique have been described in [1]. The first results concerning void 1600 + 18 were reported there too. This paper presents a study of the voids 1042 –00 and 1306+34 using plates taken with the 3.5 m telescope of Calar Alto observatory, Spain [2]. Photographic plates Kodak -J and filter Shott GG 385 had been used and the plates were hypersensibilised 4 hours in forming gas. Table 1 summarizes the basic observational data.

All the reductions were taken in the Max Plank Institute of Astronomy, Heidelberg. The OVERLAY program was used to connect the plate and POSS while SAO standard stars were used to determine the coordinates of the measured objects. The measurement of plates had been done at GLAREX X-Y measuring machine and the polynomials of power 3 were taken to fit the coordinates. As a result 847 objects were measured on plate No 7084 and 227 — on plate No 7082 with diameters >1.7 ". In Figure 1 one can see the distribution of the objects measured in the voids mentioned above. The mean surface densities are 1300 and 350 objects per square degree, respectively. In Figure 2 are presented all the objects bigger than 3.3" in the voids. The probability for making mistakes is much lower because of the excellent quality of the two plates and the good conditions for observations. So the number of galaxies in the void 1042 –00 is at least 550 and in 1306+34 –150 galaxies.

As a result, the studying of three chosen voids — 1600 + 18, 1042 –00 and 1306+42 with long exposure on the 2- and 3.5- m telescopes allows us to conclude "the voids" are quite well populated with faint galaxies. The general conclusions will be made after finishing the program "VOIDS", i. e. after taking spectra from most of the new galaxies to understand their three dimensional distribution.

Thanks are due to Prof. H. Elsasser —director of Max Plank Institute of Astronomy for his hospitality and for putting the observational material at our disposal.

Table 1: Observational data for the voids 1042 –00 and 1306+34

Object	Al (1950)	Del (1950)	Texp	Seeng	Plate	Filter	Tel	Date
VN-2	10 42 02	- 00 00 14	120	1.5"	7084	GG 385	3.5-m	14/15. 5.91
VN-4	13 05 54	+34 00 00	180	<2"	7082	GG 385	3.5-m	12/13.5.91

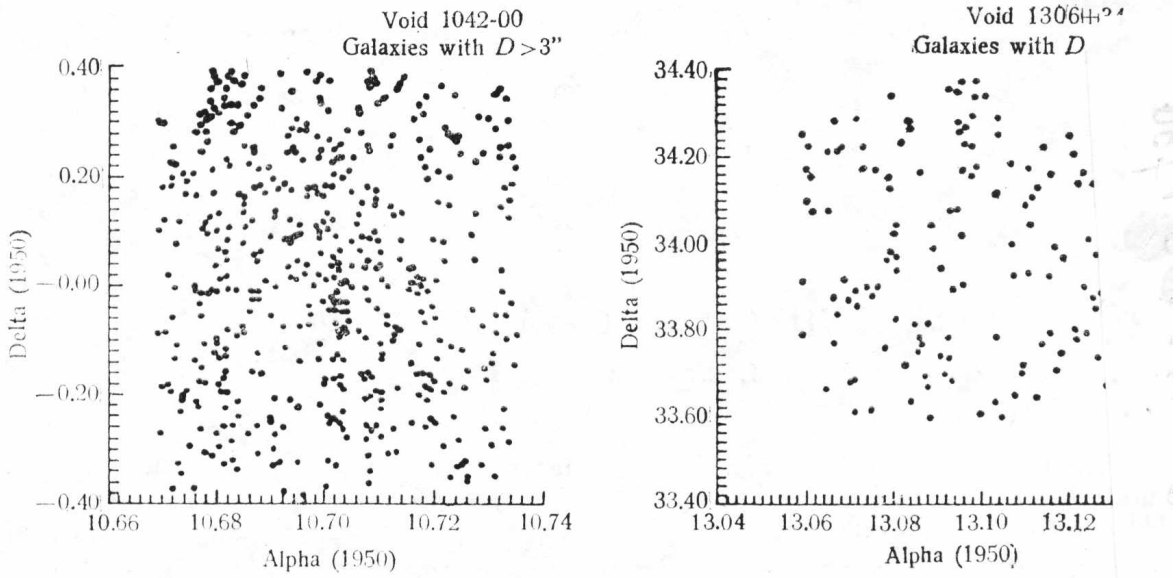

Fig. 1

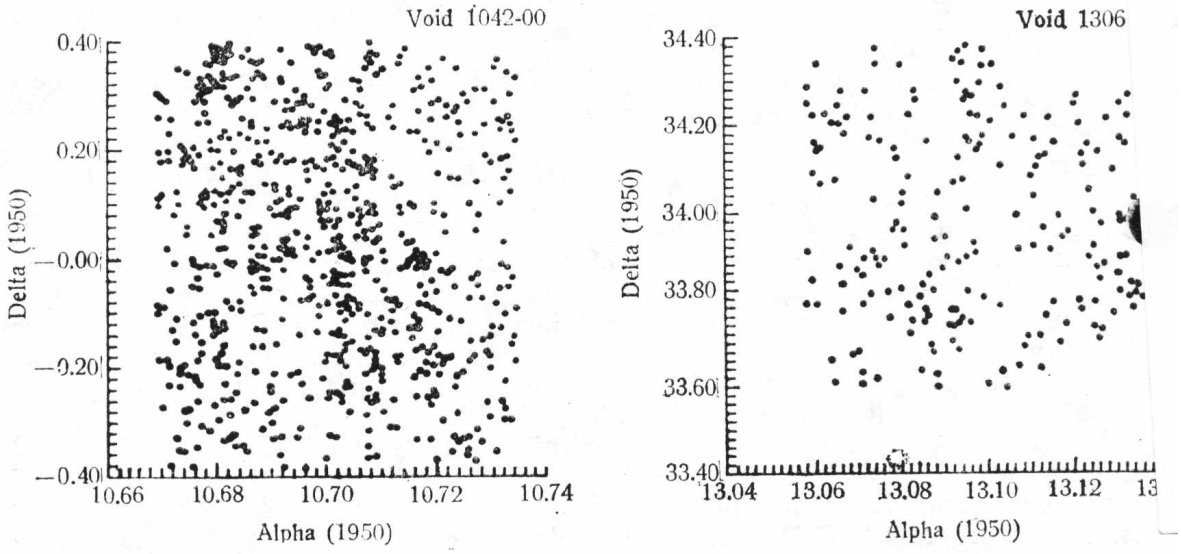

Fig. 2

REFERENCES

[1] P t r o v, G., B. K o v a c h e v. Cornpt. rend. Acad. bulg. Sci., 45, 1992, No 6, 5-8. [2] H o o ρ, U., U. G r a s e r. A & Aρ. 235, 1990, 543-548.

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