QUASARS IN THE VIRGO CLUSTER REGION*

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1.INTRODUCTION

The region of the Virgo cluster is the subject of an intensive quasar search,since quasars mill provide valuable probes of absorption due to galaxy haloes or the intracluster medium. It is also interesting to test the quasar-galaxy association in such a region of the nearest major cluster of galaxies. More than 200 quasar candidates were found in the Virgo cluster region using both slitless technique and machine search,32 of them have been confirmed as quasars.

2.QUASAR SURVEY AND SPECTROSCOPIC OBSERVATION

The quasar candidates for this study were found on the plates taken with the UK 1.2m Schmidt telescope at Siding Spring in Australia.Three objective-prism plates and one direct plate centred on 12^h27^m, $+13°30'$ (1950.0) in the Virgo cluster were used. We have found 53 emission line quasar candidates and 18 ultraviolet excess object (possible low redshift quasars) in the 5*5 square degrees. Initial results from automatic search with the APM suggest that there may be about 200 quasar candidates in this area. 18 of the candidates were observed in 1982 using the double spectrograph on the Palomar 5m telescope, 17 of the observed objects proved to be quasars (He et al 1984). 17 quasar candidates were observed in 1983 using a grism spectrograph on the University of Hawaii 2.2m telescope on Mauna Kea, 15 of them were confirmed as quasars (Impey & He 1985). 4 of 5 candidates proved to be quasars in 1985 using the Palomar 5m telescope (He et al).

* Discussion on p.514

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3.DISTRIBUTION OF QUASARS

The Kolmogorov-Smirnov method has been used to test the quasar association with galaxies. General speaking, there is no conclusive evidence statistically for quasar-galaxy association in this field, but a weak evidence for quasar-galaxy association on about 1 degree may exist. A simple analysis by Arp (Arp 1985) shows significant associations of the quasars with core galaxies in the Virgo cluster, which may merit further investigation. Although there exist non-uniformities in the distribution of the quasar candidates, the application of Power Spectrum Analysis shows no evidence of clustering among them.

4.STUDY OF INTERGALACTIC MEDIUM

One of the aims of this project is to provide a complete sample of bright quasars for absorption line studies with the Space Telescope. Two quasars pass very close to bright galaxies, the respective projected quasar-galaxy separation are only 4 and 11 kpc at assumed distance of the Virgo cluster. Ten quasars have lines of sight that pass through halo material, if haloes around cluster galaxies have the size indicated by the statistics of quasar absorption line systems.

References

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