

ABOUT THE QSOs CONTAINED IN THE CERRO EL ROBLE SURVEY AND THE DENSITY OF UVX-QSOs IN THE SGP FIELD

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A PROMISING AREA: THE SOUTH GALACTIC POLE FIELD

A region containing the SGP, centered at α 00h 53m (1950) δ $-28^{\circ}03'$, is becoming a selected region for QSO research. Three lists of QSO candidates have been published for this field. One consists of candidates discovered visually on an objective prism plate, selected in a 25-deg² area and with $B(\text{lim}) \simeq 20$ mag (Clowes and Savage, 1983; the CS sample). The other list came from visual inspection of U and B plates (UVX stars), covering a region of 44-deg² and with approximately the same limiting magnitude of the CS sample (Campusano and Torres, 1983; the CT sample). The third survey of QSO-candidates involved a machine selection of UVX stars (Shanks et al., 1983), whose published components correspond to two small areas of 1.6 and 8.2 deg² with $B(\text{lim}) = 19$ mag (Boyle et al., 1985).

In this contribution we briefly report some results from our spectroscopic survey of all the candidates in the central 25 deg² of the CT sample and with $B \simeq 19$ mag, carried out with the 2.5 m telescope of Las Campanas Observatory. We have identified all the QSOs in this CT-

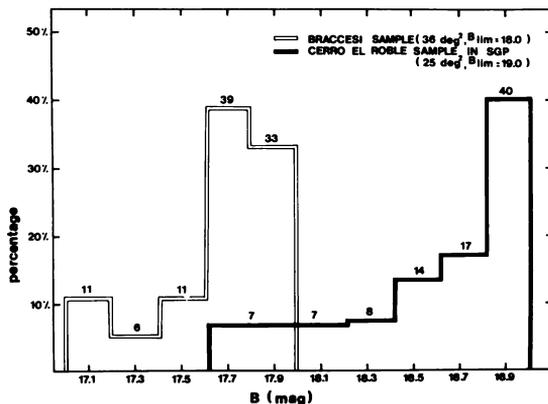


Figure 1. Magnitude distribution for two ultraviolet excess samples. Notice the differences in their shapes and the rather narrow magnitude range present in them (aprox. 1 mag). The Cerro El Roble sample has an estimated completeness of 50%.

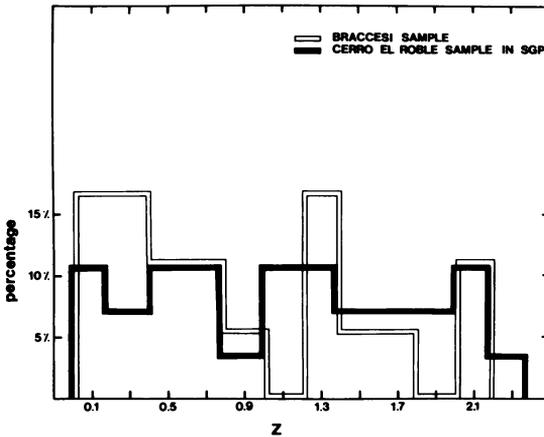


Figure 2. Redshift distribution of all the optical QSOs contained in Cerro El Roble and Braccési surveys defined in Fig. 1. The CT sample presents a flatter distribution than the one by Braccési. The observed upper redshift limit is compatible with the restrictions of the selection criterion.

subset and determined their redshifts, and then compared the resulting magnitude and redshift distributions with those corresponding to the Braccési UVX-QSO sample which has been adopted by Schmidt and Green (1983) with $B(\text{lim}) = 18$ mag. The behaviour of these distributions can be seen in Figs. 1 and 2.

PRESENTLY DERIVED QSO-DENSITY IN THE SGP ($B \lesssim 19$ MAG)

In this derivation we consider only confirmed QSOs with slit spectroscopy in the 25 deg^2 area. All candidates with $B \lesssim 19$ mag in the CT sample and most of the corresponding ones in the CS sample have been examined spectroscopically. Then, from all known CT and CS QSOs, we get $\rho(B \lesssim 19 \text{ mag}) = 1.8 \text{ deg}^{-2}$. With the six additional QSOs found by Boyle et al., the observed surface density increases to 2.0 deg^{-2} . Allowing for the incompleteness of the CT sample and its restricted z range, we obtain an estimate of 2.8 deg^{-2} . Boyle et al., from the identification of 4 UVX-QSOs in a 1.62 deg^2 area and the UVX-star density over the entire plate, got a formal value of $\rho(B \lesssim 19 \text{ mag}) = 3.3 \text{ deg}^{-2}$. Therefore, approximately 40% of the UVX-QSOs probably remain to be identified in the 25-deg^2 SGP field. The consequences of the availability of such sample for quasar research cannot be overemphasized.

REFERENCES

- Boyle, B.J., Fong, R., Shanks, T. and Clowes, R.G.: 1985, *Mon. Not. R. astr. Soc.* **216**, 623.
 Campusano, L.E. and Torres, C.: 1983, *Astron. J.* **88**, 1304.
 Clowes, R.G. and Savage, A.: 1983, *Mon. Not. R. astr. Soc.* **204**, 365.
 Schmidt, M. and Green, R.G.: 1983, *Astrophys. J.* **269**, 352.
 Shanks, T., Fong, R., Green, M.R., Clowes, R.G. and Savage, A.: 1983, *Mon. Not. R. astr. Soc.* **203**, 181.