

# A ROSAT SURVEY OF A SPATIALLY AND MAGNITUDE COMPLETE QUASAR SAMPLE

K. MOLTHAGEN, H.J. WENDKER

*Hamburger Sternwarte, Gojenbergsweg 112, D 21029 Hamburg, Germany*

and

U.G. BRIEL

*Max Planck Institut f. extraterrestrische Physik, Gießenbachstr., D 85740 Garching, Germany*

September 10, 1993

The field studied is part of the Hamburg Quasar Survey (Engels et al. 1988, PASPC 2, 143). It contains a spatially and magnitude (down to  $\sim 18^m.5$ ) complete AGN sample. Several follow-up observations were made: a deep radio continuum survey at 21 cm and 74 cm, a HI survey and a ROSAT survey consisting of 48 overlapping PSPC pointings with  $\bar{t}_{exp} = 2500$  s.

28 AGN with  $16^m.7 \leq m_B \leq 19^m.0$  and  $0.2 < z < 2.5$  (Engels and Hagen, priv. comm.) lie within our region of interest. Remarkable (but not very significant) is a gap between  $z = 1.2$  and  $z = 1.5$ , which can hardly be due to missing bright emission lines since the candidates were selected by a blue continuum. The AGN distribution on the sky appears to be somewhat peculiar, too. An apparent clustering is visible for which no obvious reason, either technical or astronomical, can be found.

Considering their X-ray properties, our AGN sample behaves normally. No unexpected features are found, the only peculiar object is OK492, a known OVV. The tentative identification of some more X-ray sources weakened the contrast between the AGN-rich part and the AGN-poor part somewhat, but it is still clearly visible, the contrast being now 3:1.

The gap in  $z$  has not been filled, either. This was not to be expected, because most of the additional AGN are found identifying RASS sources (s. Bade, 1993, PhD thesis, Univ. Hamburg). More fainter AGN have to be identified to test the reality of these two effects.

The fractions of stars and AGN among our X-ray bright sample follow roughly the EMSS (Stocke et al., 1991, ApJ Suppl. 76, 813). One third of this sample is fainter than  $m_B \approx 19^m$ .

Most sources (about 80%) show indications of variability. This is confirmed by a comparison of our X-ray bright sample with the RASS source list of the same region.

The merging of the individual pointings to increase the net observing time to about 10 ksec. is underway. For a full reference, see Molthagen, Wendker and Briel, 1993 (in preparation).