

ASCA OBSERVATIONS OF THE QUASAR CONCENTRATION 1338+27

T. YAMADA

*Astronomical Institute Tohoku University,
Aoba-ku, Sendai 980-77, Japan*

Y. UEDA, T. TAKAHASHI

*Institute of Space and Astronautical Science,
3-1-1, Yoshinodani, Sagamihara, Kanagawa 229, Japan*

T. MIHARA, N. KAWAI

*Institute of Physical and Chemical Research (RIKEN),
Wako, Saitoma, 351-01, Japan*

AND

Y. ISHISAKI

*Department of Physics, Tokyo Metropolitan University,
Hachioji, Tokyo 192-03, Japan*

1. Quasar Concentration 1338+27

There are several regions where a group of quasars are significantly clustered in the physical space. In the "CFHT gress survey" conducted by Crampton et al. (Crampton et al. 1989 and references therein), the 23 quasars between $z=1.036$ and 1.185 were found to be clustered over $\sim 2^\circ \times 2^\circ$ in the region denoted as 1338+27. At the mean redshift $z_{ave} = 1.113$, the angular extent 6000 arcsec (CHH89) of this cluster corresponds to $60 h^{-1}\text{Mpc}$ ($q_0 = 0.5$) and the dispersion of the redshift $\Delta z = 0.044$ to $45 h^{-1}\text{Mpc}$.

2. ASCA Observations

We observed two regions in the quasar-concentration 1338+27 where surface density of quasars are high. Our main purpose is to search for type-2 obscured quasars in the field. If the clustering of the quasar has physical reasons and not just a statistical fluctuation of the observation, we may

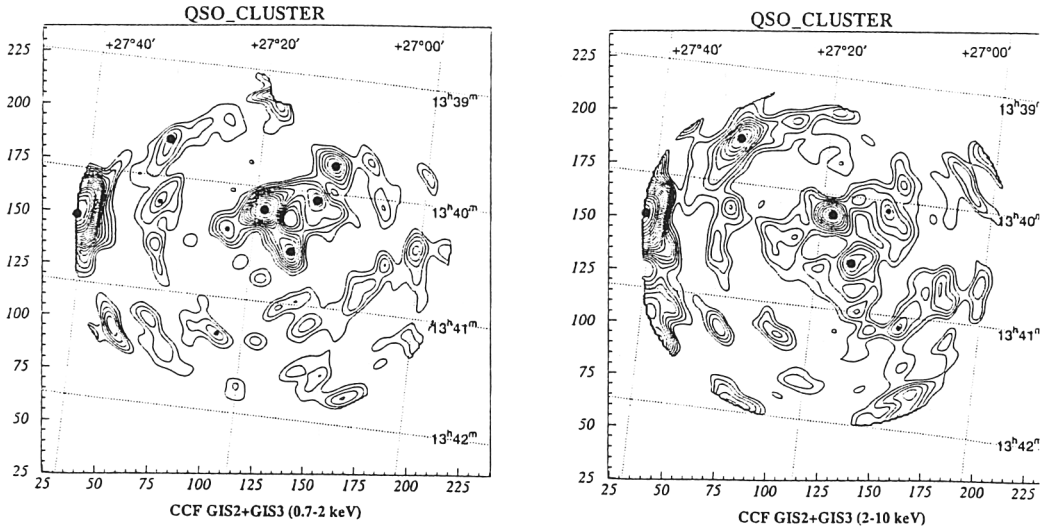


Figure 1. GIS images of the 1338+27 Southern Peak below and above 2 keV. Large filled circles indicate 5σ sources and small ones 4σ

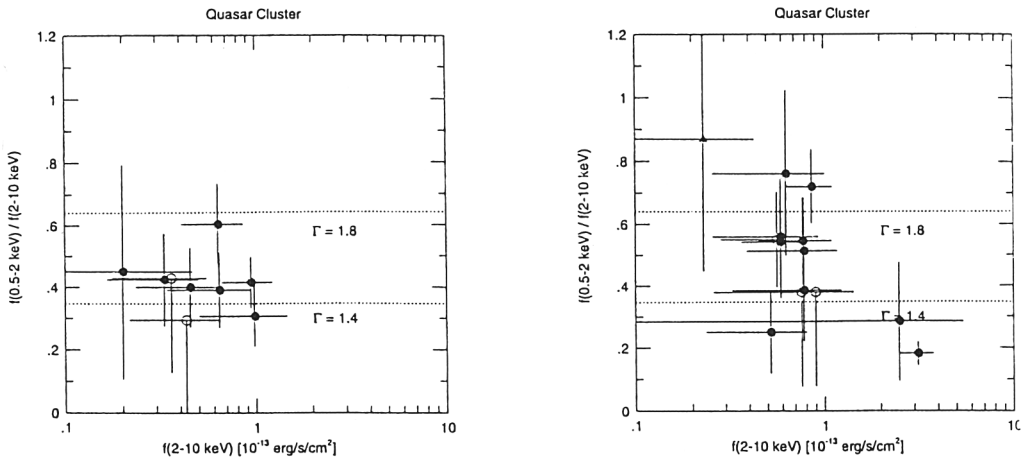


Figure 2. Distribution of flux ratio $f(2-10 \text{ keV})/f(0.5-2 \text{ keV})$ for SIS and GIS

expect that type-2 quasars are also frequent in the region of the quasar concentration. Figure 1 shows the GIS images of the southern peak, nearly centered at the quasar xxx, and Figure 2 shows the distribution of hardness (hard-to-soft flux ratio) of the detected sources. It is quite interesting that there are many sources whose have much harder X-ray spectra than those of ordinary quasars.