New active galactic nuclei detected in RASS galaxies

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Cross correlations of the ROSAT All Sky Survey (RASS) bright source catalogue (Voges et al. 1996) with the Catalogue of Principal Galaxies (Paturel et al. 1989) yielded 903 X-ray sources with galaxy counterparts. In several of them the X-ray emission can be attributed to AGN activity or to emission from hot gas in a galaxy cluster, in other galaxies the detected X-ray luminosity is in the range known from Einstein observatory for normal spiral and elliptical galaxies. There remain more than 100 X-ray bright galaxies that were not known for activity or cluster membership before. These galaxies we have further investigated in an X-ray and optical spectroscopy follow up program to understand their high X-ray luminosity.

We observed some of the galaxies in short HRI pointings. The X-ray contours indicate for most of the galaxies unresolved nuclear point sources as is expected for active galactic nuclei (see as example the HRI contour overlay on an digitized optical sky survey image below). Some overlays, however, indicate extended emission that most certainly originates from hot gas in an early type galaxy or a galaxy cluster. In some cases the RASS correlated galaxy clearly is not the X-ray source.

For the HRI point-like sources and most of the remaining X-ray bright sources without HRI follow up we collect optical spectra. Three observing runs of five nights each have already been successfully performed using the 2.2m telescopes at La Silla and Calar Alto. The spectra show that this selection strategy (Pietsch et al. 1997) is very effective in picking up new Seyfert galaxies of different types and BL Lac objects (see examples below). Detailed investigation of these X-ray selected nearby AGN is in progress.

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Voges W., Aschenbach B., Boller T., et al.: IAU Circ. 6420 (1996)