THE WARPS BLAZAR SURVEY

Searching for the Faintest X-ray Selected Blazars

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1. The Survey

The WARPS (Wide-Angle ROSAT Pointed Survey) blazar survey is a deep X-ray search for BL Lac objects and flat-radio-spectrum quasars (FRSQs), drawn from a cross-correlation of serendipitous sources in the ROSAT PSPC database WGACAT (White *et al.* 1994) with the Green Bank 6 cm and 20 cm (Condon *et al.* 1989, Condon & Broderick 1985), the Parkes radio (Bolton *et al.* 1979), and the Parkes-MIT-NRAO (Griffith & Wright 1993, Wright *et al.* 1994, Griffith *et al.* 1994, 1995) catalogs. Our sample contains 165 new blazar candidates and 95 previously known blazars.

As single-dish surveys yield positions no better than those produced by ROSAT (error circles 10″–1′), we used ongoing VLA surveys (FIRST, Becker *et al.* 1995; NVSS, Condon *et al.* 1996) to refine the positions to the arcsecond level for sources north of $-15°$. For southern ($\delta < -15°$) sources, which also lacked spectral index information, we have done a survey at 6 cm and 3.6 cm with the ATCA. We then obtained finder charts using the Digitized Sky Survey. Where there is no candidate at the best position, a deeper image is being obtained at a 1m class telescope.

Because of its depth and breadth (Figure 1), the WARPS blazar survey will yield the very first X-ray selected sample of FRSQs, allowing their X-ray luminosity function to be computed for the first time. This will produce constraints on the opening angle and γ of the X-ray jet, parameters which are currently unconstrained. We will also address the current controversy

B.J. McLean et al. (eds.), New Horizons from Multi-Wavelength Sky Surveys, 310–311.

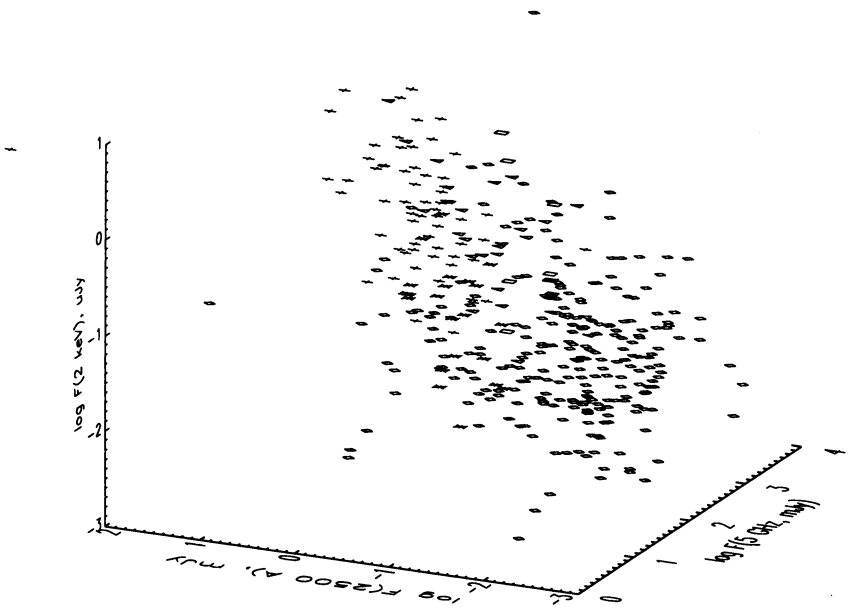

Figure 1. The parameter space covered by the WARPS blazar survey. Diamonds are the WARPS blazars and candidates, crosses are Slew Survey BL Lacs, triangles are 1 Jy BL Lacs, asterisks are EMSS BL Lacs, and squares are S4 FRSQs.

over BL Lac evolution (Perlman *et al.* 1996, Stickel *et al.* 1991). Finally, we willexplore interrelationships betwene the two blazar subclasses.

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