Although blazars are a small fraction of the overall AGN population they are expected to be the dominant population of extragalactic sources in the hard X-ray and gamma-ray bands and have been shown to be the largest component of CMB fluctuation maps (Giovannini et al. 2005). So far the number of known blazars is of the order of several hundreds, but the forthcoming AGILE, GLAST and Planck space observatories will detect several thousand of objects of this type.

We present the Radio-Optical-X-ray catalog built at ASI Science Data Center (ROXA), a list of 816 objects among which 507 are confirmed blazars. Our catalog consists of 60% confirmed blazars (48% of which are new identifications). Only 19% of the candidates turned out to be certainly non-blazars demonstrating the high efficiency of our selection method. Our results are useful for the planning of future identification work of newly discovered sources with the SWIFT, AGILE, GLAST and Planck satellites.

The selection method:
- a multi-frequency selection technique based on a cross-correlation between radio and X-ray surveys: NVSS (Condon et al. 1998), ATCA PMN (ATCA catalogue of compact PMN sources in Tasker 2006), RASS (Voges et al. 1999; Voges et al. 2000) and GSC2 (Lasker 1995; Miley 2000);
- for all radio/optical/X-ray matches we calculated the X-ray to optical ($\alpha_{ox}$) and radio to optical ($\alpha_{ra}$) spectral slopes and took only sources with $\alpha_{ox}$ and $\alpha_{ra}$ within the blazar area (Perlman et al. 1998; Giovannini et al. 1999; Landi et al. 2004; Padovani et al. 2006);
- we have assessed the quality of the sample using a subsample of 816 objects for which data from X-ray Digital Sky Survey - Data Release 4 (SSDSS-DR4, Adamson McCarthy et al. 2006), 2dF Galaxy Redshift Survey (2dFGRS; Collums et al. 2001) and 2dF QSO Survey (2dFQSO; Shanks et al. 2003) are available.

The Radio Optical X-ray ASDC (ROXA) blazar sample

![Graphical representation of ROXA data]

BL Lac: non-thermal emission with no (or very weak) emission lines
FSRQs: non-thermal emissions, with intense broad line emission
LBls & HBLs:
- LBls: Synchrotron peak in UV, IR - Source Compton in X-rays (mostly FSRQ, few BL Lacs)
- HBLs: Synchrotron peak in UV/X-ray band (BL Lacs)

Source classification:
All candidates that had Multiple Optical Counterparts were associated to a single optical object through a visual inspection procedure using the NVSS, ESO and NED online services.

We defined a two classes for those objects that show properties in between two standard classifications.

Regarding Radio Galaxies and BL Lacs we defined sources to be:
- BL Lac if $L_\gamma > 10^{44}$ erg/s or $CaK < 0.4$ or both
- Radio Galaxy (if $CaK < 0.4$ AND $L_\gamma < 10^{44}$ erg/s)
- Radio Galaxy/BL Lac transition object if $CaK > 0.4$ AND $L_\gamma > 10^{44}$ erg/s

We have built ROXA as a complement to the work of Soward-Ennem et al. (2003, 2004, 2005), as we share their goal of significantly enlarging the existing blazar catalogs in order to understand blazars statistical properties and to select interesting objects for upcoming high energy astronomy missions like AGILE, and GLAST. Soward-Ennem et al. 2005, with a single-band approach, selected flat-spectrum radio sources and then used optical telescopes for spectroscopic follow-up observations, whereas in this work we use a multi-frequency approach that requires no additional telescope time. Moreover, the selection of radio sources results mostly in the discovery of BL Lacs whereas our flux limits, which are mostly driven by the relatively shallow X-ray sensitivity of the RASS survey, favor objects such as HBL since they emit the maximum of their synchrotron emission near or within the X-ray band.

This bias towards BL Lacs is strengthened by the Ultra-Violet excess requirement in the SDSS spectroscopic target selection (Richards et al. 2002). The presence of HBLs allows ROXA to contribute with new targets for Gaia/TEV observations.