RADIO LOUD AGN DETECTED BY INTEGRAL

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A number of *INTEGRAL/IBIS* catalogues have been proposed so far, one of the most recent being the third *INTEGRAL/IBIS* survey (Bird et al. 2007), which lists around 150 AGN (identified and candidates). The Ve/Va relationship has been applied to the sources in the catalogue in order to extract a complete sample of AGN selected in the hard (20-40 keV) X-ray band.
This complete sample comprises 35 Seyfert 1s, 3 Narrow Line Seyfert 1s, 29 Seyfert 2s and 7 Blazars/QSOs.



Hz⁻¹ and has a double lobe radio morphology. This kind of morphology is typical of FR II radio sources, which are generally assumed to be the counterparts of radio loud quasars. Orientation-unification theory also suggests that the Radio Quiet/Radio Loud boundary is set by the least radio luminous FR IIs and by the lowest radio-to-optical ratio for an FR II. In our case, the least luminous FR II is IGR J21247+5058, a well known radio galaxy (see Molina et al. 2007), which has $Log(L_{SGHz}) \sim 31 \text{ erg s}^{-1} \text{ Hz}^{-1}$. For this reason, we decided to lower L(5GHz) to this value.

•In our sample all but 4 sources (Mrk 6, MCG+08-11-011, QSO B0241+62 and IGR J13109-5552) are classified as BLRG/ FR IIs and have two lobes extending from the central nucleus. 3 of the remaining 4 objects show instead an unresolved compact core, although high resolution radio imaging suggests a possible double-lobe morphology; in the case of IGR J13109-5552 an MPGS-2 image shows an unresolved elongated structure.

•Adopting all 3 criteria we consider 5 objects as *bona fide* radio loud AGN (satisfying all 3 criteria), 3 sources fulfill 2 out of 3 requirements, while Mrk 6 and MCG+08-11-011 satisfy only 1 criterion and have therefore been dropped from the sample. Half of the sample is made of newly discovered radio loud AGN.

Bibliography:

- Bird et al. 2007, ApJS, 170, 175.
- Grandi et al. 2006, Apj, 642, 113.
- Molina et al. 2007, MNRAS, 382, 937.
- Panessa et al. 2008, A&A, 483, 151.
- Sambruna et al. 1999, ApJ, 526, 60.



EW (eV)

1.4 GHz radio image (left) and 1-110 keV spectrum (right) of the peculiar BLRG IGR J21247+5058. The source is characterised by a complex absorber in the form of two layers partially covering the central source (for details see Molina et al 2007).

low values of EW and to a lesser extent of R. The evidence

does not seem to be related to the radio core dominance,

suggesting that any dilution of the reprocessing features is not

caused by a jet. Rather the reprocessing features may have an

accretion flow origin.