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|---|---|
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| *Title* | VizieR Online Data Catalog: 2-10keV luminosity function of AGN (Ranalli+, 2016) |
| *Authors* | Ranalli, P.; Koulouridis, E.; Georgantopoulos, I.; Fotopoulou, S.; Hsu, L. -T.; et al. |
| *Handle* | http://hdl.handle.net/20.500.12386/24985 |
| *Journal* | VizieR Online Data Catalog |

    Ranalli P., Koulouridis E., Georgantopoulos I., Fotopoulou S., Hsu L.-T.,
    Salvato M., Comastri A., Pierre M., Cappelluti N., Carrera F.J.,
    Chiappetti L., Clerc N., Gilli R., Iwasawa K., Pacaud F., Paltani S.,
    Plionis E., Vignali C.
    <Astron. Astrophys. 590, A80 (2016)>
    =2016A&A...590A..80R        (SIMBAD/NED BibCode)

**Abstract**:
    The XMM-Large scale structure (XMM-LSS), XMM-Cosmological evolution
    survey (XMM-COSMOS), and XMM-Chandra deep field south (XMM-CDFS)
    surveys are complementary in terms of sky coverage and depth.
    Together, they form a clean sample with the least possible variance in
    instrument effective areas and point spread function. Therefore this
    is one of the best samples available to determine the 2-10keV
    luminosity function of active galactic nuclei (AGN) and their
    evolution. The samples and the relevant corrections for incompleteness
    are described. A total of 2887 AGN is used to build the LF in the
    luminosity interval $10^{42}$-$10^{46}$erg/s and in the redshift interval
    0.001-4. A new method to correct for absorption by considering the
    probability distribution for the column density conditioned on the
    hardness ratio is presented.

**Description**:

The XMM-LSS, XMM-CDFS, and XMM-COSMOS are three surveys with
complementary properties in terms of luminosity and redshift coverage.
We used these three surveys to derive Bayesian estimates of the
unabsorbed luminosity function (LF) of AGN in the 2-10keV band. The
LF estimates are presented as a set of samples from the posterior
probability distribution of the LF parameters. The LF is parameterised
as a double power-law, with either the luminosity and density
evolution (LADE) model, or the luminosity-dependent density evolution
(LDDE) model. The double power-law is described by Eq.(10) in the
paper. The LADE and LDDE models are described by Eqs. (11-14) and
Eqs.(15-17), respectively. A Fortran 2008 implementation of these
models can be found in file src2/lumf_funcs.f90 of the LFTools
package, in the classes doublepowerlaw, ladevol, and lddevol (see the
paper).

**File Summary:**

|       FileName | Lrecl | Records | Explanations |
|----------------|-------|---------|--------------|
| ReadMe         | 80    | .       | This file    |
| lade-c.dat     | 166   | 7565    | LF samples from XMM-CDFS, LADE model |
| lade-k.dat     | 166   | 7007    | LF samples from XMM-COSMOS, LADE model |
| lade-l.dat     | 166   | 7050    | LF samples from XMM-LSS, LADE model |
| lade-lck.dat   | 166   | 7066    | LF samples from all surveys together, LADE model |
| ldde-c.dat     | 166   | 7622    | LF samples from XMM-CDFS, LDDE model |
| ldde-k.dat     | 166   | 8450    | LF samples from XMM-COSMOS, LDDE model |
| ldde-l.dat     | 166   | 7749    | LF samples from XMM-LSS, LDDE model |
| ldde-lck.dat   | 166   | 7403    | LF samples from all surveys together, LDDE model |

**Byte-by-byte Description of file:** <u>lade-\*.dat</u> <u>ldde-\*.dat</u>

| Bytes | Format | Units | Label | Explanations |
|-------|--------|-------|-------|--------------|
| 1- 21 | E21.18 | --- | norm | Normalisation <u>(1)</u> |
| 23- 43 | E21.18 | --- | gamma1 | Exponent of the first branch of the power-law |
| 45- 65 | E21.18 | --- | gamma2 | Exponent of the second branch of the power-law |
| 67- 82 | F16.13 | <u>[10-7W]</u> | Lstar | Knee luminosity of the LF |
| 84-100 | F17.15 | --- | zc | Critical redshift |
| 102-122 | F21.18 | --- | p1 | First luminosity evolution slope |
| 124-144 | E21.18 | --- | p2 | Second luminosity evolution slope |
| 146-166 | E21.18 | --- | d | Density evolution slope |

**Note (1):** The values in the table are defined as: norm=6+log10(A) where A is
    the normalisation defined in Eq.(10) of the paper.