INSTITUTE FOR ASTRONOMY, ASTROPHYSICS, SPACE APPLICATIONS & REMOTE SENSING

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The 3XMM spectral-fit database

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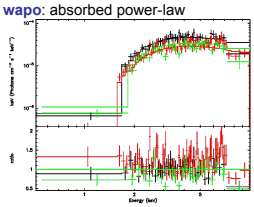
The 3XMM spectral-fit database is an ESA (PRODEX) funded project aimed to derive added value products from the EPIC data contained within the XMM-Newton serendipitous source catalogue: XMMFITCAT, which contains spectral-fitting results for all the pipeline-extracted spectra within the 3XMM catalogue; and XMMFITCAT-Z, which will contain redshift-dependent spectral-fitting results for the sources within the 3XMM catalogue with optical and/or IR counterparts. The main goal is to provide the astronomical community with a tool to query the catalogue according to spectral properties and thus, to construct large and representative samples of X-ray sources fulfilling the spectral criteria.

XMMFITCAT

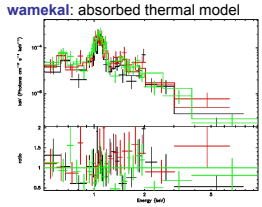
The latest release of XMMFITCAT (based on 3XMM-DR5) contains spectral-fitting results for ~ 130,000 detections corresponding to ~ 90,000 unique sources.

Spectral models within XMMFITCAT

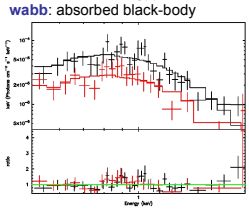
wapo: absorbed power-law



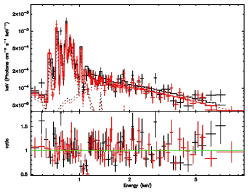
wamekal: absorbed thermal model



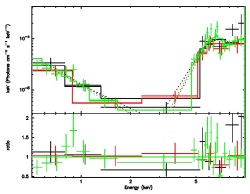
wabb: absorbed black-body



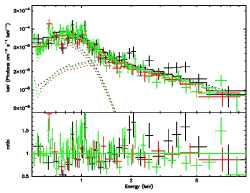
wamekalpo: absorbed power-law plus thermal



wapopo: absorbed double power-law

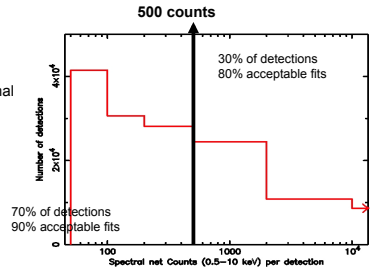


wabbpo: absorbed power-law plus blackbody



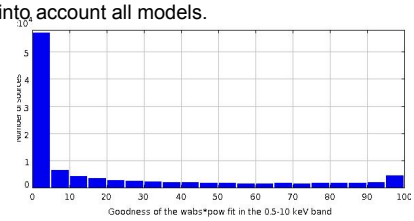
Spectra and spectral-fitting quality

Spectral-fitting results are available for **all detections with more than 50 net (background subtracted) counts in at least one instrument** (pn or MOS1 or MOS2). Models **wamekalpo, wapopo, and wabbpo** are only applied to sources with more than 500 net counts.



Goodness of fit

Estimated form `XSPEC goodness` command; but also reduced χ^2 provided.
80% of the detections with acceptable fits, taking into account all models.



Catalogue access

1. As a FITS table from the **XMMFITCAT project's webpage.**
2. **LEDAS** (LEicester Database and Archive Service), University of Leicester.
3. **XCAT-DB,** Observatoire Astronomique, Strasbourg.

XMMFITCAT-Z

We will expand the XMMFITCAT database by deriving photometric redshifts for all extragalactic sources, with sufficient wavelength information (at least 5 photometric points in the optical/near-IR), using machine learning techniques.

To find the counterparts for our X-ray sources, we will use the results from the **ARCHES** project, expanding them to include not only photometry from SDSS, UKIDSS, GALEX, and WISE; but also incorporating the soon to be released data from the VST-ATLAS, DES and Pan-STARRS surveys. We will derive **photometric redshifts and redshift-dependent spectral-fitting results for ~ 40,000 unique X-ray sources.**

Links

XMMFITCAT project: http://xraygroup.astro.noa.gr/Webpage-prodec/index.html
ARCHES project: http://www.arches-fp7.eu/
LEDAS:http://www.ledas.ac.uk/arnie5/arnie5.php?action=advanced&catname=3xmmspectral
XCAT-DB: http://xcatdb.unistra.fr/3xmm/

References

Corral et al., 2015,A&A,576,61
Corral et al., 2014,A&A,569,71