proton

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Abstract

`proton` uses the spectral fitting results from Xspec and model soft proton detector maps to create model soft proton contamination maps for a given observation.

1 Instruments/Modes

Instrument	Mode
EPIC	Imaging

2 Use

pipeline processing	no
interactive analysis	yes

3 Description

proton uses the spectral fitting results from Xspec and model soft proton detector maps to create model soft proton contamination maps for a given observation.

Warning and requirements: `proton` is part of the package *esas*, integrated into SAS, but (still) limited to work within *esas*' data reduction scheme. This is specially true wrt input files structure and names. In particular, `proton` assumes that another task from the package, `mos-spectra` / `pn-spectra`, and `mos_back` / `pn_back`, have been successfully run for the mos / pn exposures to be used.

4 Parameters

This section documents the parameters recognized by this task (if any).

Parameter	Mand	Type	Default	Constraints
prefix	yes	string		

Detector and exposure identifiers (eg. "1S001") for the MOS exposure S001) to be processed.

caldb	yes	string		

Directory containing all the ESAS specific calibration files

specname	yes	string		

File name of spectrum file used in the spectral fit to determine the residual SP contamination

ccd[1-7]	yes	string	1	

Flag to include (1) or not (0) a CCD.

elow	yes	int	400	

The low energy for the band in eV

ehigh	yes	int	1250	

The high energy for the band in eV

spectrumcontrol	yes	int	1	

1 for a power law model, 2 for a broken power law

pindex	no		0	

Fitted power law index, only if spectrumcontrol=1

pnorm	no		0	

Scale factor for power law index, only if spectrumcontrol=1

binds	no		0	

Fitted soft broken power law index, only if spectrumcontrol=2

bbreak	no		0	

Break energy for broken power law model, only if spectrumcontrol=2

bindh	no		0	

Fitted hard broken power law index, only if spectrumcontrol=2

bnorm	no		0	

Normalization for broken power law, only if spectrumcontrol=2

clobber	no	boolean	yes	T/F

Clobber existing files?

5 Input Files

The filtered event files, products from running `mos-filter` or `pn-filter`, following the particular nomenclature used in the esas package, eg.: *mos1S001-clean.fits* or *pnS003-clean.fits*.

6 Output Files

Where MOS data are processed:
`mos`*prefix*`-prot-im-det-`*elow*`-`*ehigh*`.fits` – The soft proton image in detector coordinates.
Where PN data are processed:
`pn`*prefix*`-prot-im-det-`*elow*`-`*ehigh*`.fits` – The soft proton image in detector coordinates.

7 Algorithm

8 Comments

References