

proton

June 2, 2019

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.

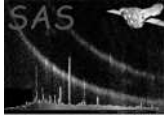
4 Parameters

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

Parameter	Mand	Type	Default	Constraints
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prefix	yes	string		
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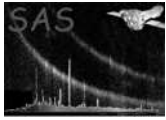
Detector and exposure identifiers (eg. "1S001") for the MOS exposure S001) to be processed.



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:

mosprefix-prot-im-det-elow-ehigh.fits – The soft proton image in detector coordinates.

Where PN data are processed:

pnprefix-prot-im-det-elow-ehigh.fits – The soft proton image in detector coordinates.

7 Algorithm

8 Comments

References