Results from the EPIC-Calibration-Workshop at MPE (29-31/11/02)

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calibration topics

- QE
- CTI
- Long Term CTI
- Carbon Edge
- Excess between 1.8-2.2 keV
- Spectral slope for high energies
• New QE values for pn Flight Spare model.
• why:
  – SiO$_2$ layer thinner
  – wafer thinner

- higher QE at low energies
- lower QE at high energies
new CTI for Window Modes

- new CTI-correction factor to tune the FF-CTI model taking the new QE into account

S. Zavlin
cross-cal before and after

ratio_old_free
MOS1_src_spectrum.ds MOS2_src_spectrum.ds PN_src_spectrum.ds

M. Kirsch

ratio_new_free
MOS1_src_spectrum.ds MOS2_src_spectrum.ds /home/epic/data1/fwh/PKS0

M. Kirsch
Long Term CTI

- possible over correction at the O-edge?

- in addition to the linear term two quadratic terms have been introduced, but currently with a factor of 0, such that this could be “switched on” via CCF

- Different long-term CTI curves can be introduced for the different modes.
carbon edge?

- calcium carbonate CaCO$_3$ on the mirrors (from the mandrels)
- could explain possible Ca features seen in some spectra
- reflectivity would also be changed at the C-edge and below.
- simulations will be performed at MPE
• Might be related to RGA

• Run SCISIM for mirror response function (do all the 3 mirrors have the same ?)

• Is the function that deals with the RGA obscuration correct?
3C 273 (0136550101)
XMM/SAX simultaneous observations

- MOS1/2 return harder spectra than pn singles
- pn doubles present a slope substantially flatter than the pn singles
- The pn-singles+doubles spectral slope agrees within the statistical error (Delta Gamma 0.02) with the BeppoSAX MECS

S. Molendi
**3C 273**

residual of a joint pn-singles pn-doubles fit

- doubles show a harder spectrum than singles
- the relative difference being of the order of a few percent
- the origin of the problem could be an incorrect subdivision between pn-singles and pn-doubles
- the right spectral shape will be returned by the pn-singles+doubles

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done and to be done

- new pn-QE implemented in CCFs
- new CTI-code for pn SW/LW implemented SAS 5.4
- possibility for new long term code implemented in SAS 5.4
- EPC_CTI_CCF_0011
- check if the excess between 1.8-2.2 keV could be cured with a different treatment of the silicon edge, fluorescence, or gold edge.
- check QE (thickness of MOSs) for high energies
action items workshop

- RS to implement new QE in CCFs (done)
- MJF to implement CTI-code for SW correction in SAS (done)
- MJF to implement new long term code in SAS (done)
- MK to derive new CTI CCF (SW values, long term values (new slope and additional quadratics) (done)
- SS to check the implemented O edges
- SS to check the filter transmission concerning carbon edge
- MK to contact Dave concerning filter reliability at the carbon edge energy (done)
- MK to check open filter measurement HZ43 Rev.:89 (done by MJF/MS)
- MK to look for source for open filter measurement, no optical light from source and in the FOV (done by MS)
- SS to check if the excess between 1.8-2.2 keV could be cured with a different treatment of the Silicon edge, fluorescence, or gold edge.
- SM to investigate on the PKS0558 data concerning the excess 1-8-2.2 keV problem.
- SM to compare 3C273 observations on REVs 94, 95, 96, 277 (Mid November) (done)
- SS to check QE (thickness of MOSs) for high energies
actions last cal meeting

- **AI_CAL_VILSPA_2002/1**: Hand over the ADUCONV from Leicester to VILSPA (Paul to Bruno) (done)
- **AI_CAL_VILSPA_2002/2**: Steve to provide VILSPA with MOS Timing response matrices (done)
- **AI_CAL_VILSPA_2002/3**: MK to look for a field on which an open filter / filter comparison could be done (done by MS)
- **AI_CAL_VILSPA_2002/4**: Silvano to analyze Circinus A with respect to pn/MOS energy differences
- **AI_CAL_VILSPA_2002/5**: Frank to verify pn QE with the Crab
- **AI_CAL_VILSPA_2002/6**: Silvano to investigate on Seyfert 2 galaxy concerning high energy QE
- **AI_CAL_VILSPA_2002/7**: Steve to reanalyse thick filter data (done by MS/MK)
- **AI_CAL_VILSPA_2002/8**: Martin to co-ordinate filter analysis with the aim of finding out which filter is in which camera
- **AI_CAL_VILSPA_2002/9**: MPE (Ulrich) to analyse Coma data for MOS and pn (done by AF)
- **AI_CAL_VILSPA_2002/10**: Bruno and Paul to work out new time dependent CTI_CCFs correlated to the steps found in the CTI monitoring (done)
- **AI_CAL_VILSPA_2002/11**: Paul to develop new ADUCONV.CCFs and time dependent RMFs, in line with the new CTI_CCFs ADUCONV and RMFs (done)