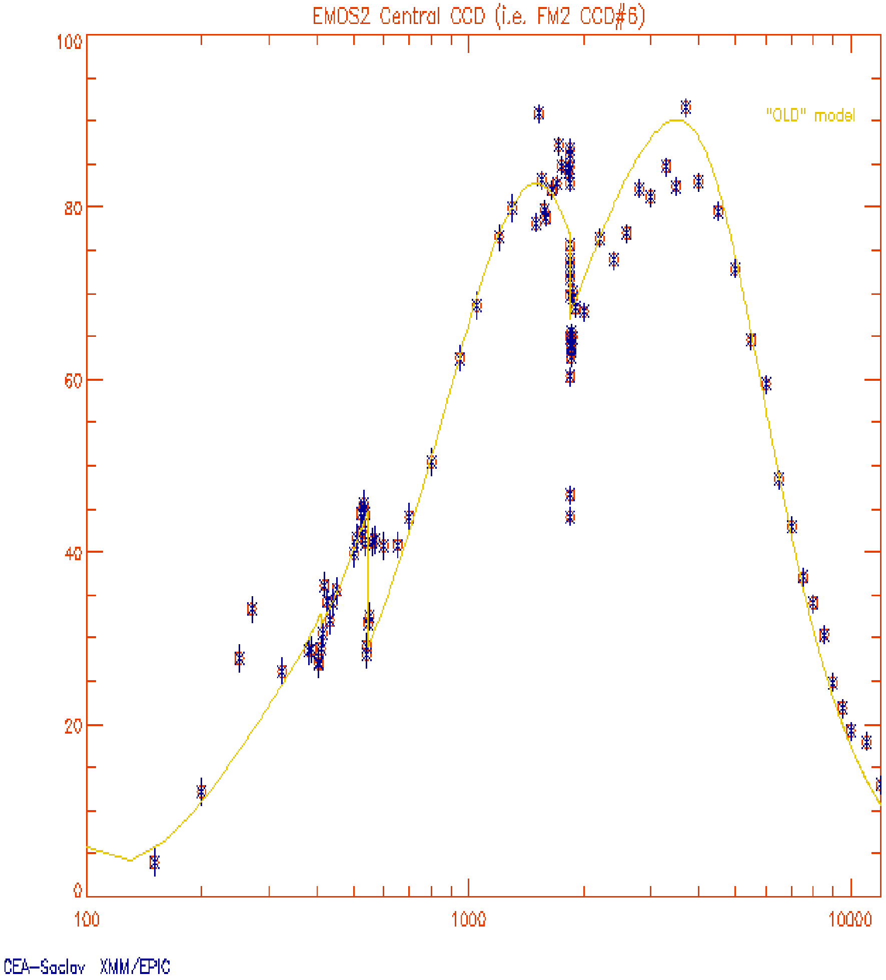
Oxygen Edge
Gain & Offset
Fitting spectra.

Jean–Luc SAUVAGEOT
Anne DECOURCHELLE
Rene GASTAUD

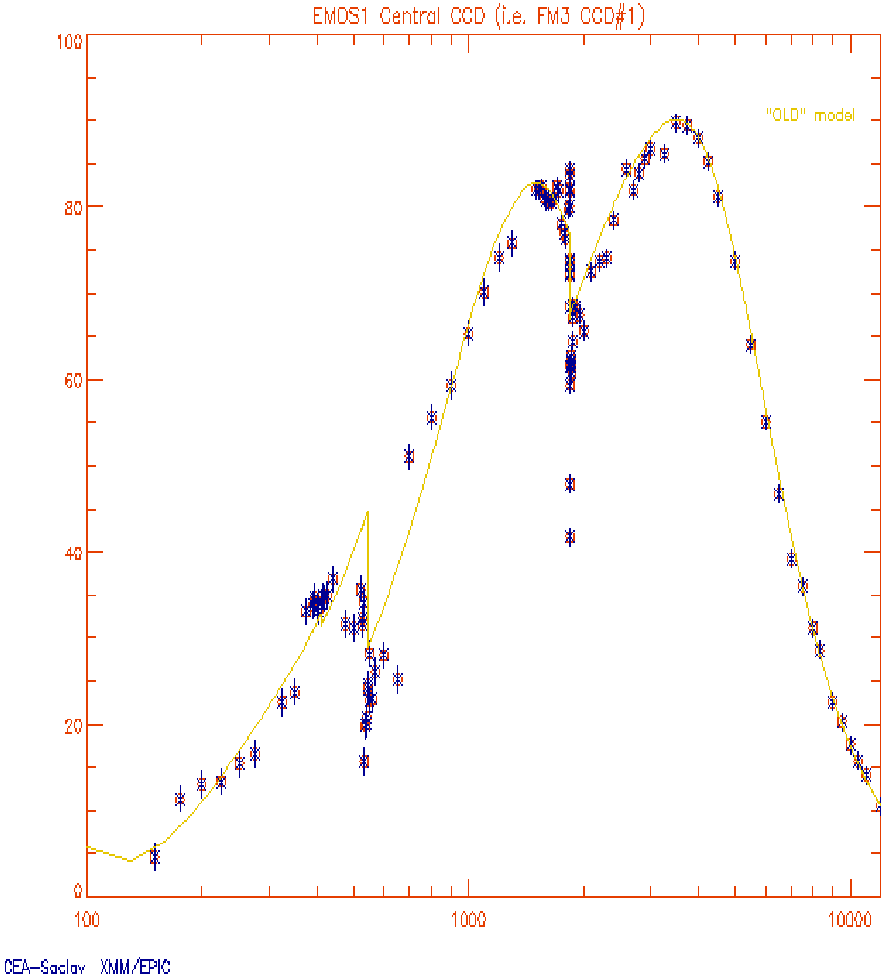
DAPNIA/SAp
CEA/SACLAY,Françe

Oxygen Edge and IAS V1.1 QE

EMOS2(FM2)



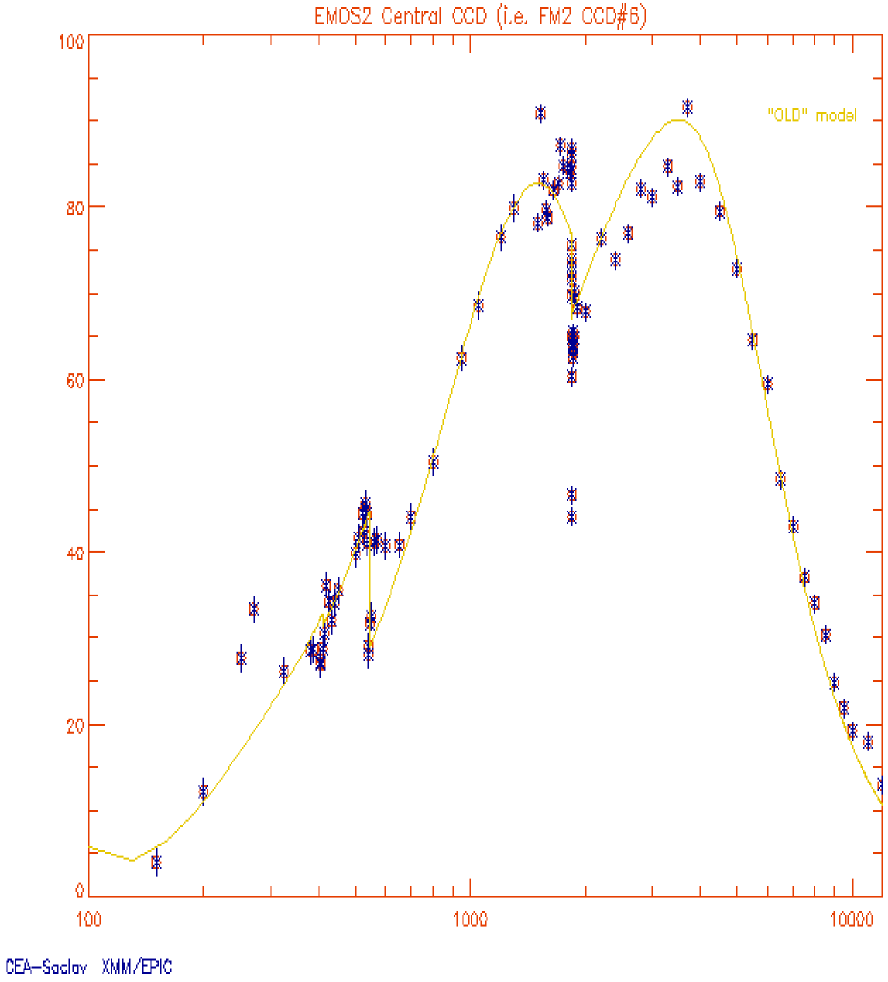
EMOS1(FM3)



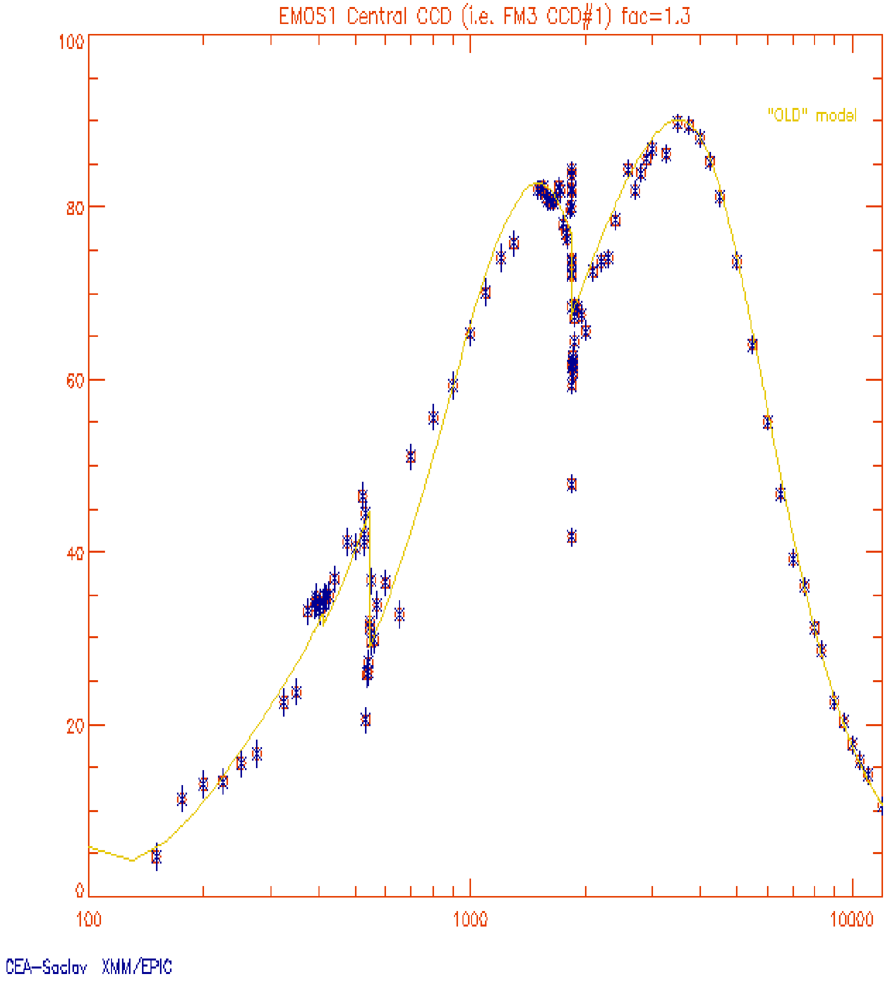
JLSauvageot,SAp,CEA Saclay

QE Model Used to build the ARF

EMOS2(FM2)

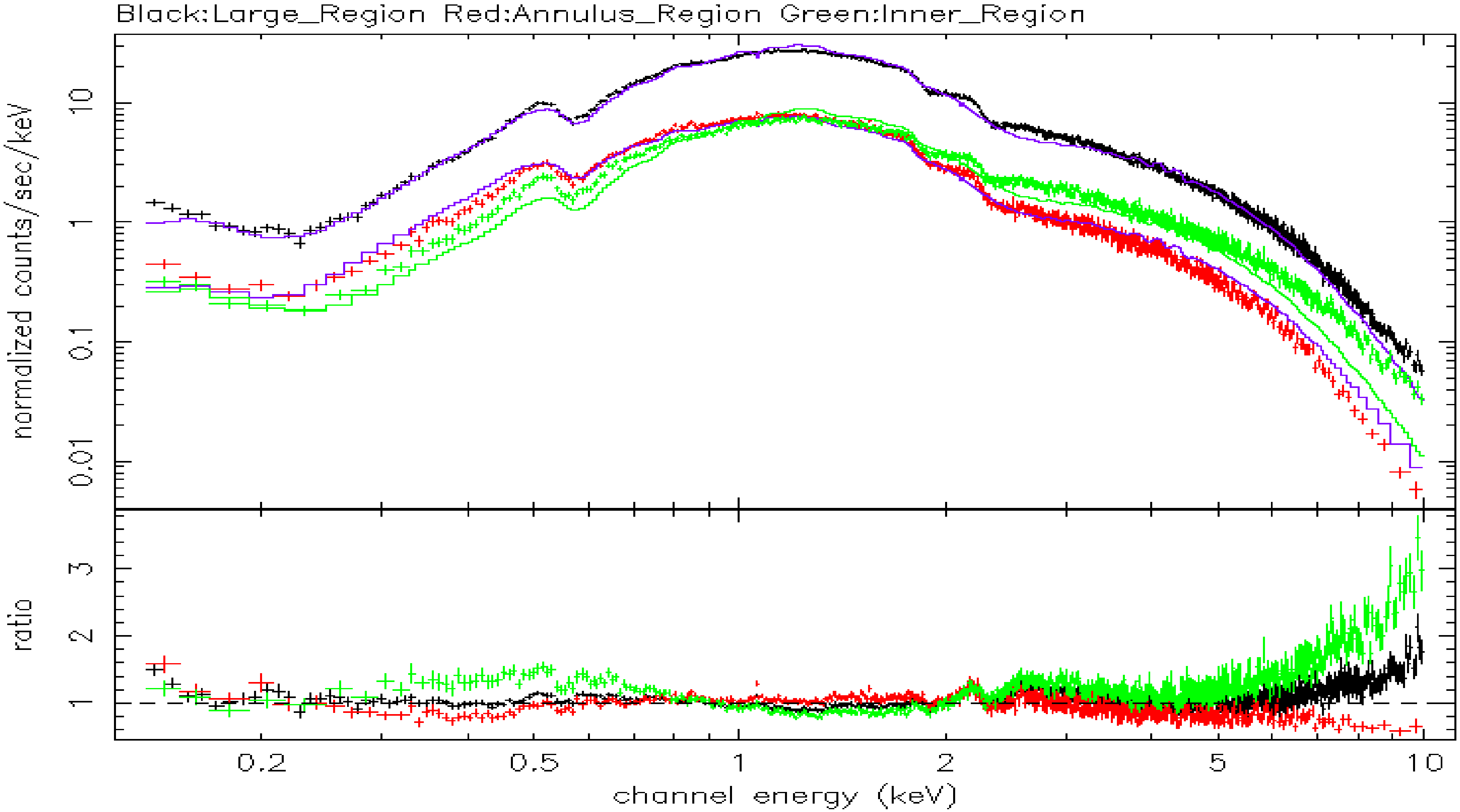


EMOS1(FM3)



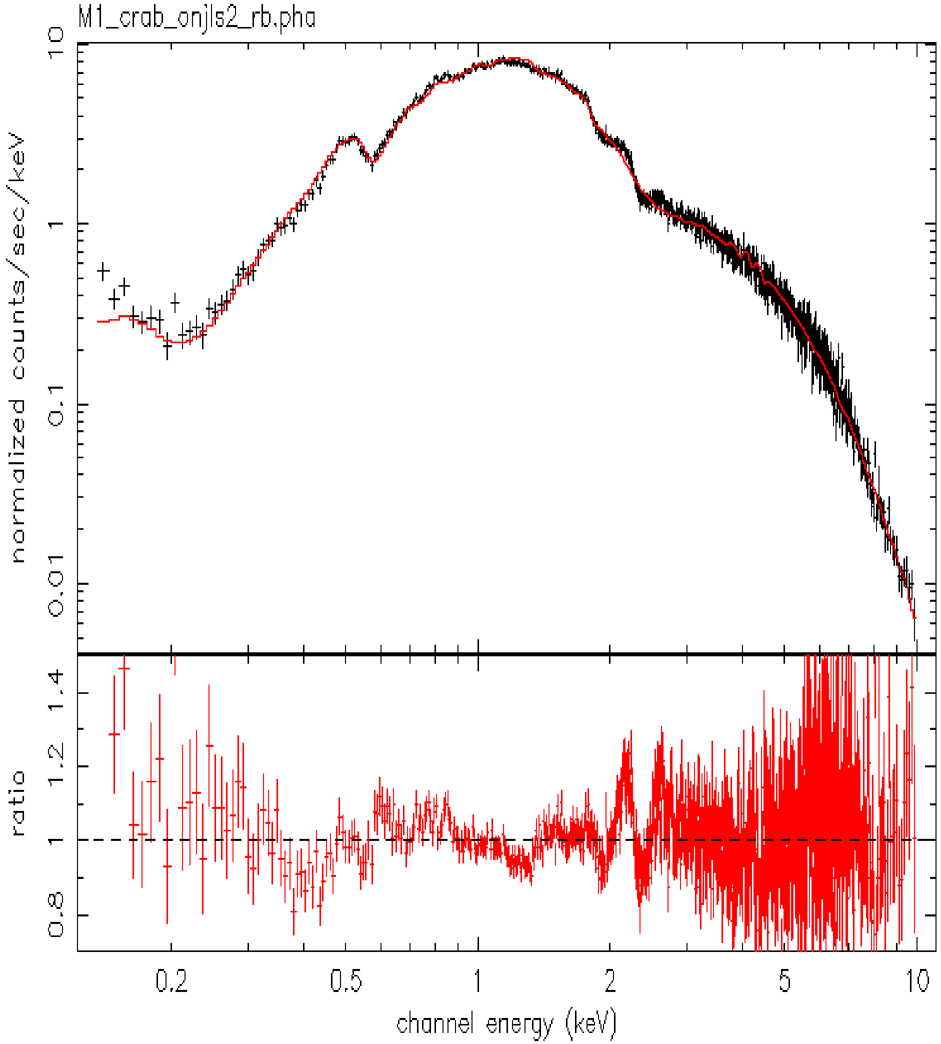
JLSauvageot,SAp,CEA Saclay

Pile–up effect on the Crab on–axis. Different extraction regions. $\Gamma=2.05$ fixed.



JLSauvageot,SAp,CEA Saclay

Outer Ring of Crab Nebula
Complete FIT

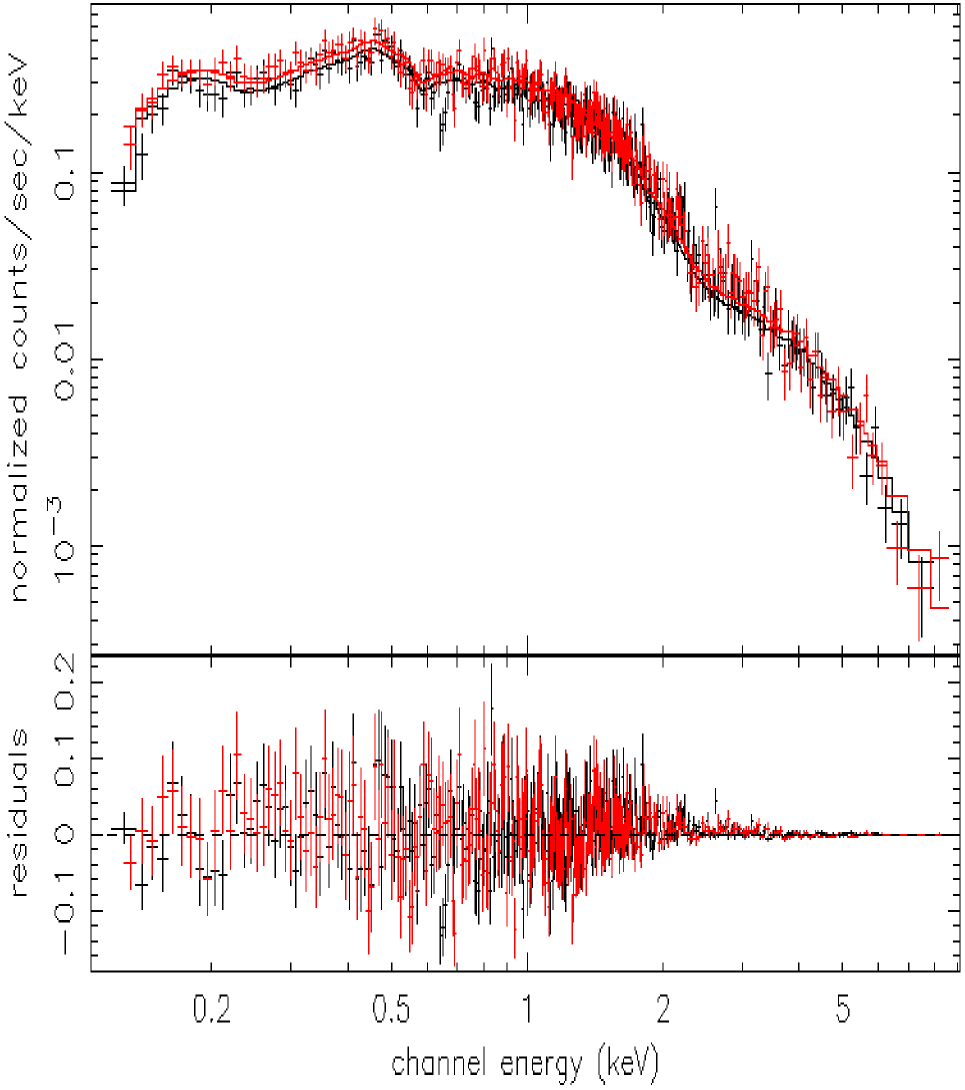


- Mod=wabs (powerlaw)
- N_H= 2.91+/–0.02 10^{21}
- PhoIndex = 2.22+/–0.01

  should be 2.05 ???
- χ2=1487.8 (946 dof)

  χ2r=1.57
- NB: Not good Mirror Response around AU edge.

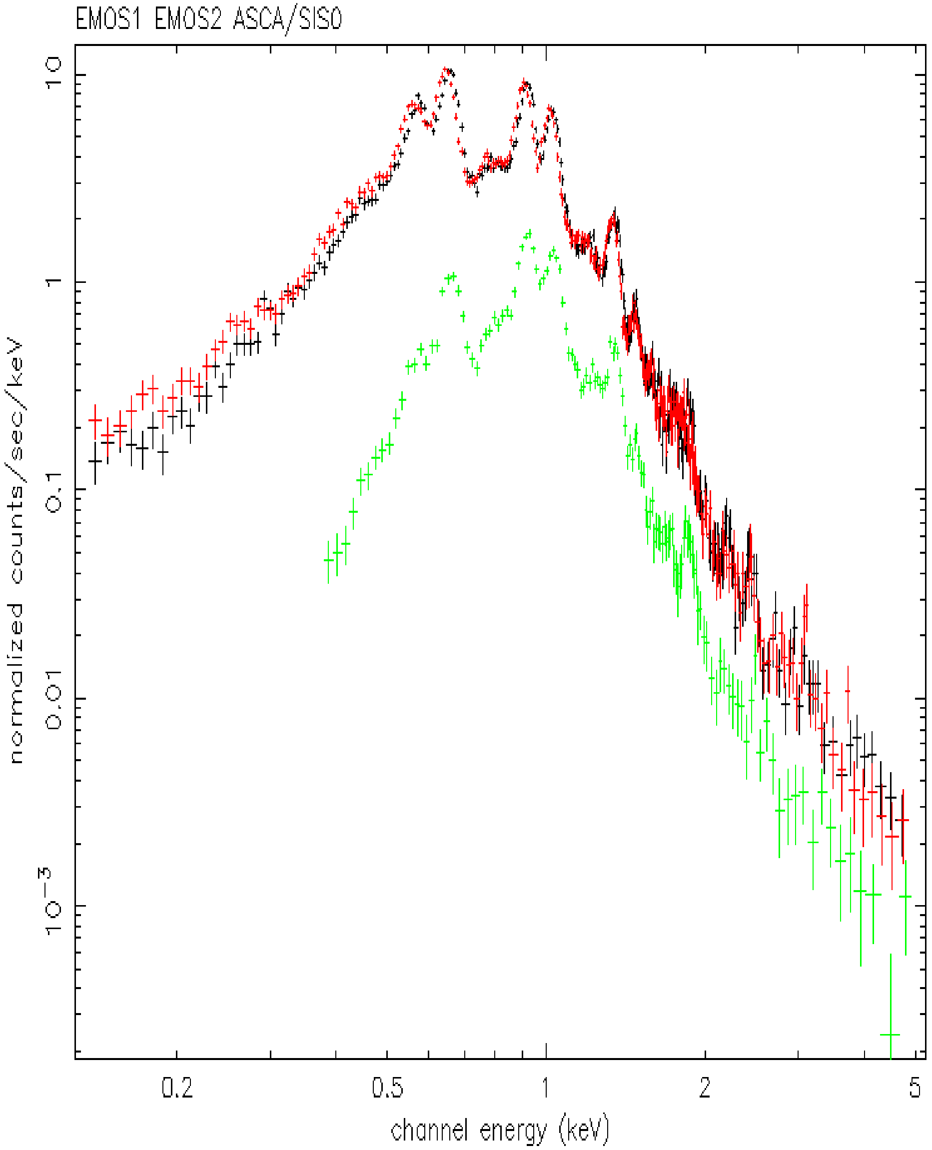
MS 1229.2+6430



- Mod=wabs (powerlaw)
- n_H= 2.87 10^{20} at/cm2
- PhoIndex = 2.34
- NormM1 = 7.31 10^{-4}
- NormM2 = 8.1 10^{-4}
- χ2=578.2 (559 dof)
  χ2r=1.034
- NB: Cleaning may explain Norm differences

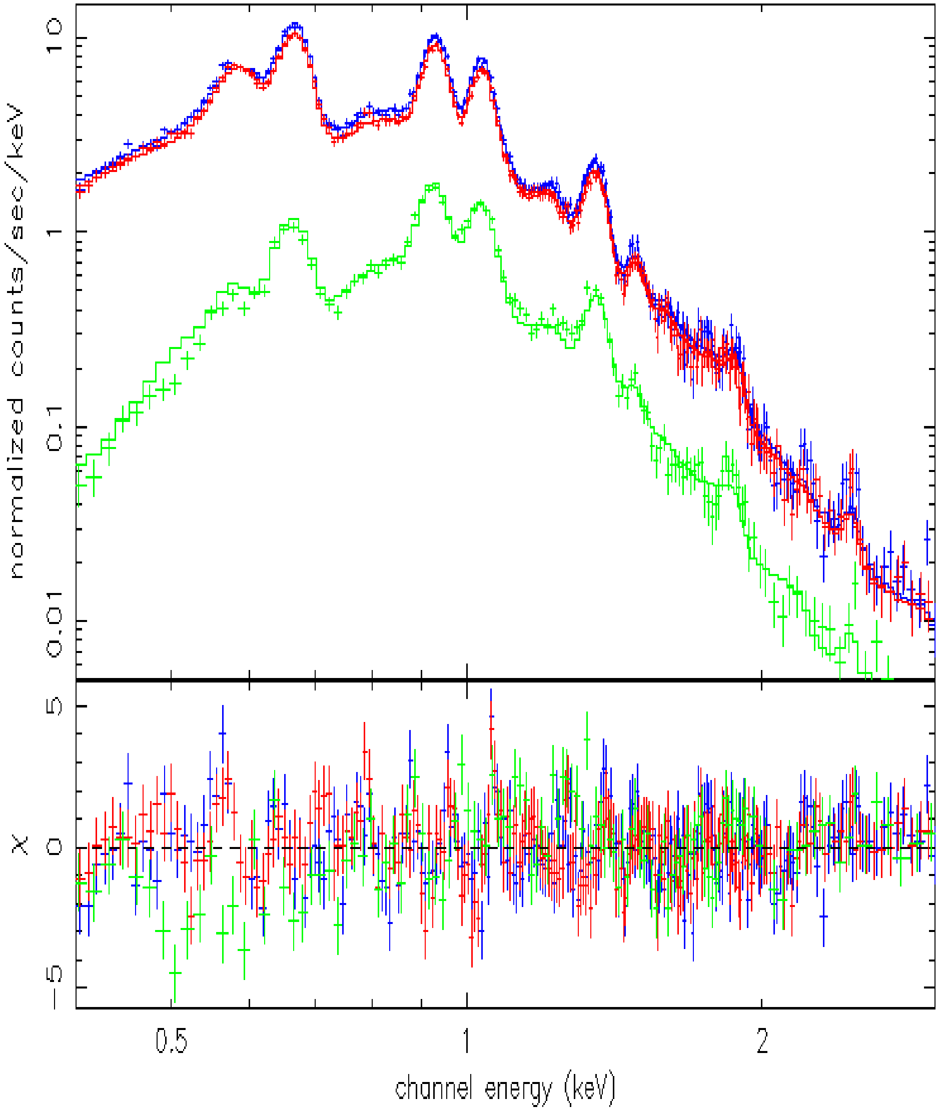
JLSauvageot,SAp,CEA Saclay

Offset Variations and E0102 SNR



- Spectra built, using Gain and Offset determined with Orsay Cal. data.
- M1–M2 Offset difference of ~12 eV
- Between M1 and ASCA/SIS0 :~ 8 eV

Adjustment with ASCA



- Multi–component Model
- M1 & M2 offsets calculated from the 6 strongest lines with ASCA/SIS0 data.
- Same model applied to each dataset.

First Conclusion on GAIN and OFFSET

- In a first approach :

  for E0102 obs. only the offset seems to vary (!!!)

  but it looks different for N132d (for ex.)

- It is not proven that Housekeeping data, such as temperature, will give us enough info to monitor (and reconstruct) gain and offset.

Conclusion : Observers NEED TO HAVE A CALIBRATION EXPOSURE BEFORE **EACH** SCIENTIFIC EXPOSURE.