

Non-thermal SNRs WG

Summary Talk

1. G21.5-0.9
2. Crab

Mateo's Questions

1) what's missing before the paper(s) can be submitted?

--- 15 action items identified (slides 5-6).

2) when do you plan to be ready for sbumission?

--- 2010-07-31 (slide 7).

3) what's next, i.e. what are the plans for the WG after the paper is submitted?

--- Crab (slides 8-10)

1. G21.5-0.9

Progress during the meeting

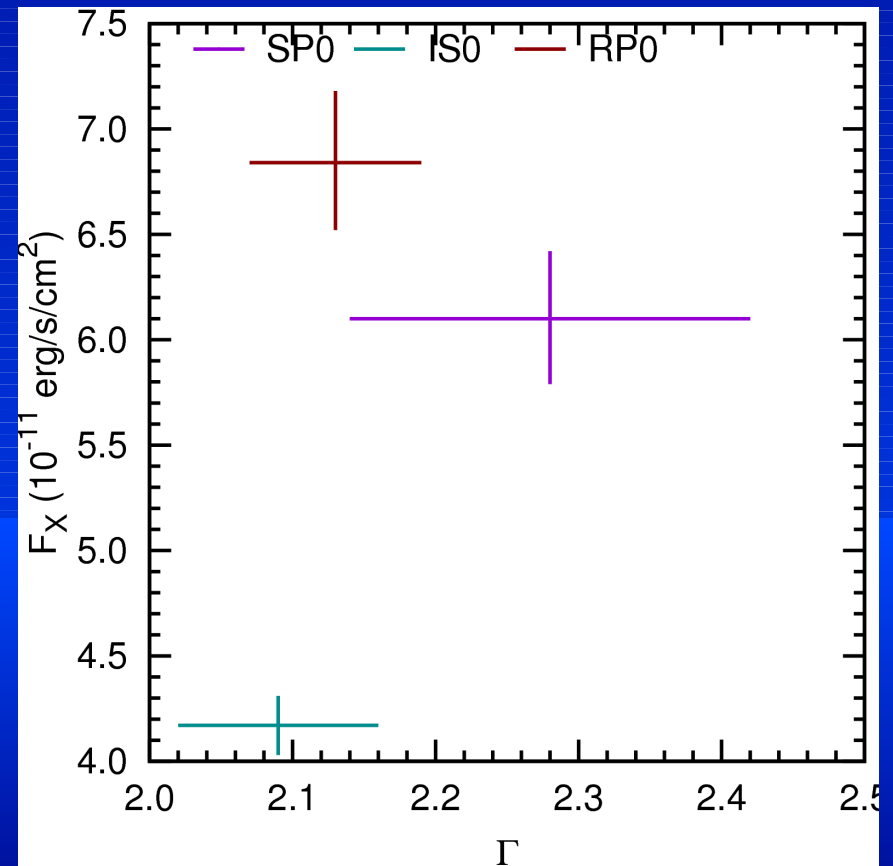
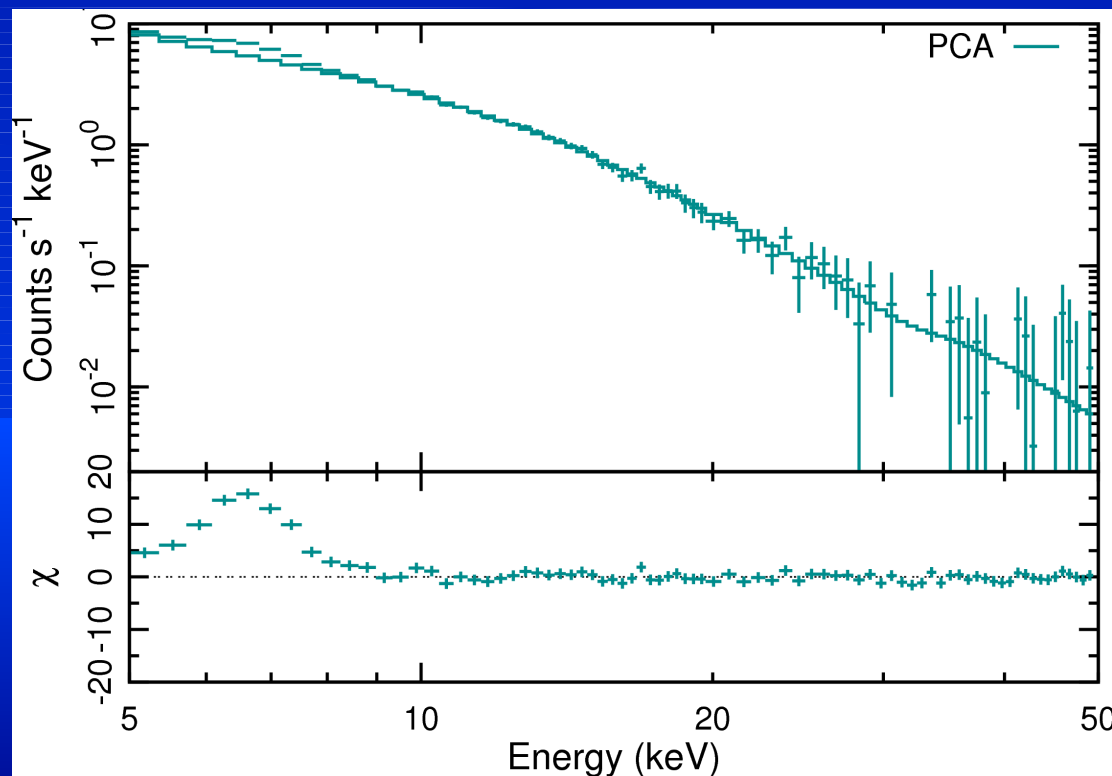
1 hr session + many off-line conversations (+ some sleepless nights for jet lag).

- RXTE/PCA joined for the study (Shaposhnikov).
- Comments for the draft (co-authors+).
- Comparison made regarding the inconsistencies found in G21.5-0.9 with those in other studies (many IACHEC members).
- Action items and the goal for submission agreed (WG).

1. G21.5-0.9

Rejoin of RXTE/PCA

Reduction finished by quick work by Shaposhnikov during a session.



1. G21.5-0.9

Action items (1)

(* Finished items are in color)

1. ACIS-S : Data piled-up. Negligible, but quantify the level by comparing sub-array and full-array data (Plucinsky, Posson-Brown).
2. EPIC : The pn - MOS inconsistency in G21.5-0.9 is not consistent with the inconsistencies in other works. Investigate the cause (Guainazzi).
3. EPIC (pn) : Take several different approaches for background (different positions, different extraction radius, blank sky data, etc; Guainazzi).
 1. (1) The flux consistency between MOS and pn
 2. (2) < 2 keV deviation only for pn.
4. XRT : The two data sets before the Vss change is inconsistent in flux. Check the data (Beardmore).
5. XIS : Investigate the cause for the failure to recover the flux lost outside of the extraction region (Tsujimoto).
6. IBIS : A large inconsistency in flux between PIN & IBIS. Try different data selection (Natalucci).

1. G21.5-0.9

Action items (2)

7. ACIS-S, XRT, EPIC : Try smaller extraction regions (Plucinsky, Guainazzi, Beardmore).
8. Radial profile for EPIC is wrong. Fix it. (Tsujiimoto).
9. Fix NH and power-law index to focus only on flux inconsistency (Tsujiimoto).
10. Include RXTE/PCA results for the paper (Tsujiimoto).
11. Comparison table (table 2) is obsolete. Fix it (Tsujiimoto).
12. Expand the source extraction region for XIS (Tsujiimoto).
13. Use optimized energy band for PIN, RXTE, IBIS (Tsujiimoto).
14. Source confusion for PCA (Shaposhnikov).
15. Reexamine the numbers, verify the G21.5-0.9 inconsistency by comparing with your own results (your instruments, your IACHEC targets, etc). (All IACHEC colleagues).

1. G21.5-0.9

Future plan

2010-04-30 : Circulate the current draft to co-authors & WG leaders.

2010-05-31 : Deadline of the action items.

2010-06-30 : Circulate the final draft to co-authors & WG leaders.

2010-07-31 : Submission of the paper.

2. Crab

Progress during the meeting

0.5+1.0 hr session + many off-line conversations.

- We (re)-started working for the Crab.
 - Crab is still useful for hard-band instruments.
 - Crab compensates some of the weakness of G21.5-0.9.
 - Crab & G21.5-0.9 cover a much wider dynamic range.
- Natalucci agreed to leads the work.
- Participating instruments and tentative assignments agreed. Whether to include BeppoSAX is discussed.
- Approach discussed (same with G21.5-0.9).
- Plan of the paper discussed.

2. Crab

Aims & instruments

- Aims:
 - Make the current status of the cross-calibration at medium/hard X-ray energies (>10 keV).
 - Establish a link with soft X-ray measurements.
 - Provide a “view” to *spectralists* for the interpretation of their results on broad-band analysis.
- Participating instruments :
 - Hard-band instruments: Suzaku/HXD (Tsujimoto, tentative), RXTE/PCA (Jahoda, Shaposhnikov), INTEGRAL/IBIS (Natalucci, Fiocchi), SPI (Jourdain), MAXI (Sugizaki), Swift/BAT (Sakamoto).
 - Soft band instruments : Chandra/LETGS (Weisskopf), XMM/EPIC in burst mode (Guainazzi), XMM/RGS (Kaastra).

2. Crab

Some philosophical issues

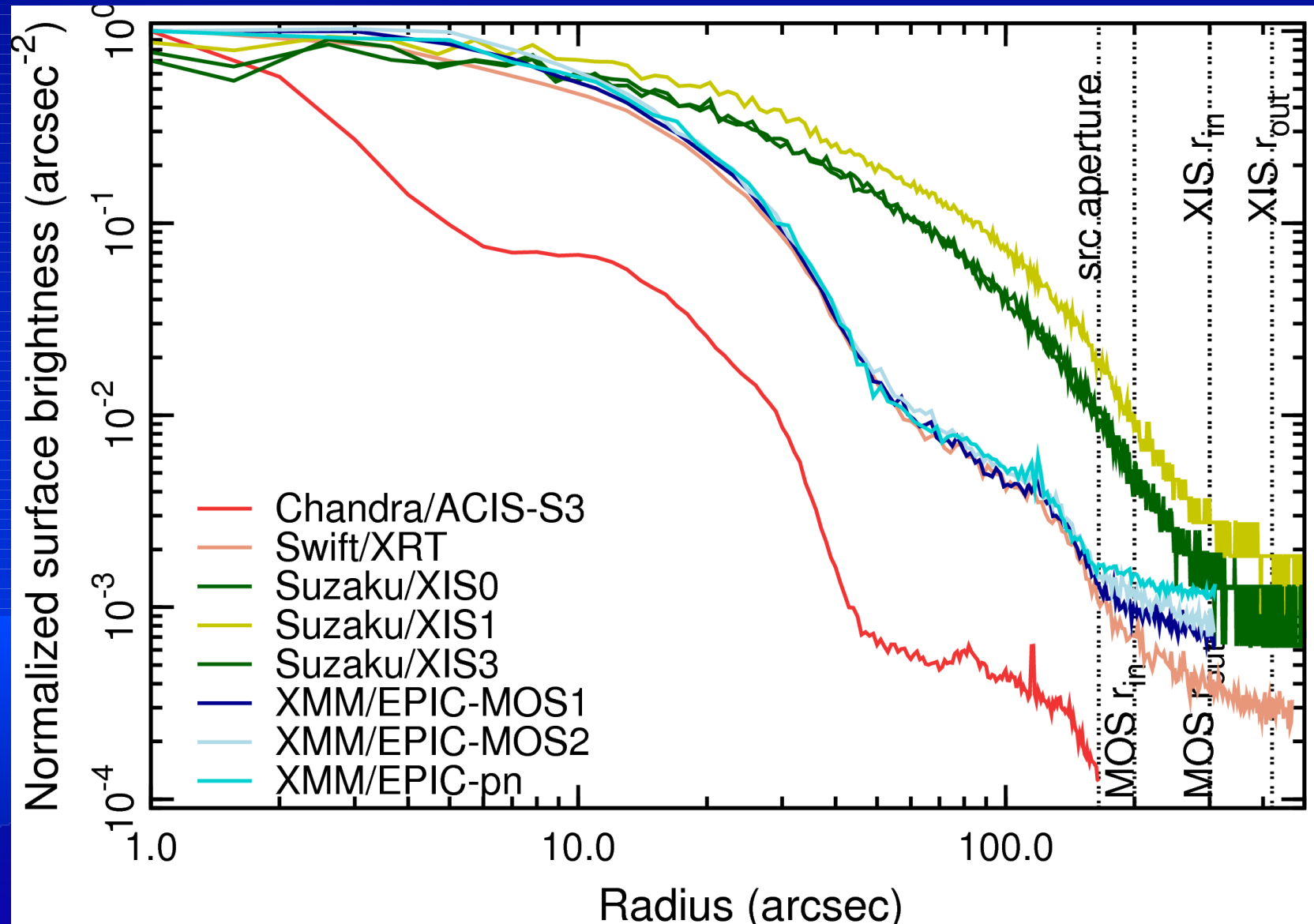
- Crab is not just an X-ray source. It is a Vega in the optical. This paper defines one Crab of this generation.
- MAXI is in the initial phase of the calibration. Whether our Crab work is useful for MAXI is a good practical test for whether our IACHEC work for future missions.

2. Crab

Future plan

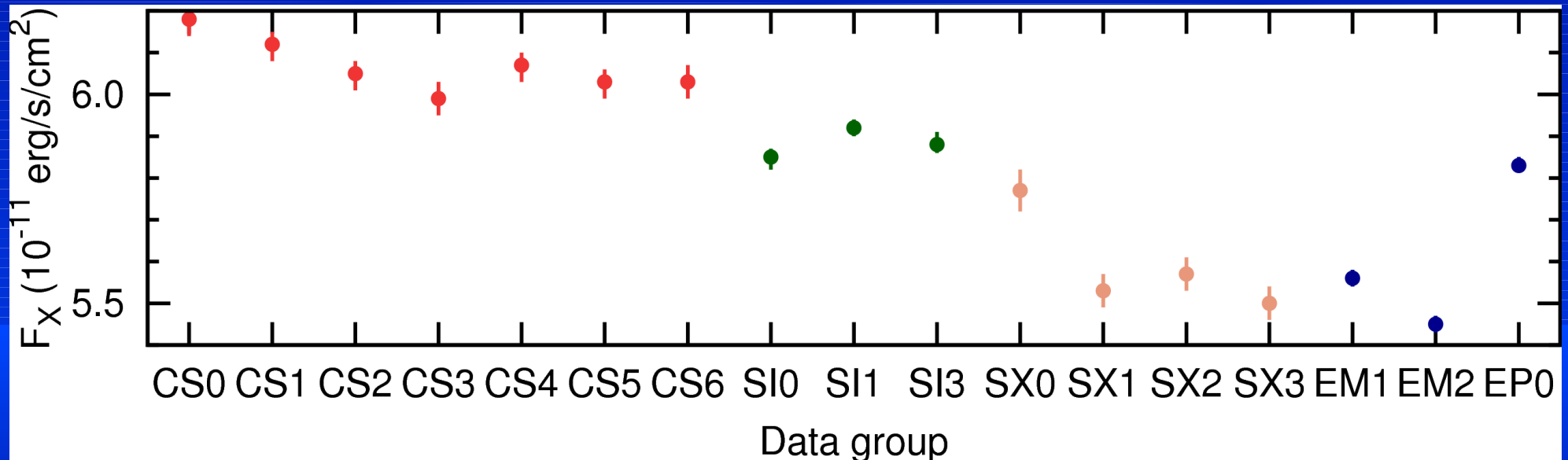
- 2010-05-12 Finalize assignees and circulate the protocol (Natalucci)
- 2010-10-31 Calibration & software frozen for results.
- 2010-12-09 Circulate a skeleton paper with IBIS results (Natalucci).
- 2011-01..03 Frequent updates of the draft.
- 2011-04-15 Draft ready for comparison with other works during the next IACHEC meeting.

8. Radial profile for EPIC is wrong. Fix it.



9. Fix NH and power-law index to focus only on flux inconsistency

$NH = 3.07 \times 10^{22} / \text{cm}^2$, $\Gamma = 1.84$ (best-fit values for the ACIS-S3 combined fit).

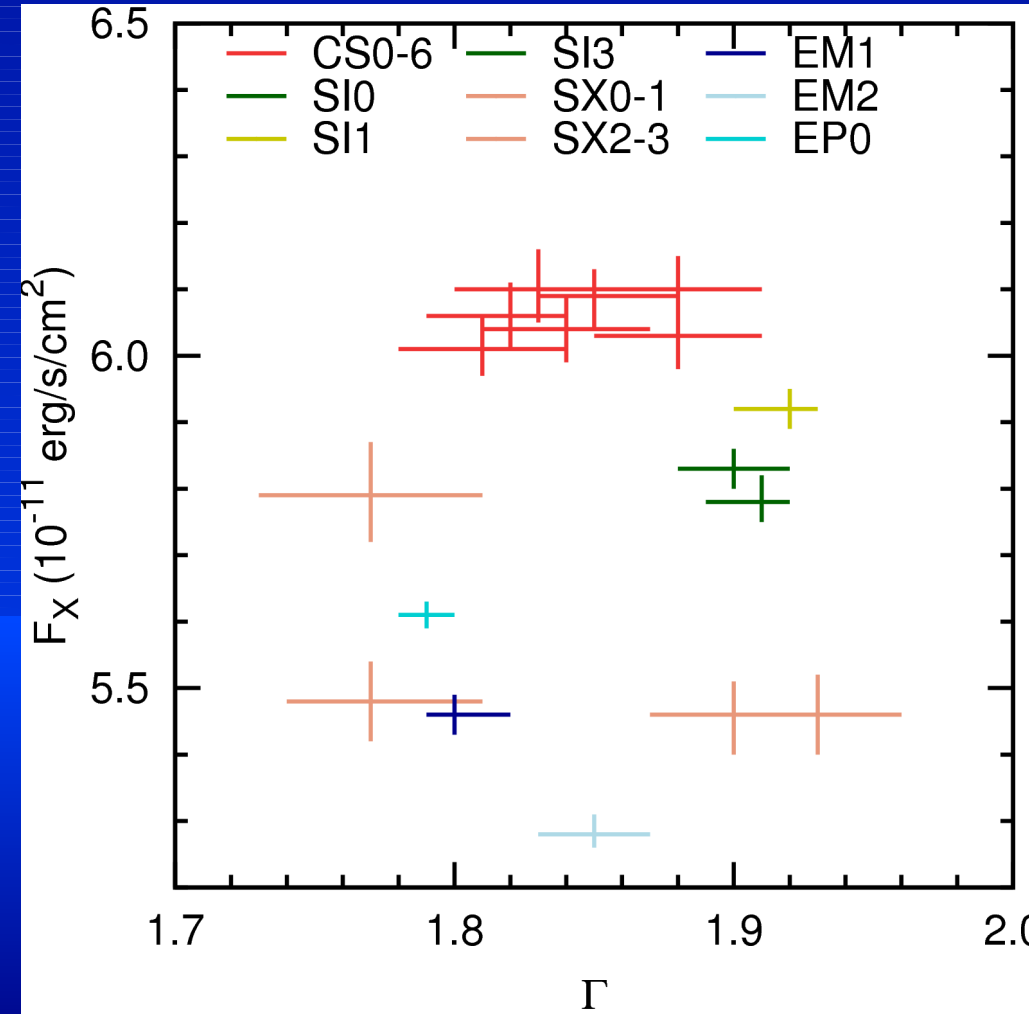
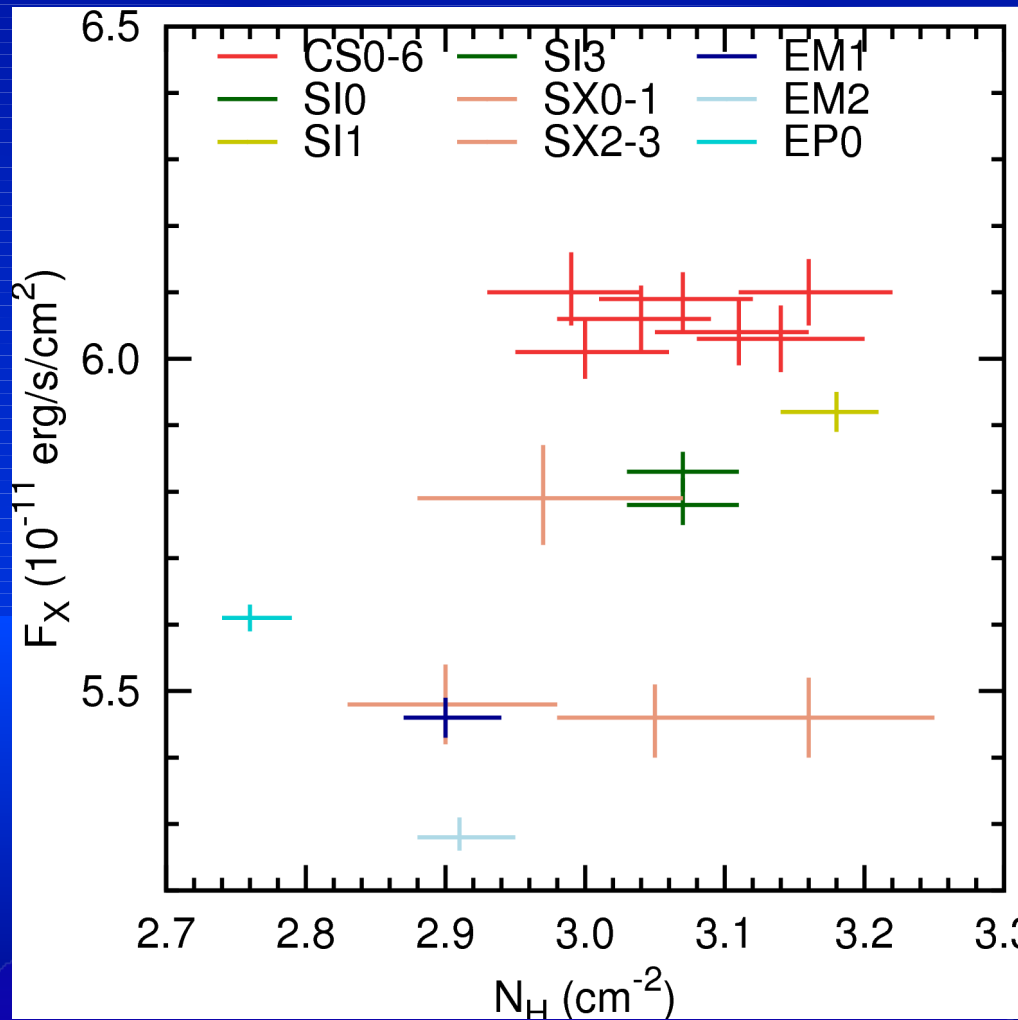


10. Comparison table (table 2) is obsolete. Fix it.

This is not actually obsolete. The fitting was done in 1.0-8.0 keV, not 2.0-8.0 keV.

12. Expand the source extraction region for XIS.

5' is used instead of 165".



- 10. Include RXTE/PCA results for comparison.
- 13. Use optimized energy band for PCA, PIN, IBIS.

PCA 10-30 keV, PIN 15-70 keV, IBIS 18-150 keV.

