Thermal SNRs WG Report at the IACHEC Meeting

Wednesday May 22 8:30 JST: Tuesday May 21 23:30 UTC

Attending:

XMM-Newton pn Konrad Dennerl, Michael Freyberg
XMM-Newton RGS & MOS Martin Stuhlinger
Suzaku XIS Eric Miller
Swift XRT   Andy Beardmore
NuSTAR Brian Grefenstette
Chandra ACIS Paul Plucinsky
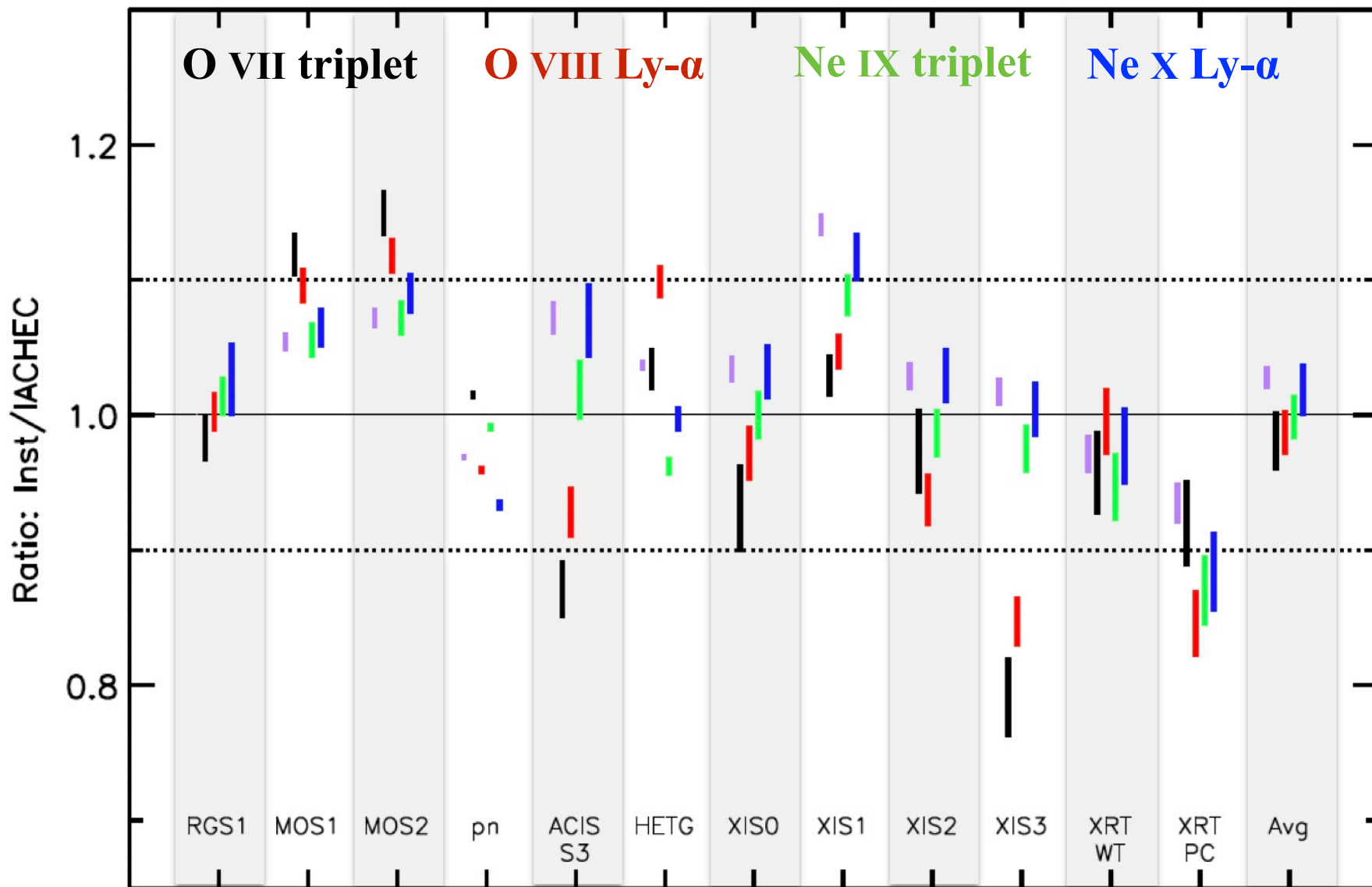**ASTROSAT Gulab Dewangan**
NICER Kenji Yamaguchi

1 E0102.2-7219 Results

Plucinsky et al. A&A 597, A35 (2017)

**Dennerl (MPE)
Results with release rmf**

Paul Plucinsky · *IACHEC 2019*
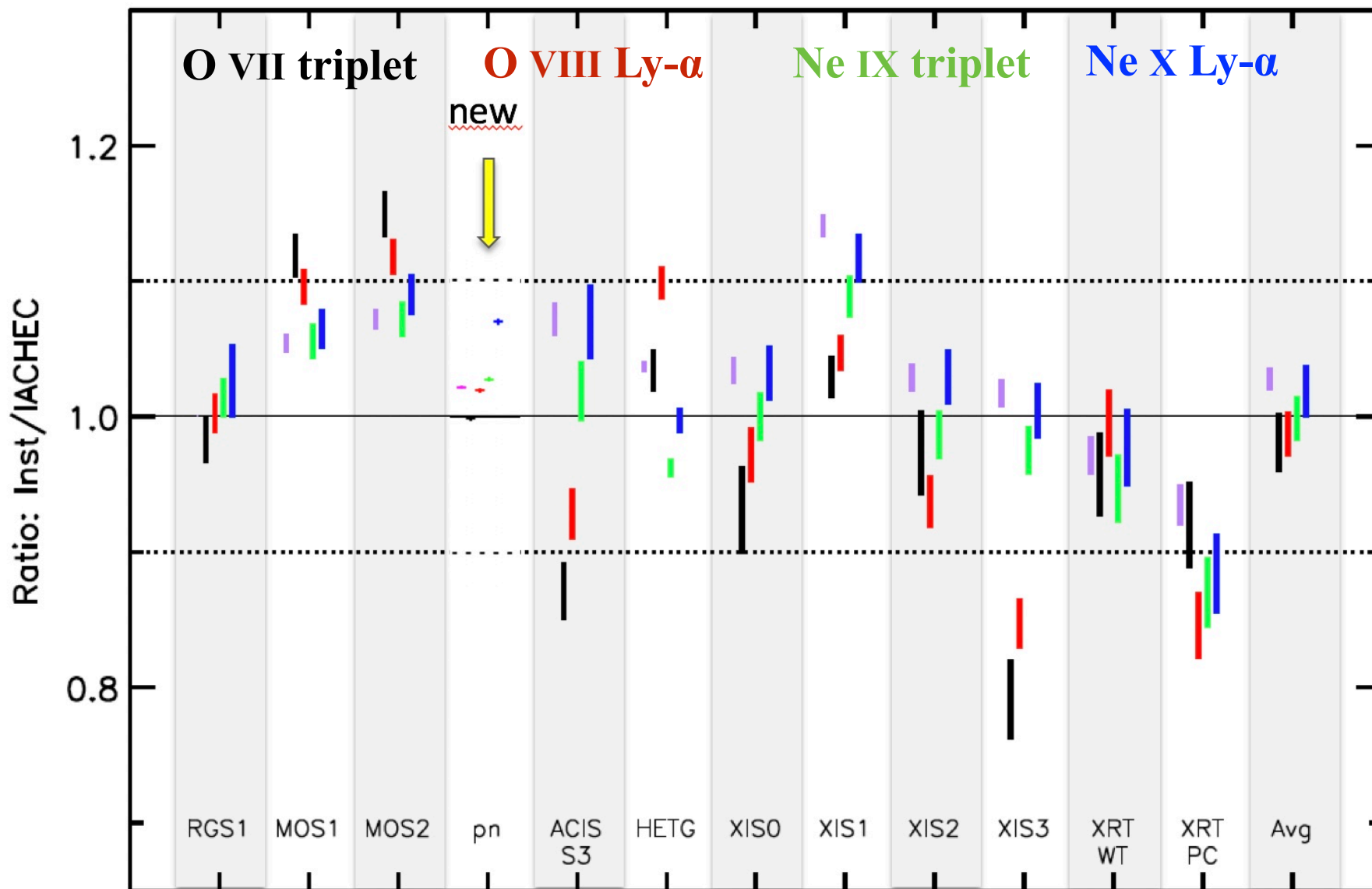
3

1 E0102.2-7219 Results   Dennerl (MPE)

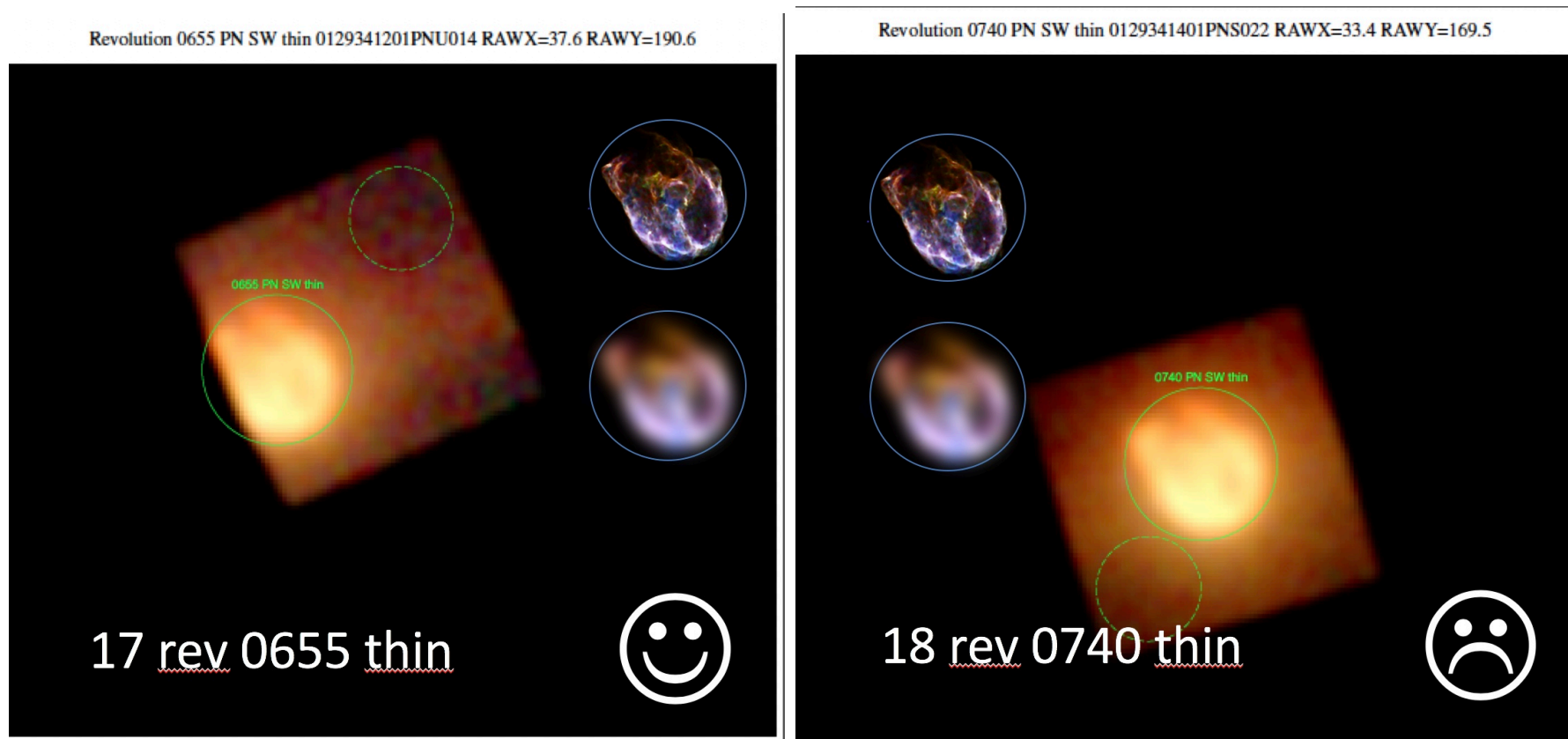Plucinsky et al. A&A 597, A35 (2017)

Revised results with new rmf

N132D Model Development

- IACHEC model is currently at version 2.11
- Dennerl showed fits to the pn data of N132D in small window mode. Better fits are achieved when N132D is positioned at the edge of the small window mode compared to fits when N132D is positioned in the center of small window. This difference is under investigation.
- Miller showed fits to the Fe-K region with Suzaku XIS with a new background model.
- Grefenstette showed NuSTAR fits and argued for the addition of a high temperature component with kT~6.0 keV (consistent with Bamba et al. 2018 paper).
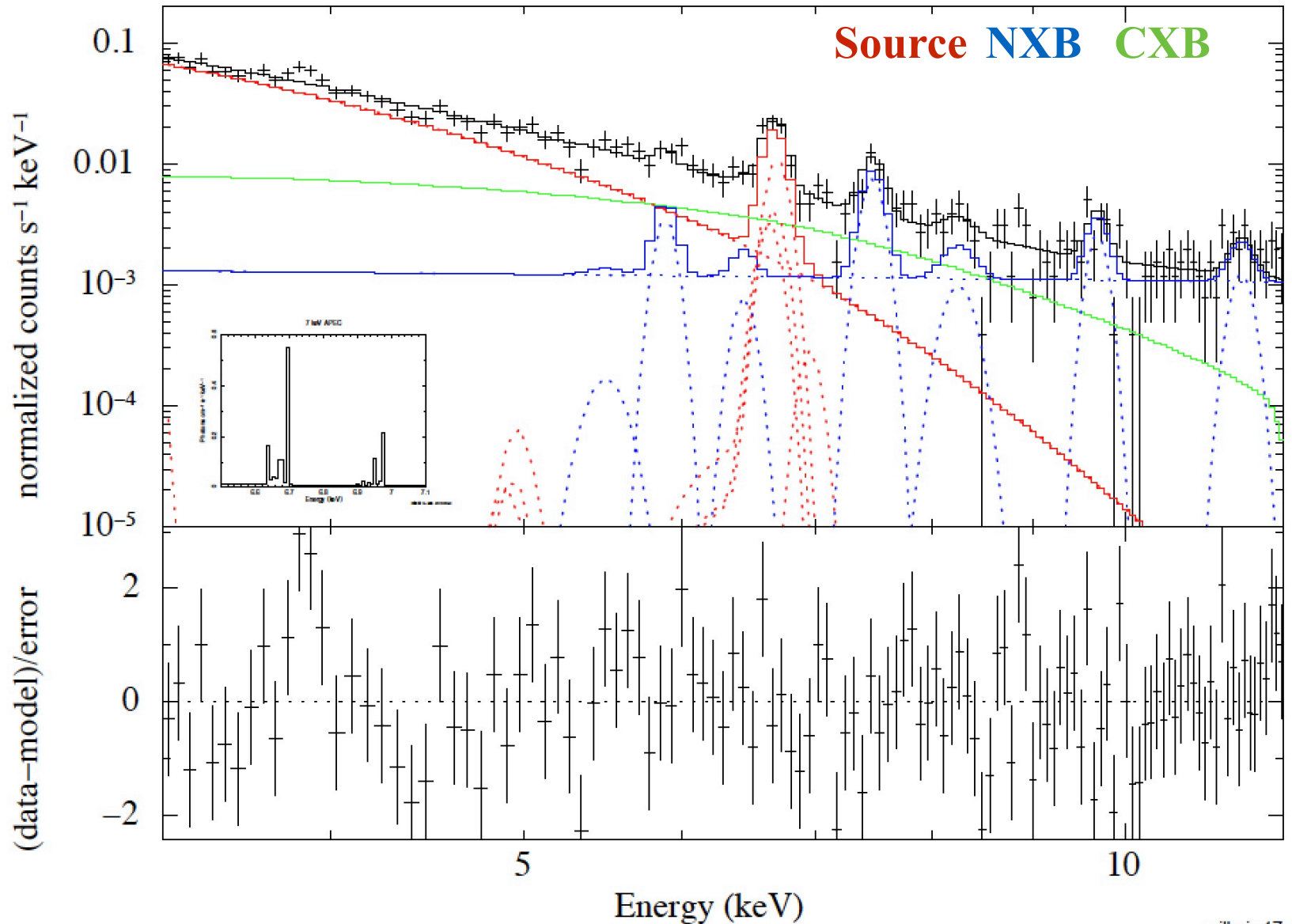
Dennerl (MPE) XMM pn

Revolution 0655 PN SW thin 0129341201PNU014 RAWX=37.6 RAWY=190.6

0655 PN SW thin

17 rev 0655 thin

Revolution 0740 PN SW thin 0129341401PNS022 RAWX=33.4 RAWY=169.5

0740 PN SW thin

18 rev 0740 thin

**Miller
(MIT)
Suzaku XIS**

Suzaku XIS fit to N132D data

N132D – XIS0 20100727, IACHEC model v2.11_20180406, contami_20140825

**Background
modeling is
crucial to
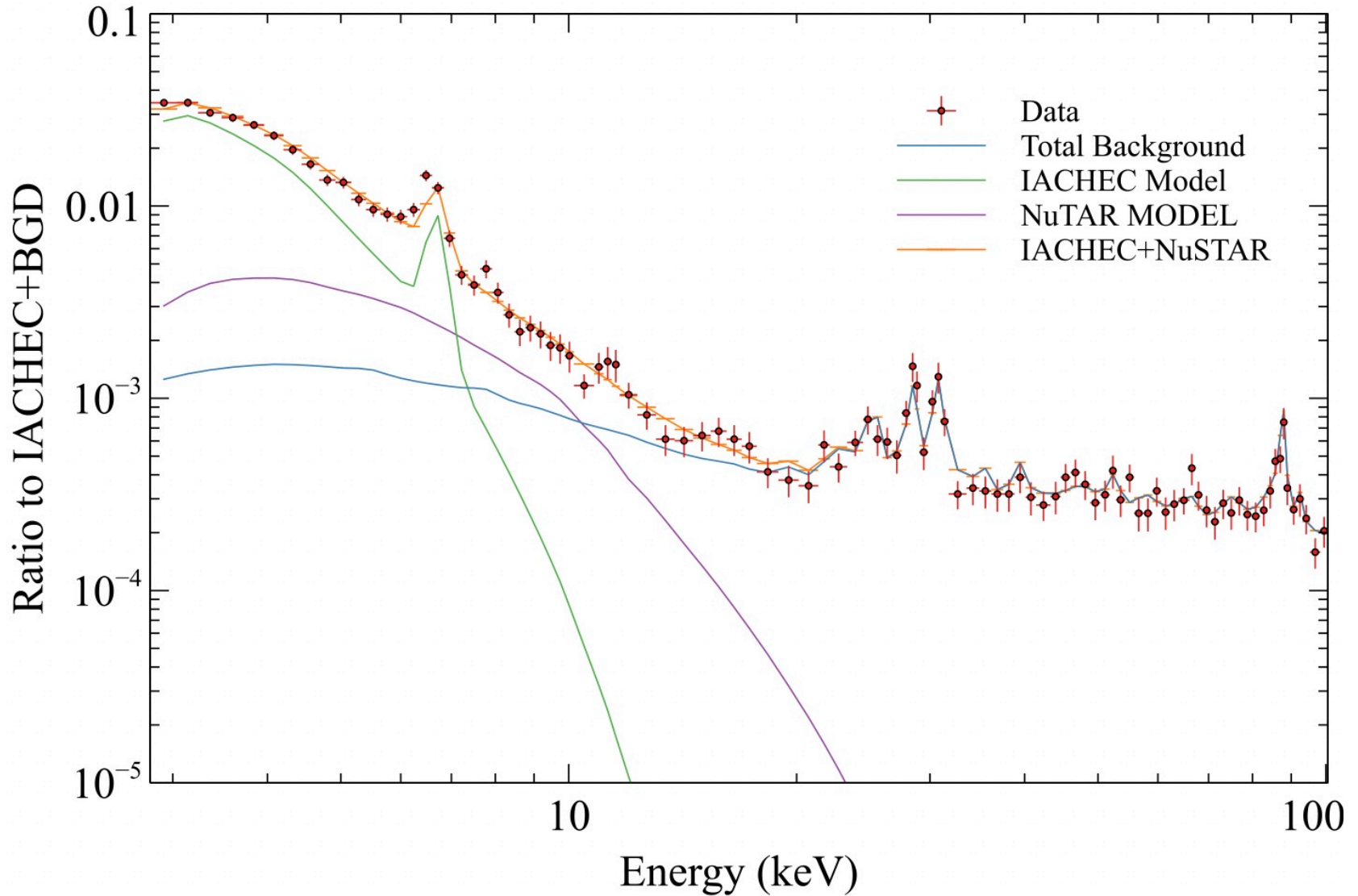achieve reliable
results in the
Fe K region.**

Source NXB CXB

NuSTAR fit to N132D data

Grefenstette (Caltech) NuSTAR

NuSTAR spectrum shows the need for a hard component with kT~6.0 keV

N132D Model Development ACTIONS

- **Dennerl will explore background subtraction for pn small window mode data**
- **Miller will complete XIS fits and send new model components to Grefenstette and Plucinsky**
- **Stuhlinger will fit RGS data with IACHEC model and identify issues**
- **Grefenstette will fit NuSTAR data with new components suggested by Miller**
- **Plucinsky will update the model with new components and distribute next version**
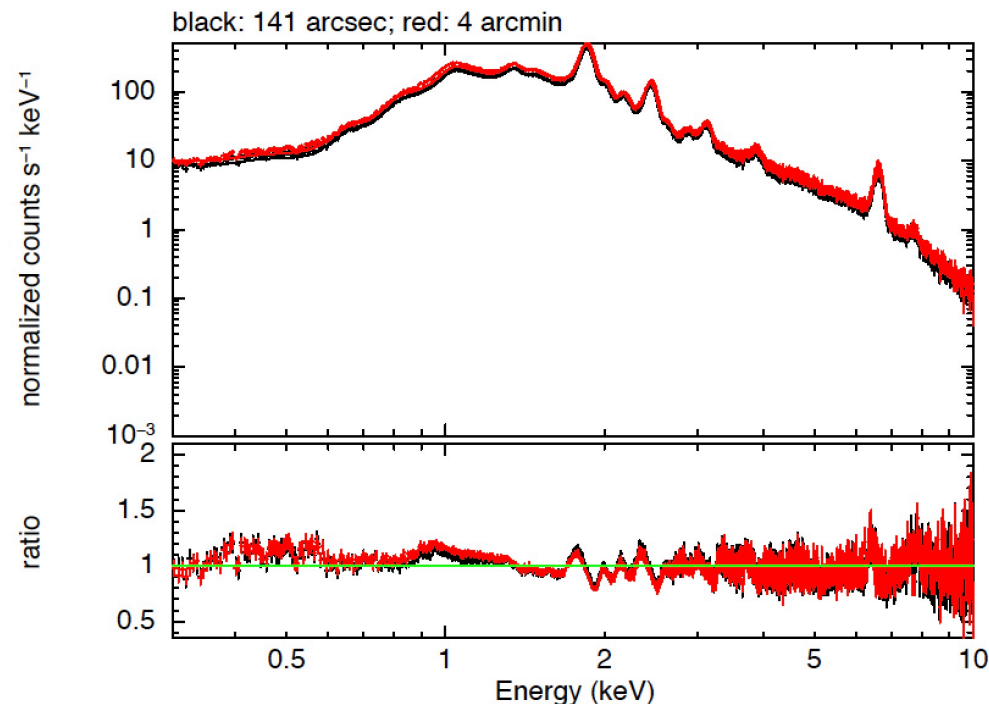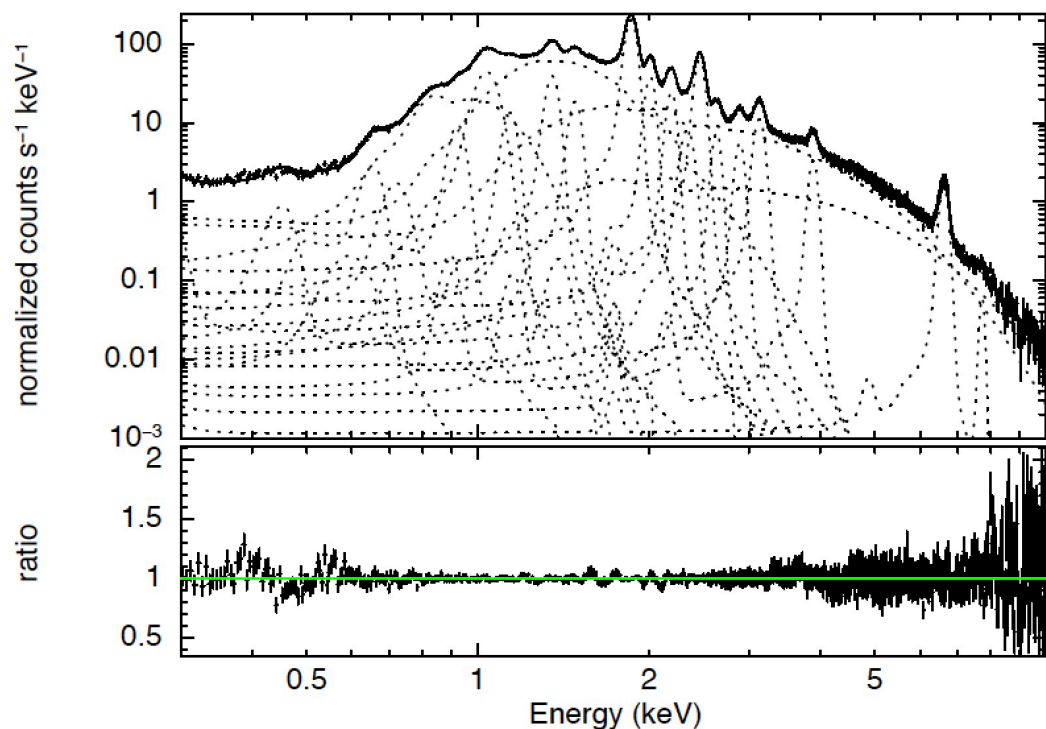- **Plucinsky will schedule telecon in a month, ~14-18 June**

Cas A Model

- **Beardmore (Leicester) showed his Cas A model that is used for Swift XRT calibration fit to the XMM MOS1 and pn data**
- **Dewangan (IUCAA) uses this model for ASTROSAT calibration**
- **we recommend that we should release this model as an IACHEC model but make clear that it is based on CCD-resolution data, not high-resolution data**

Beardmore (Leicester)

XMM MOS1

XMM pn

Organization for the Coming Year

- We have made little progress on the N132D model. We need someone to take responsibility for the RGS data. Stuhlinger has volunteered.
- We need to meet regularly. We should meet once a month by WebEx or zoom.
- We need to make progress this year to take advantage of the information from Suzaku and the new information from NuSTAR