Wednesday 15 May

Working Group

9:30 – 11:00	**Thermal SNR**	**Room 1**
9:30 – 10:00	Cas A	
	What to expect from the XRISM observations of N132D and Cas A	Paul Plucinsky
	The development and use of a standard model of Cas A for ACIS calibration	Nick Durham
	Swift, XMM, RXTE, NuStar, & NICER fits to Cas A	Craig Markwardt
10:00 – 10:30	E0102	
	E0102 observations with Xtend	Tomokage Yoneyama
	Using E0102 to improve the eROSITA ARFs and RMFs and XMM RMFs	Konrad Dennerl
	Monitoring SN1987A with XMM and eROSITA	Konrad Dennerl
10:30 – 11:00	N123D	
	An updated model for the Fe-K region in N132D from XMM data	Adam Foster
	An update on the RGS analysis of N132D	Martin Stuhlinger

this afternoon..

Wednesday 15 May

	General Session #3	Chair: Paul Plucinsky
15:00 – 15:20	SMILE Soft X-ray Imager Prelaunch Testing	Andrew Beardmore
15:20 – 15:40	Calibration plan of GRM onboad SVOM	Shijie Zheng
15:40 – 16:00	RMFs and ARFs for eROSITA and XMM/EPIC-pn	Konrad Dennerl
16:00 – 16:20	The 100 m X-ray Test Facility in IHEP and Calibration Plans for the eXTP	Yusa Wang
16:20 – 16:40	NinjaSat: A 6U CubeSat observatory for bright X-ray sources	Toru Tamagawa
16:40 – 17:00	Timing calibration of the CubeSat X-ray observatory NinjaSat	Naoyuki Ota
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17:00 – 18:00	**Break**	
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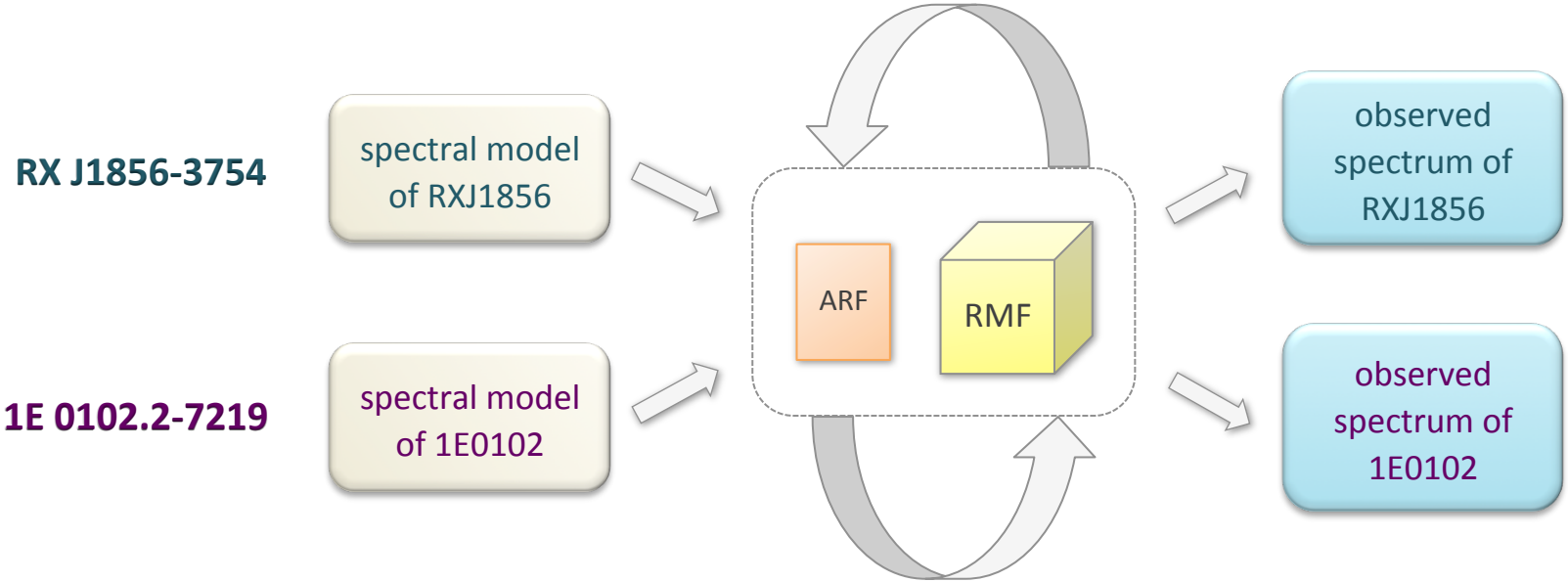
18:00 – 19:30	**Clusters of galaxies**	**Room 1**
18:00 – 19:30	**Timing**	**Room 2**
	Pulsar Cross-calibration	Matteo Bachetti
	Challenges to Keep the Timing Accuracy of XRISM Timing System in GPS Failure Mode	Megumi Shidatsu

Improving the ARF and RMF

ARF: „Ancillary Response File“, RMF: „Redistribution Matrix File“

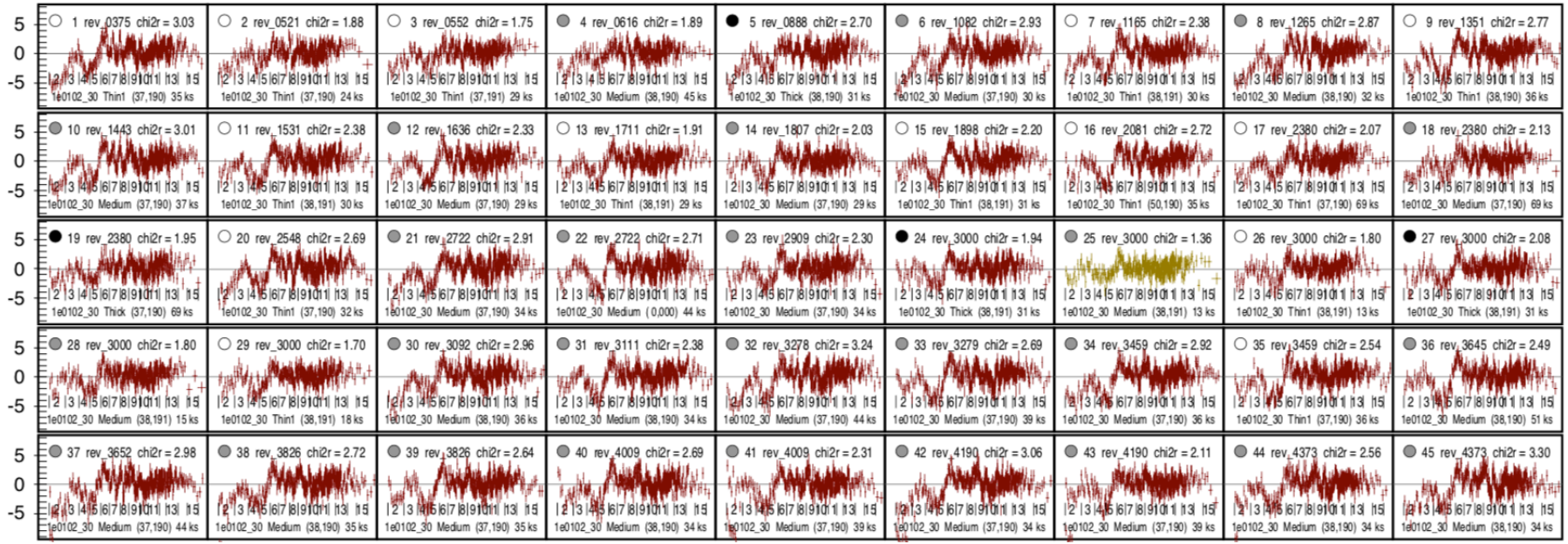


45 XMM/EPIC-pn spectra of 1E0102, accumulated over 24(!) years

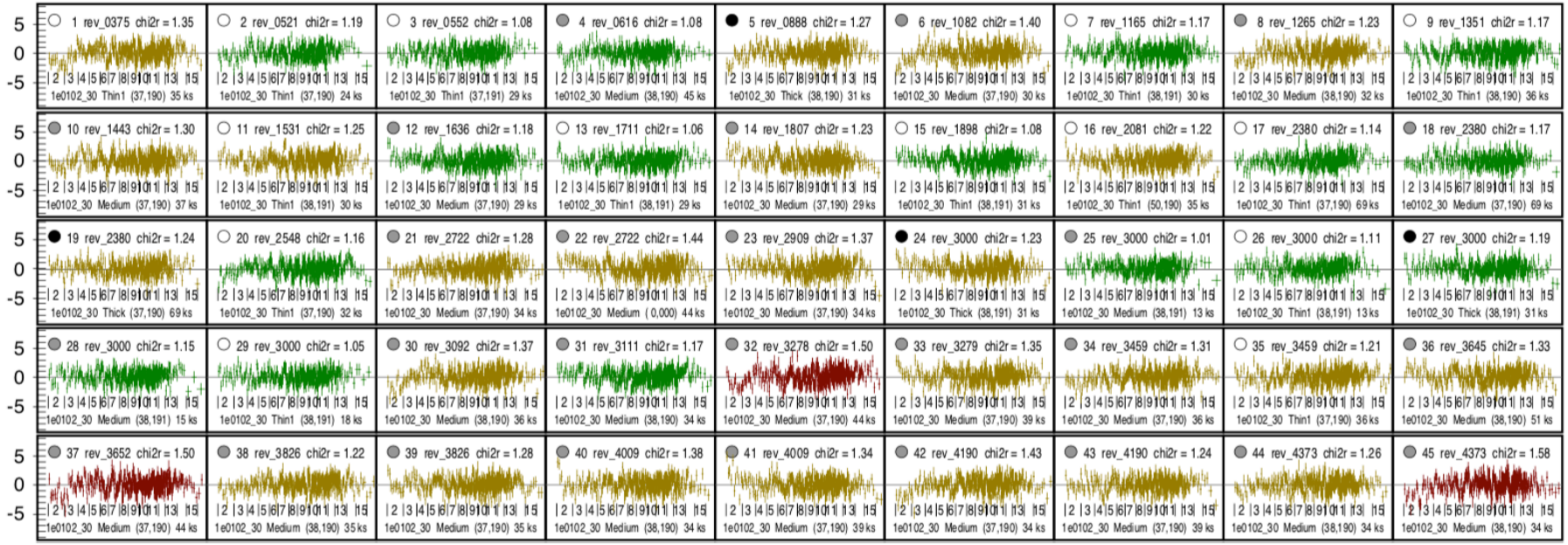
1e0102_30 spectra:

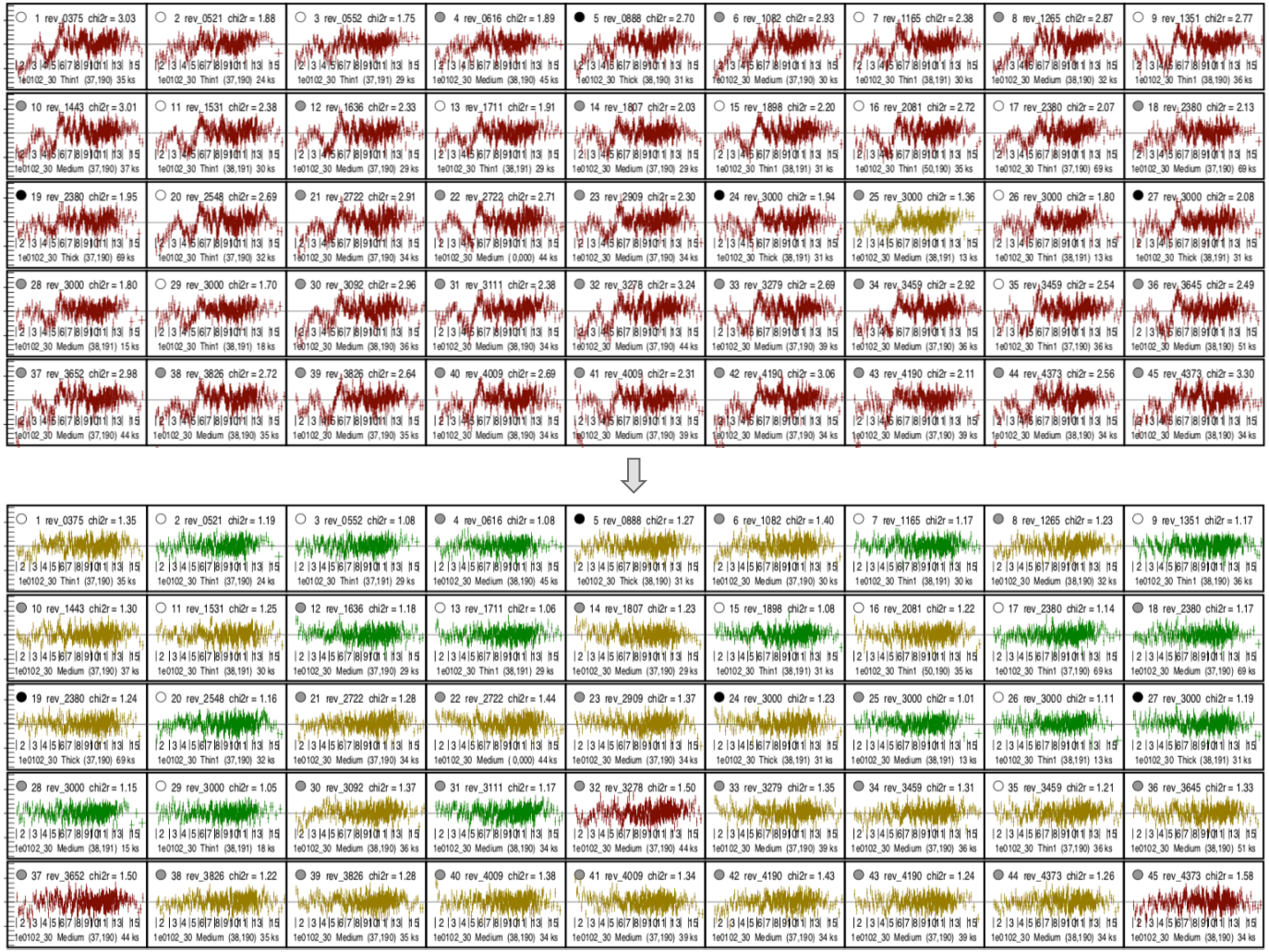
1	1e0102_30/rev_0375/	P0135720801PNS001	SW Thin1
2	1e0102_30/rev_0521/	P0135721101PNS001	SW Thin1
3	1e0102_30/rev_0552/	P0135721301PNS001	SW Thin1
4	1e0102_30/rev_0616/	P0135721401PNU002	SW Medium
5	1e0102_30/rev_0888/	P0135722401PNS001	SW Thick
6	1e0102_30/rev_1082/	P0135722601PNS001	SW Medium
7	1e0102_30/rev_1165/	P0135722701PNS001	SW Thin1
8	1e0102_30/rev_1265/	P0412980101PNS001	SW Medium
9	1e0102_30/rev_1351/	P0412980201PNS001	SW Thin1
10	1e0102_30/rev_1443/	P0412980301PNS001	SW Medium
11	1e0102_30/rev_1531/	P0412980501PNS001	SW Thin1
12	1e0102_30/rev_1636/	P0412980701PNS001	SW Medium
13	1e0102_30/rev_1711/	P0412980801PNS001	SW Thin1
14	1e0102_30/rev_1807/	P0412980901PNS001	SW Medium
15	1e0102_30/rev_1898/	P0412981001PNS001	SW Thin1
16	1e0102_30/rev_2081/	P0412981401PNS001	SW Thin1
17	1e0102_30/rev_2380a/	P0412981701PNS001	SW Thin1
18	1e0102_30/rev_2380b/	P0412981701PNS012	SW Medium
19	1e0102_30/rev_2380c/	P0412981701PNS013	SW Thick
20	1e0102_30/rev_2548/	P0412982101PNS001	SW Thin1
21	1e0102_30/rev_2722a/	P0412982201PNS001	SW Medium
22	1e0102_30/rev_2722b/	P0412982301PNS001	SW Medium
23	1e0102_30/rev_2909/	P0412982501PNS001	SW Medium
24	1e0102_30/rev_3000a/	P0791580701PNS001	SW Thick
25	1e0102_30/rev_3000b/	P0791580801PNS001	SW Medium
26	1e0102_30/rev_3000c/	P0791580901PNS001	SW Thin1
27	1e0102_30/rev_3000d/	P0791581001PNS001	SW Thick
28	1e0102_30/rev_3000e/	P0791581101PNS001	SW Medium
29	1e0102_30/rev_3000f/	P0791581201PNS001	SW Thin1
30	1e0102_30/rev_3092/	P0412983201PNS001	SW Medium
31	1e0102_30/rev_3111/	P0412983301PNS001	SW Medium
32	1e0102_30/rev_3278/	P0412983401PNS001	SW Medium
33	1e0102_30/rev_3279/	P0412983501PNS001	SW Medium
34	1e0102_30/rev_3459a/	P0810880101PNS001	SW Medium
35	1e0102_30/rev_3459b/	P0810880201PNS001	SW Thin1
36	1e0102_30/rev_3645/	P0810880501PNS001	SW Medium
37	1e0102_30/rev_3652/	P0810880301PNS001	SW Medium
38	1e0102_30/rev_3826a/	P0810880601PNS001	SW Medium
39	1e0102_30/rev_3826b/	P0810880701PNS001	SW Medium
40	1e0102_30/rev_4009a/	P0810880801PNS001	SW Medium
41	1e0102_30/rev_4009b/	P0810880901PNS001	SW Medium
42	1e0102_30/rev_4190a/	P0810881001PNS001	SW Medium
43	1e0102_30/rev_4190b/	P0810881301PNS001	SW Medium
44	1e0102_30/rev_4373a/	P0810881401PNS001	SW Medium
45	1e0102_30/rev_4373b/	P0810881501PNS001	SW Medium

1E0102: XMM/EPIC-pn residuals resulting from IACHEC model spectrum and RMFs/ARFs obtained with rmfgen-2.8.7 and arfgen-1.104



1E0102: XMM/EPIC-pn residuals resulting from IACHEC model spectrum and RMFs/ARFs obtained with alternative parametric approach





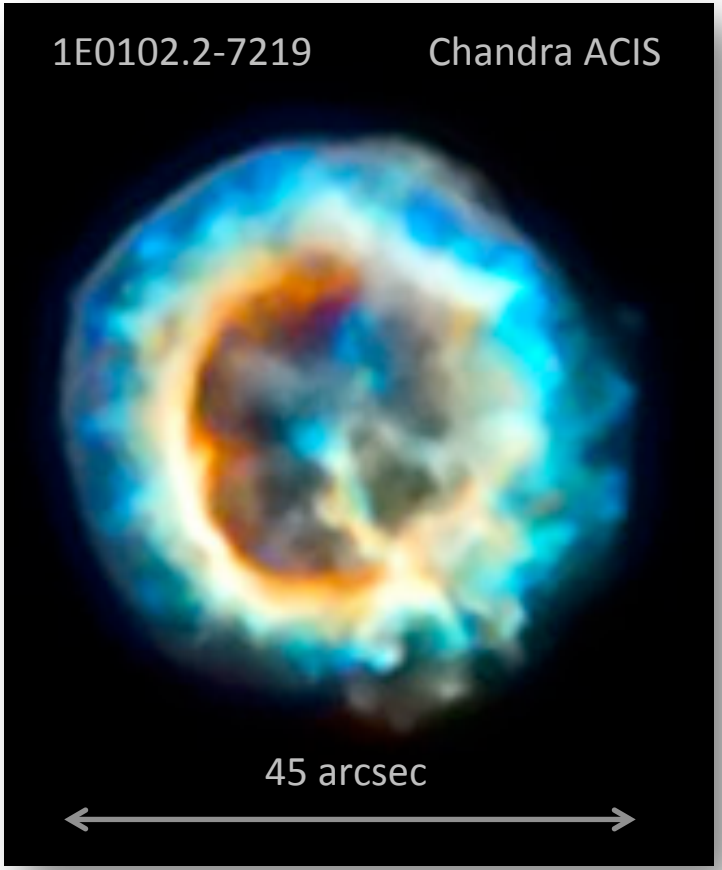
1E0102
XMM/EPIC-pn

residuals resulting from IACHEC model spectrum and RMFs/ARFs obtained with

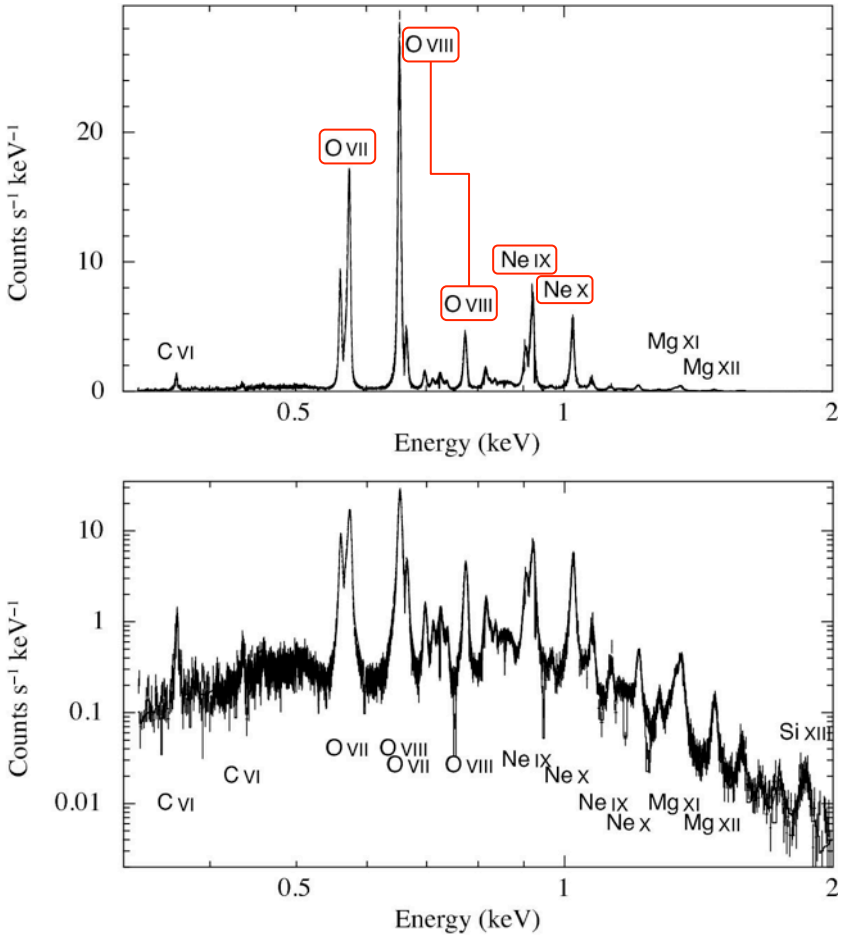
rmfgen-2.8.7
arfgen-1.104

and

alternative approach

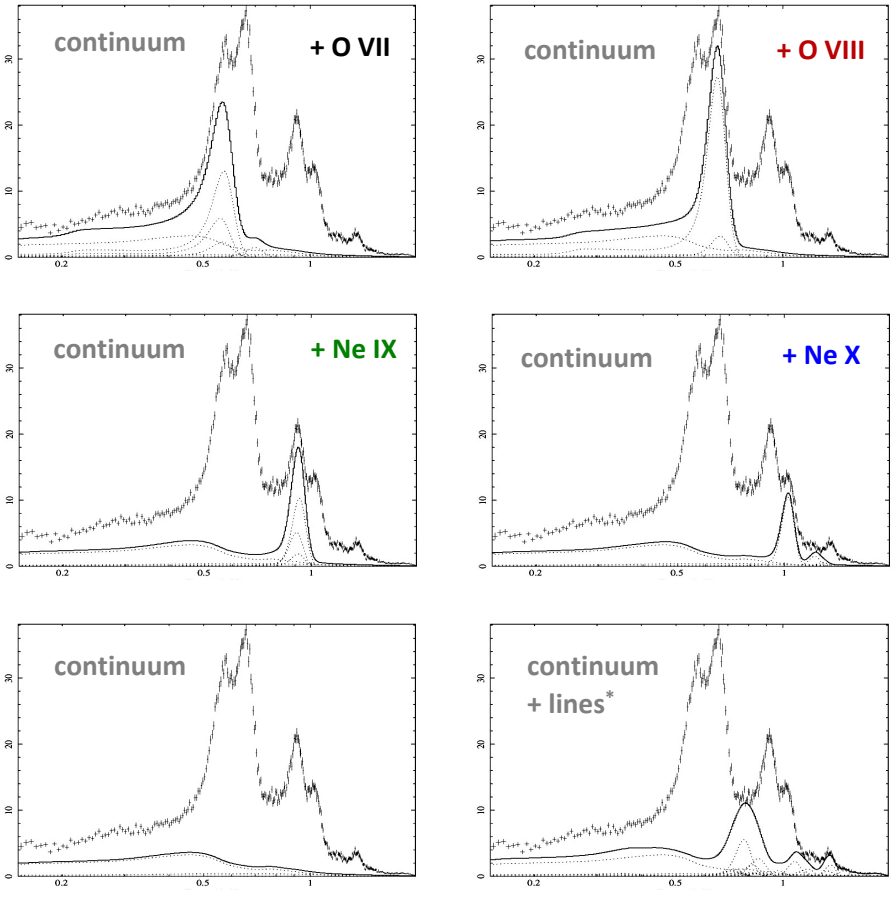


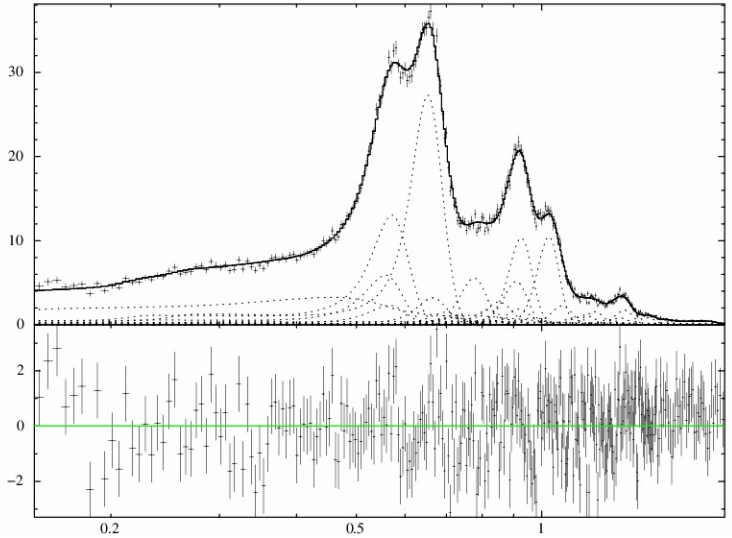
1E 0102.2-7219 **XMM-Newton RGS**



1E 0102: IACHEC model & XMM / EPIC-pn

with alternative RMF/ARFß

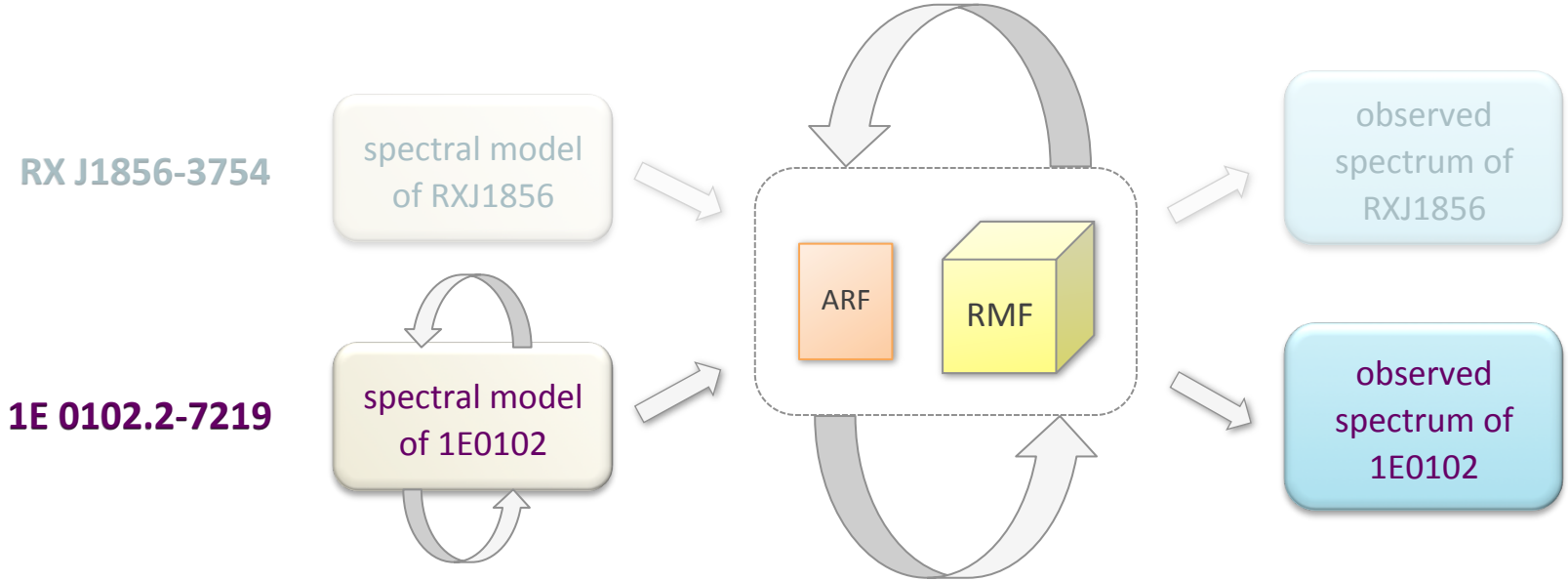




*lines“: C VI + Fe XVII + Fe XVIII + Fe XX + Fe XXIV + Mg XI + Mg XII + ..

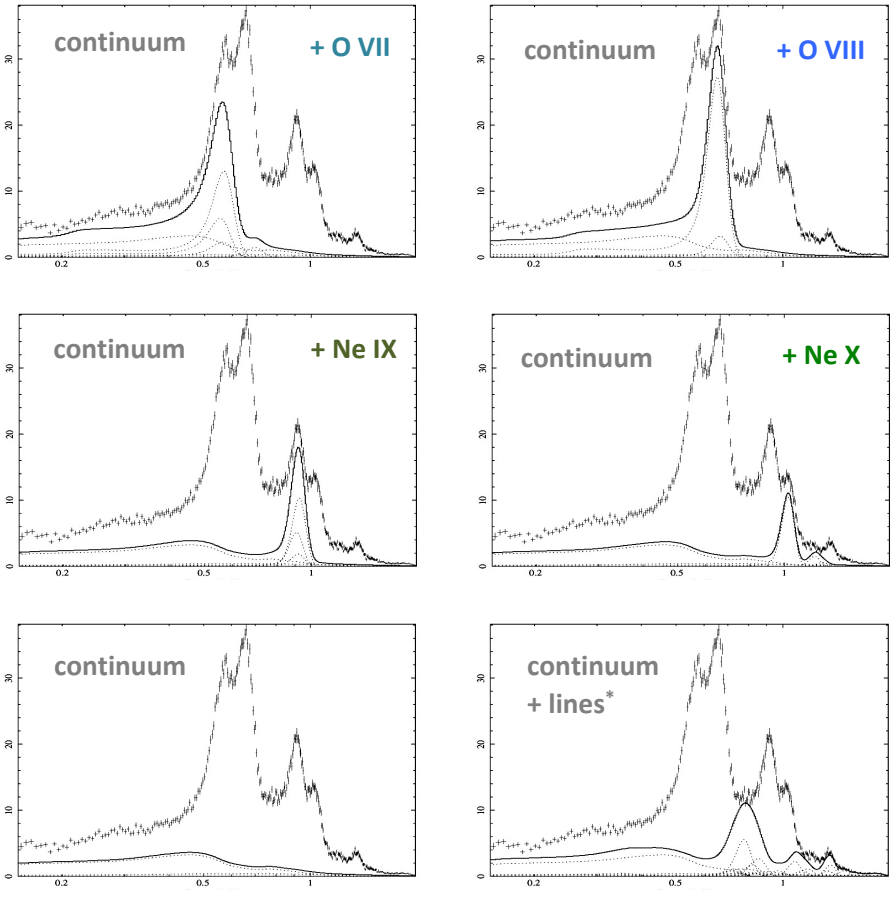
Improving the ARF and RMF

ARF: „Ancillary Response File“, RMF: „Redistribution Matrix File“



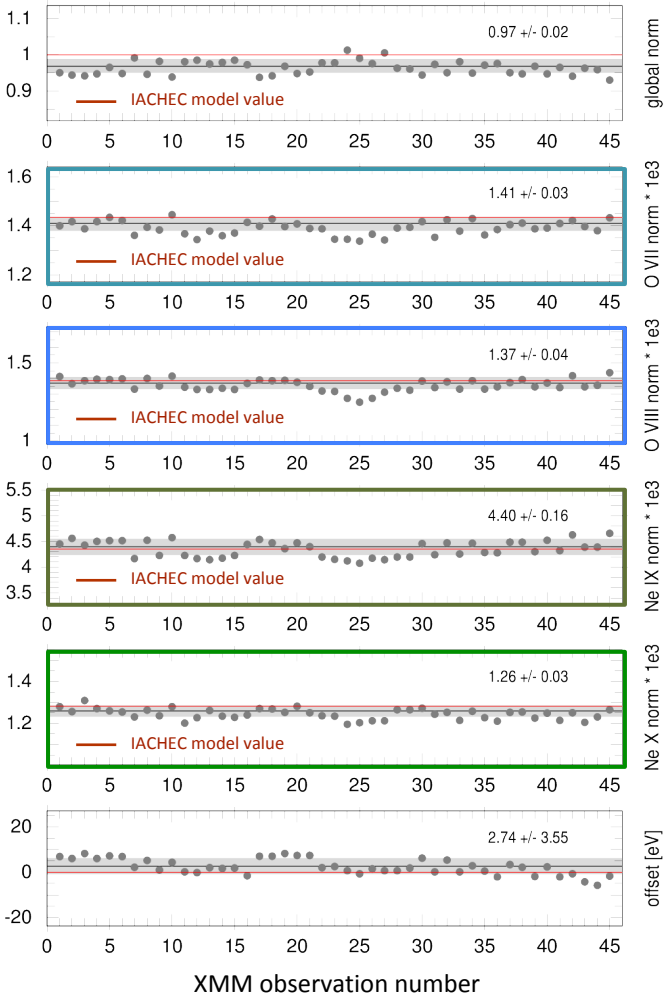
IACHEC model with 5 free normalizations:

global, O VII, O VIII, Ne IX, Ne X

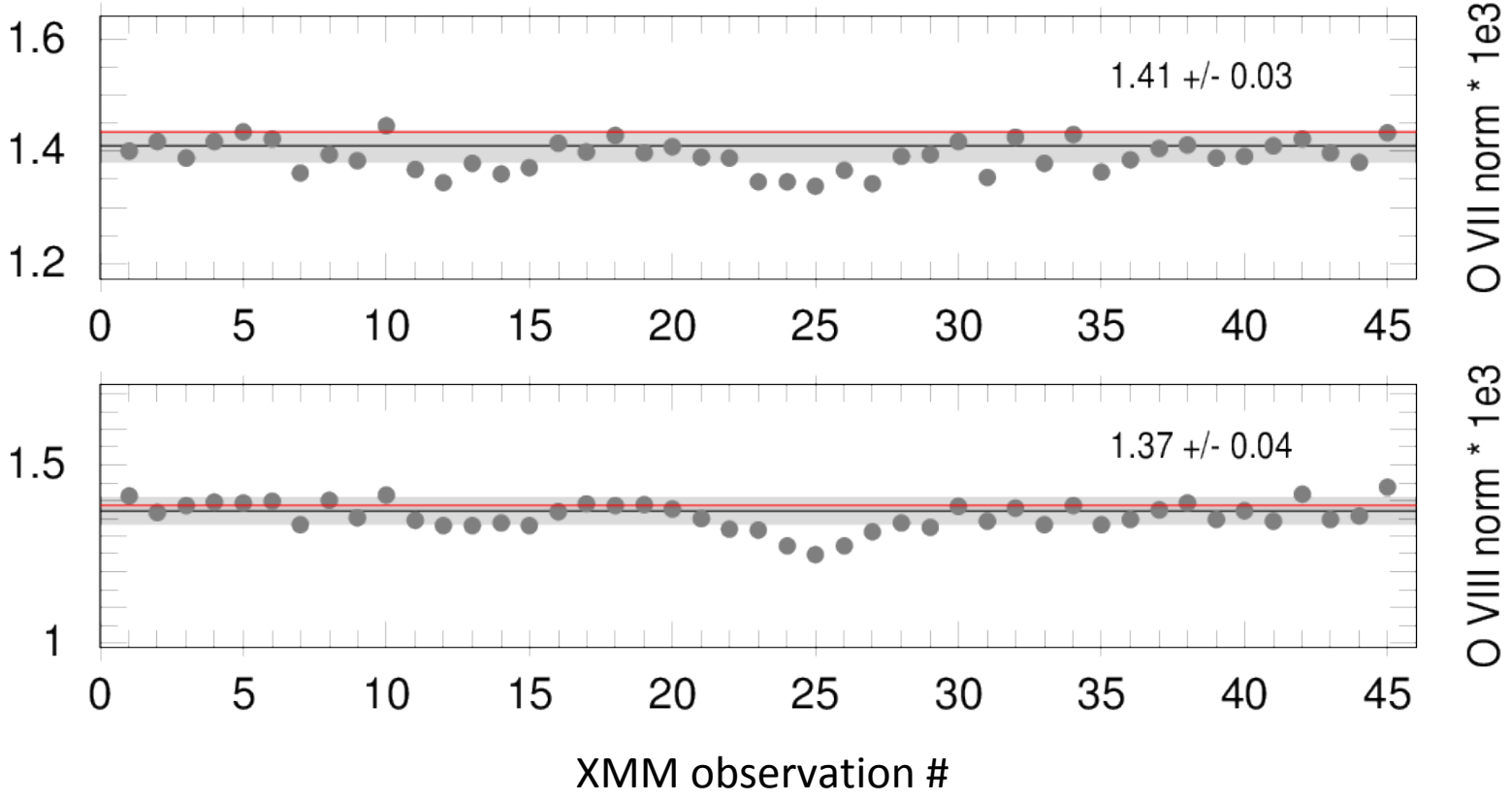


*lines“: C VI + Fe XVII + Fe XVIII + Fe XX + Fe XXIV + Mg XI + Mg XII + ..

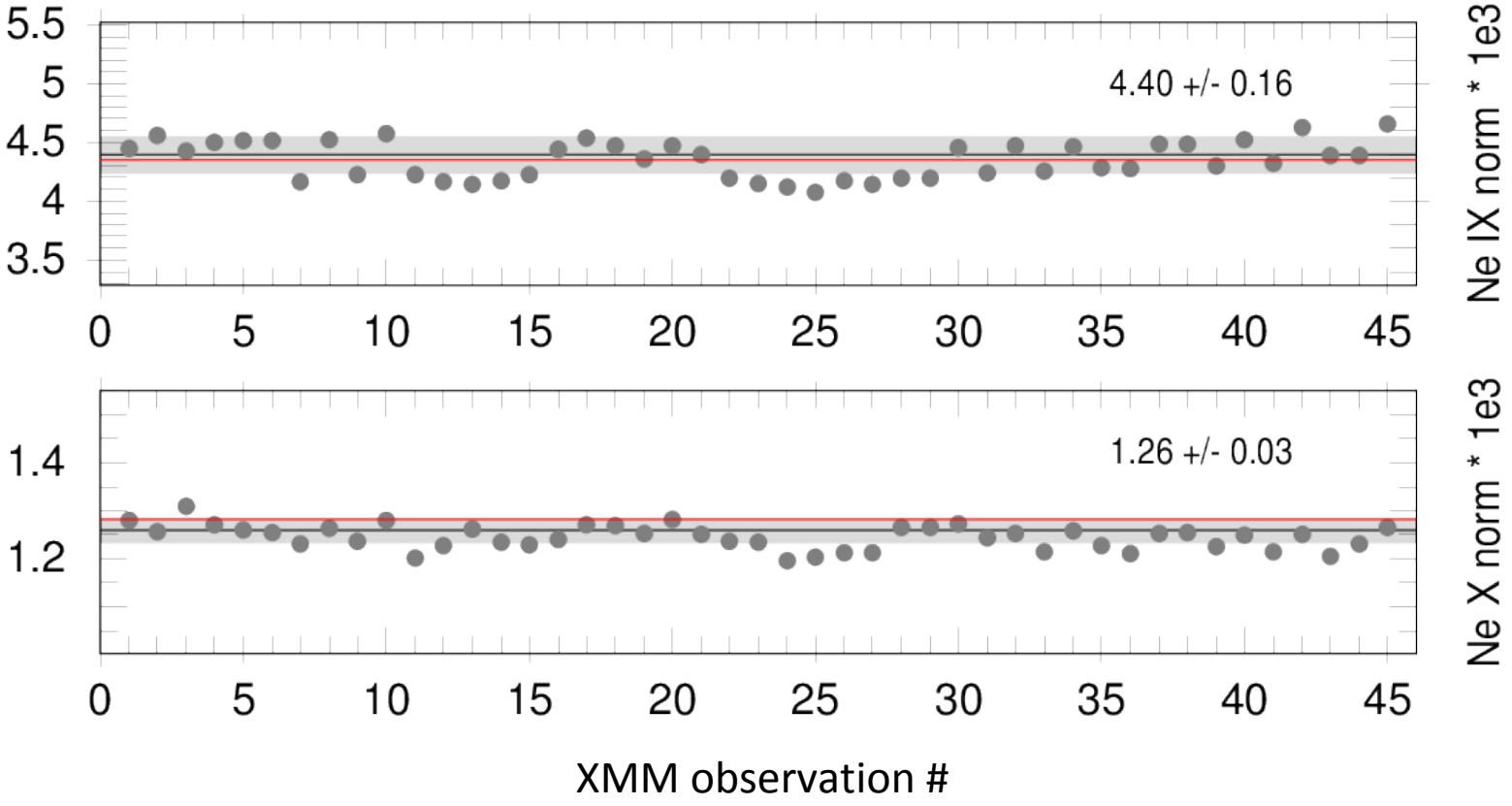
1E 0102: IACHEC model: XMM / EPIC-pn



1E 0102: IACHEC model → XMM / EPIC-pn



1E 0102: IACHEC model & XMM / EPIC-pn



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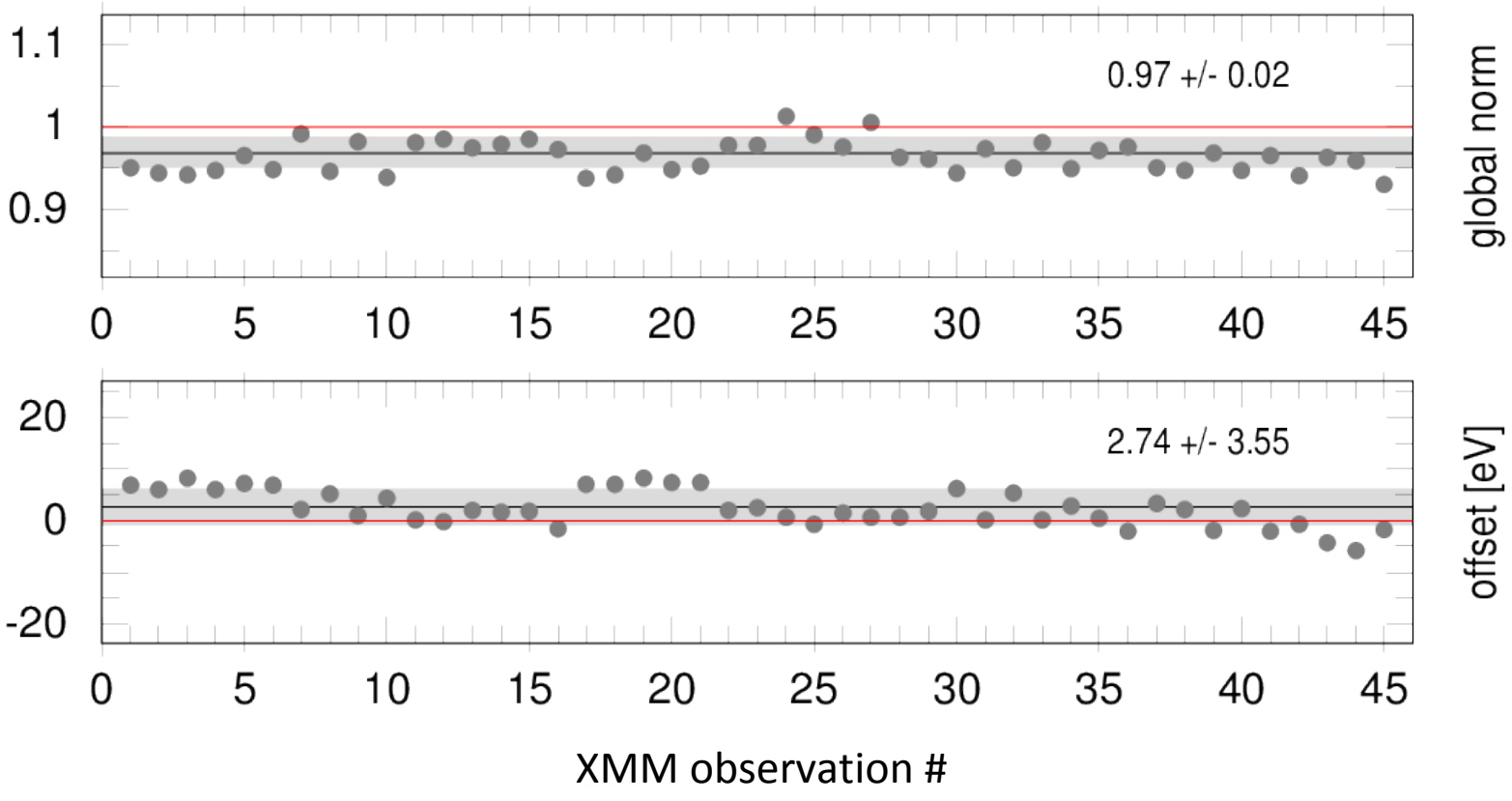
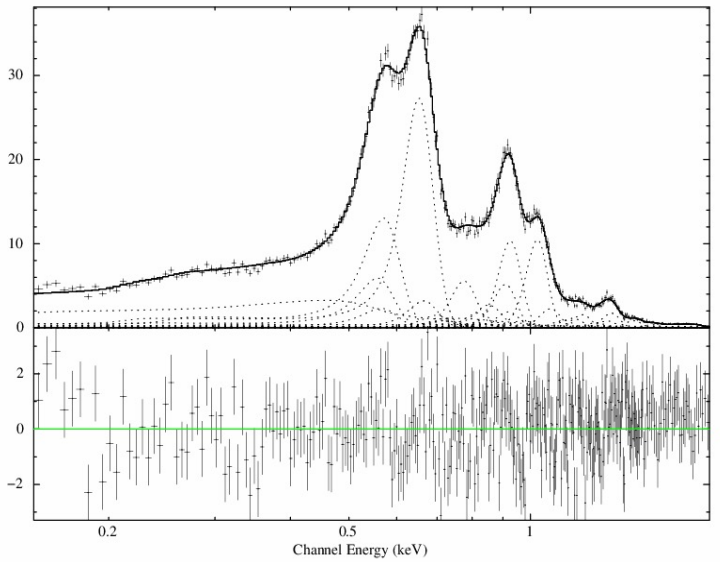
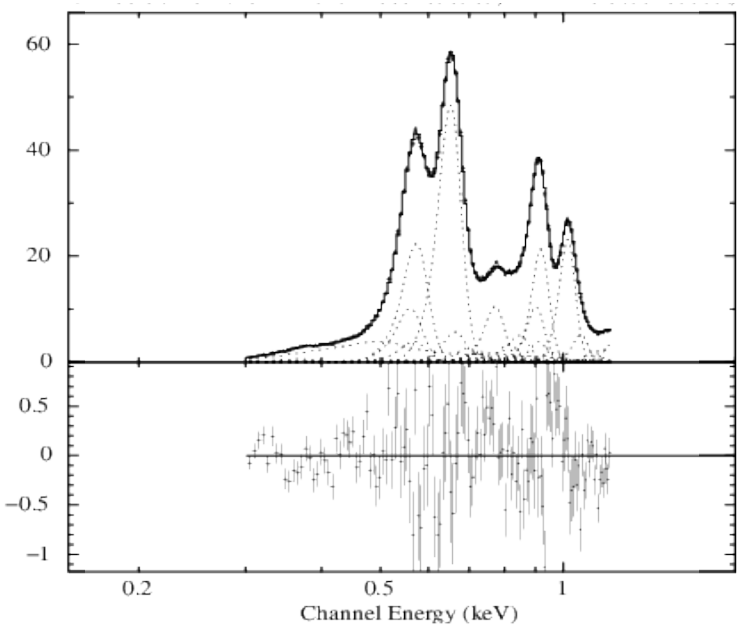


1E 0102: XMM/EPIC-pn and SRG/eROSITA spectra



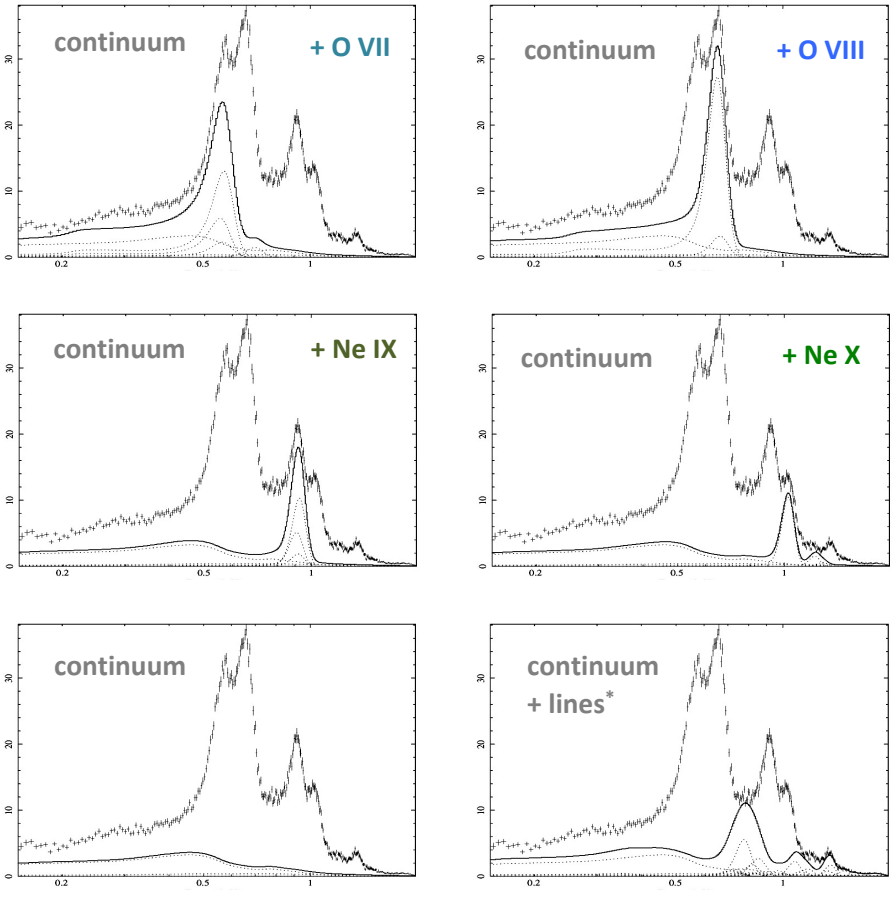
XMM/EPIC-pn

SW, singles



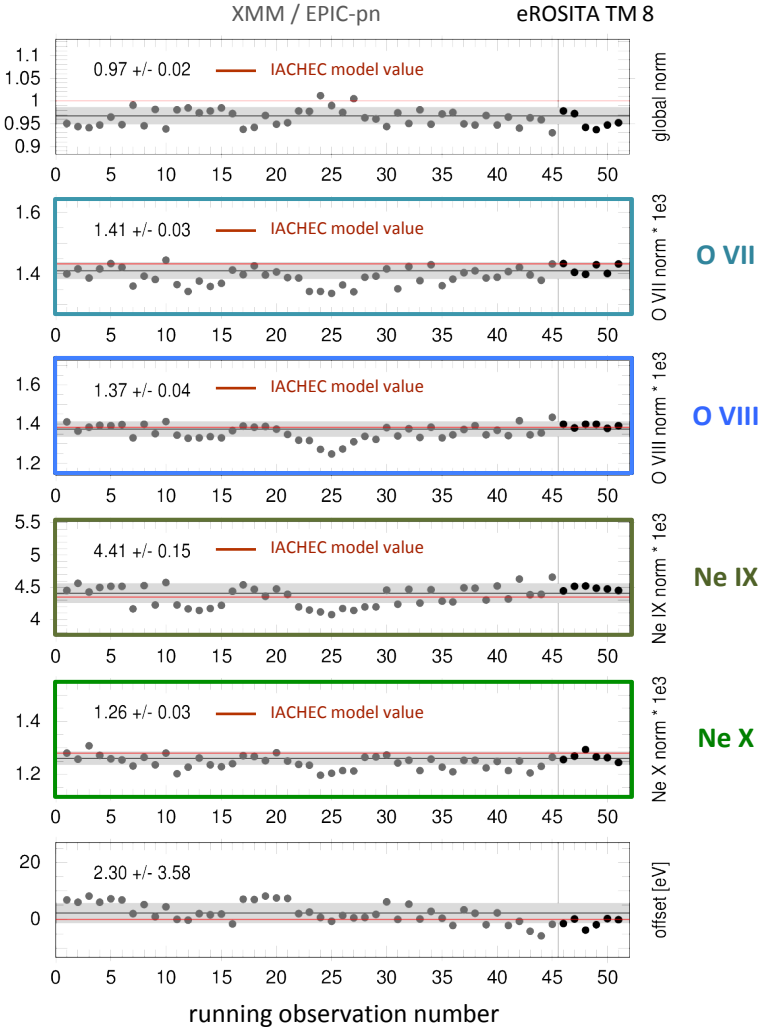
SRG/eROSITA

TM8, sdtq

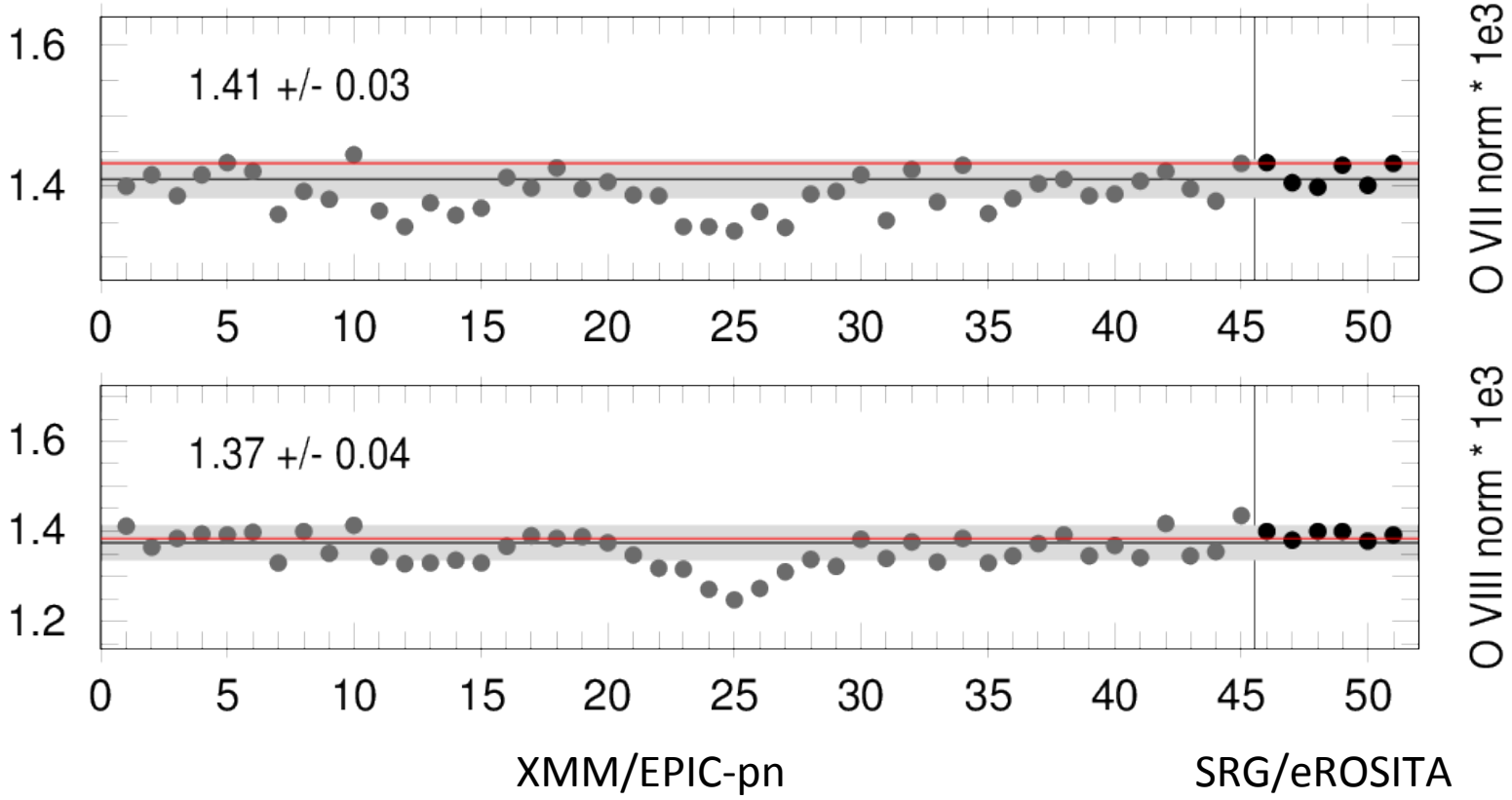


*lines“: C VI + Fe XVII + Fe XVIII + Fe XX + Fe XXIV + Mg XI + Mg XII + ..

1E 0102: IACHEC model: EPIC-pn & eROSITA TM 8



1E 0102: IACHEC model → XMM/EPIC-pn & SRG/eROSITA



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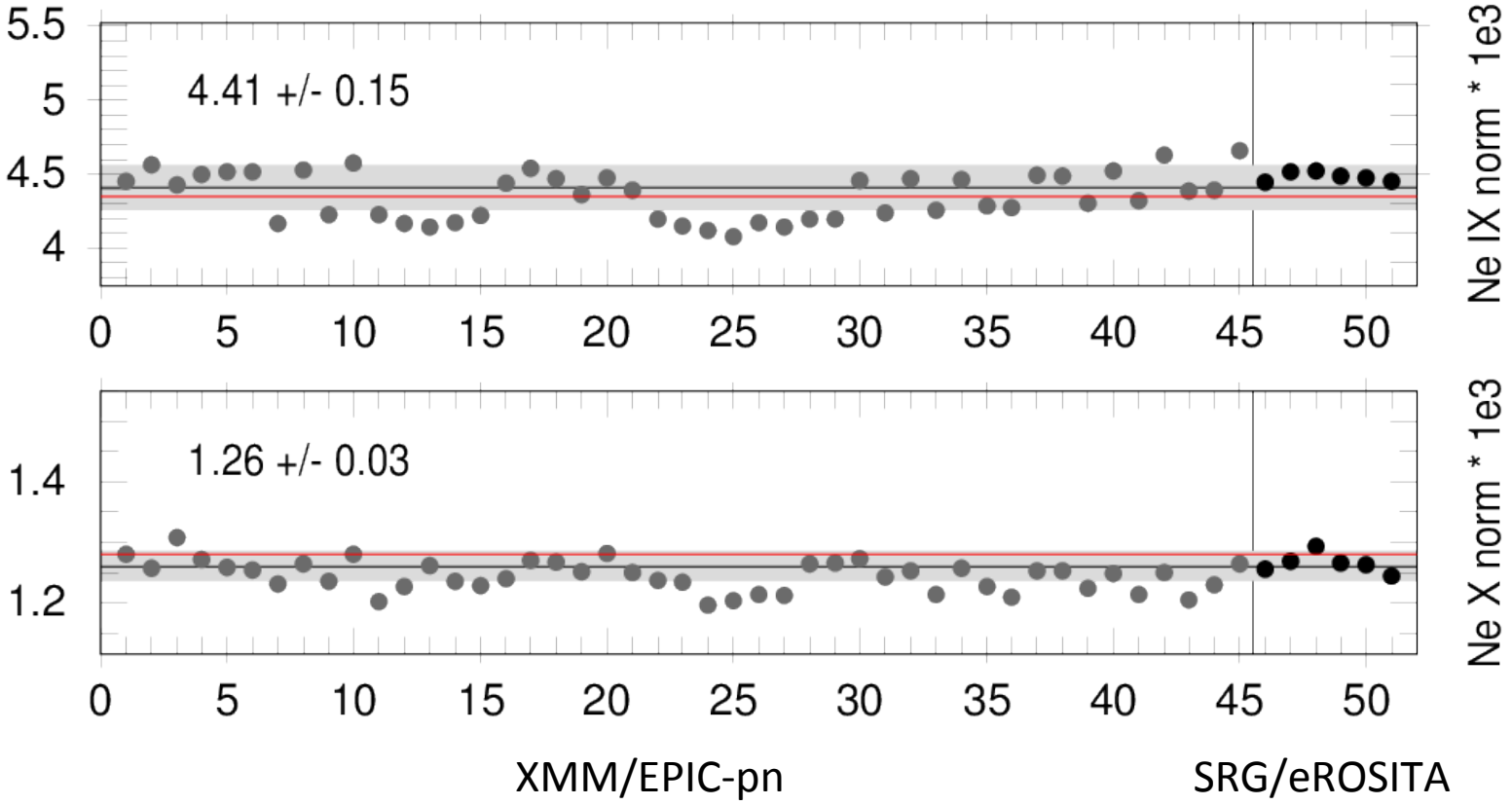

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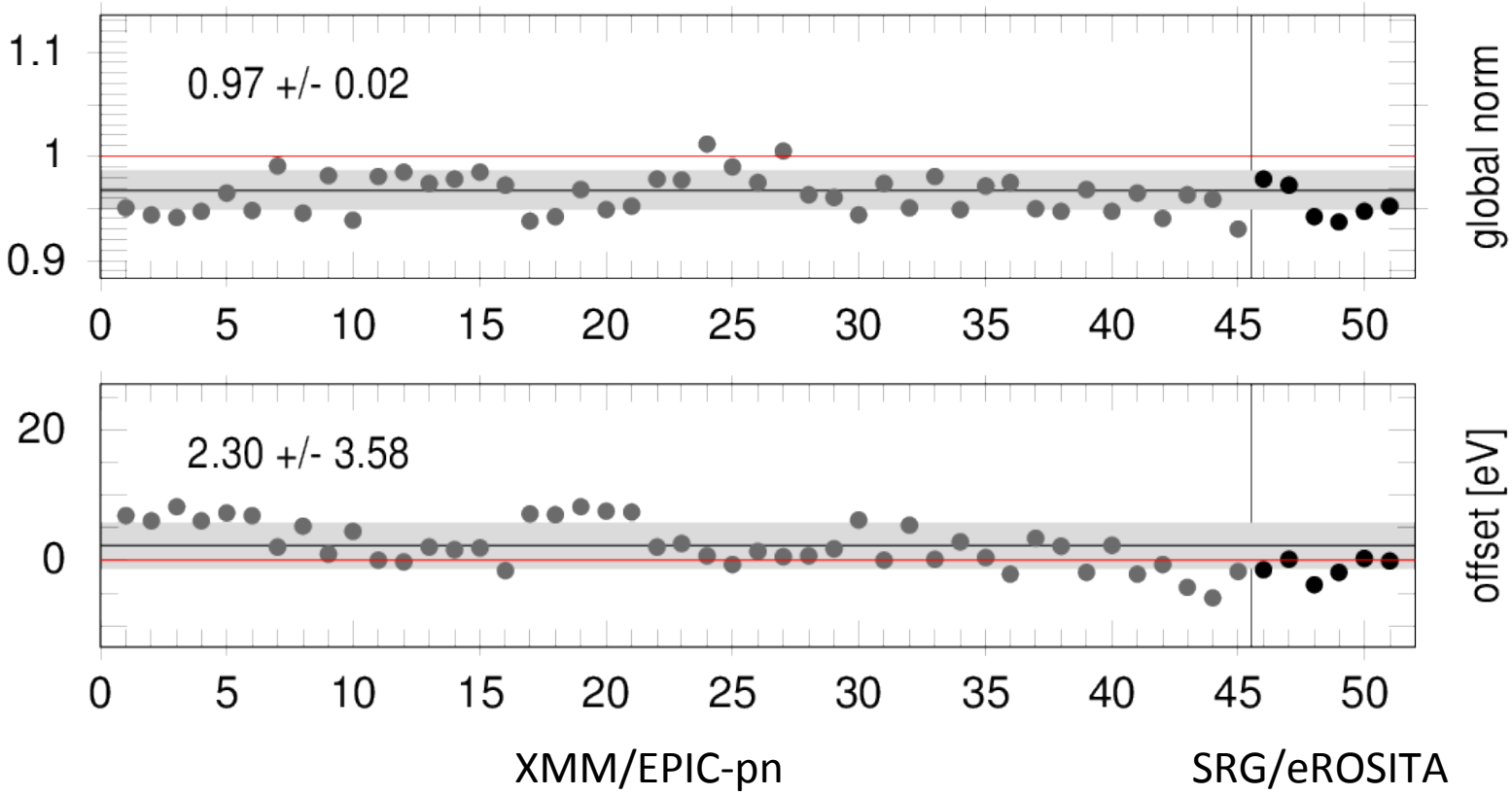

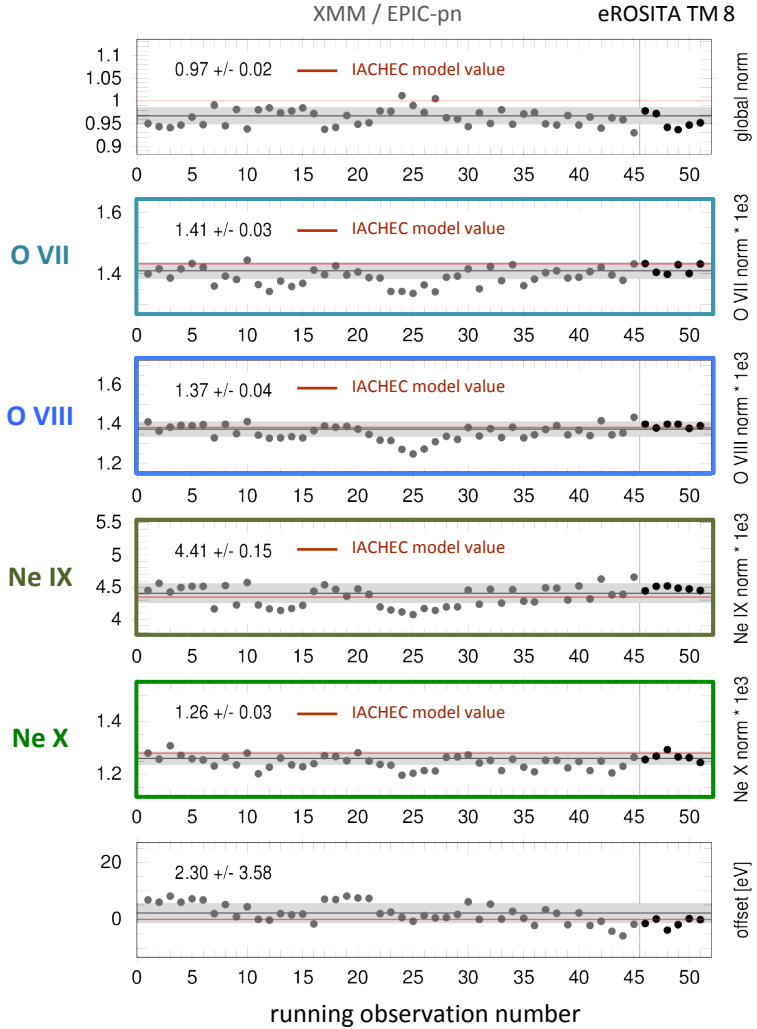

global norm: systematically smaller by ≈ 3% than IACHEC value

mean values consistent with IACHEC values

mean accuracy of absolute energy scale: ≈ ± 4 eV

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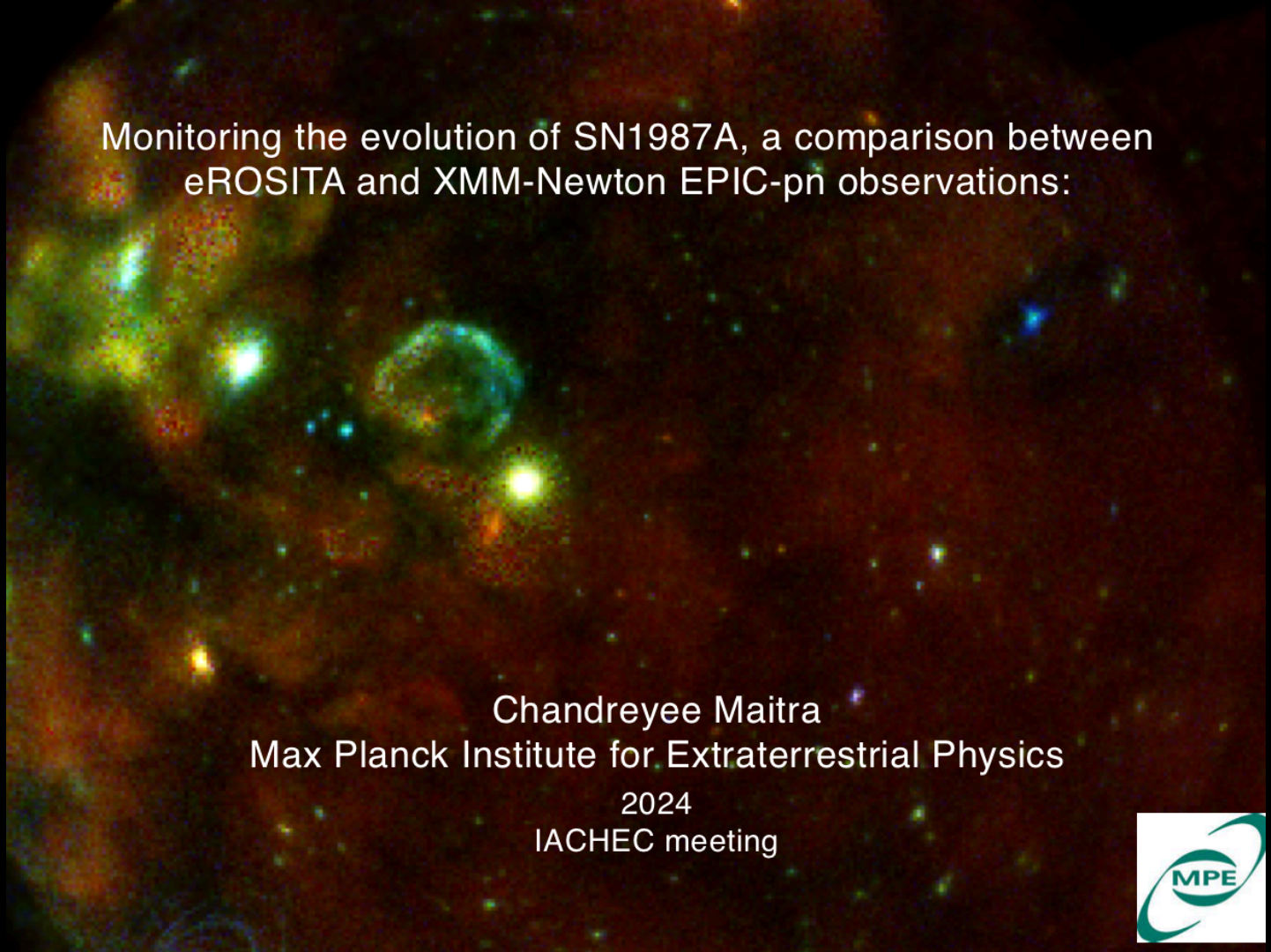
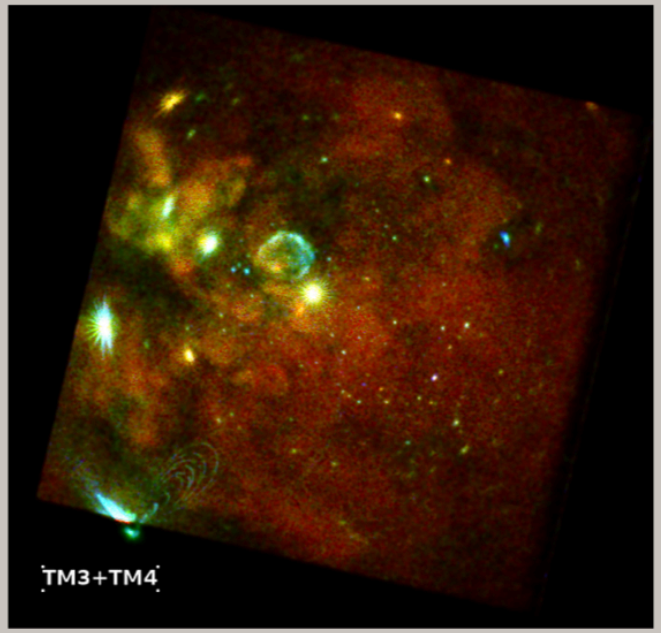


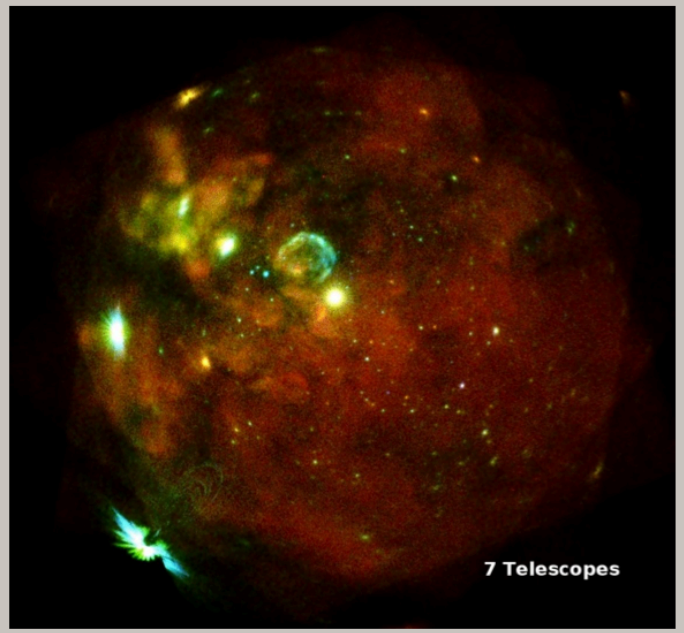
Monitoring the evolution of SN1987A, a comparison between eROSITA and XMM-Newton EPIC-pn observations:

Chandreyee Maitra
Max Planck Institute for Extraterrestrial Physics

2024
IACHEC meeting

eROSITA observations of SN 1987A



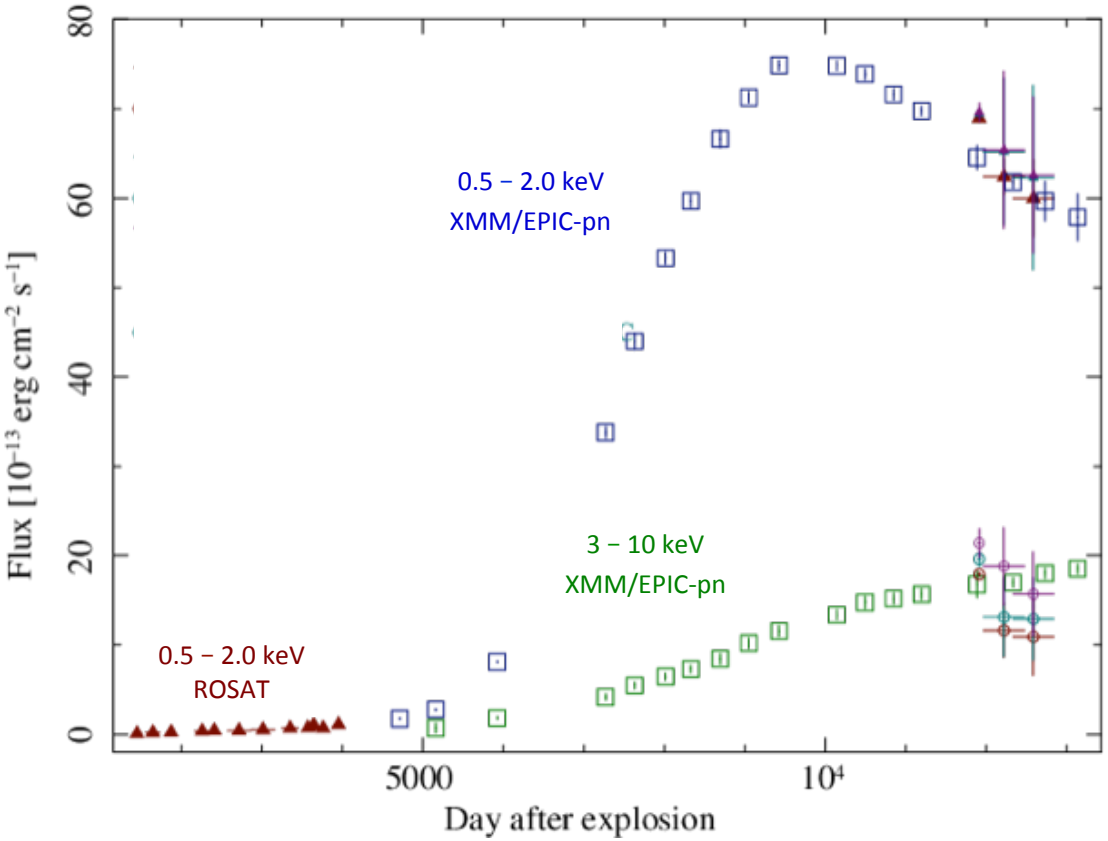


2019-09-15 Commissioning phase observation ~100 ks Quasi-simultaneously with XMM-Newton

2019-10-18 First light observation ~70 ks

Also eROSITA survey data available in 2020 and 2021

Monitoring SN 1987A with XMM and eROSITA



0.5 – 2.0 keV
SRG/eROSITA

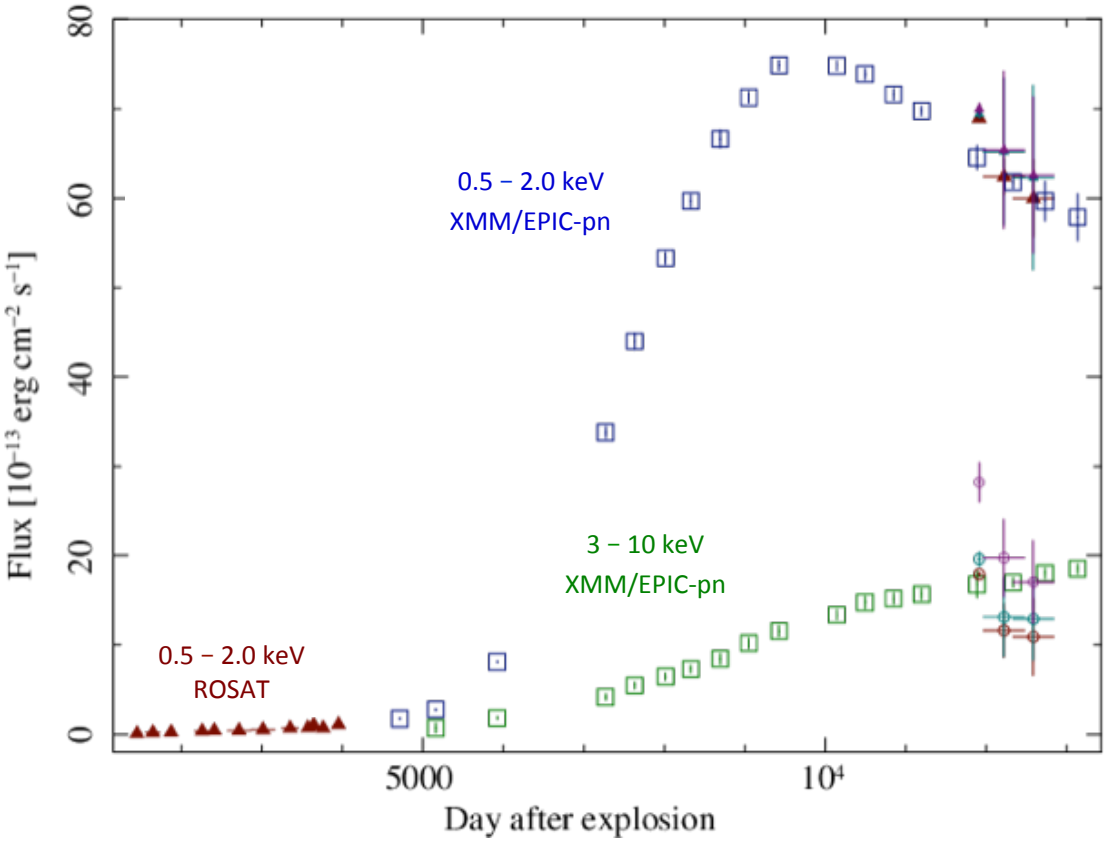
3 – 10 keV
SRG/eROSITA

c020 processing

c030 processing

c030, using
- new RMF
- new ARF with unmodified HE sensitivity

Monitoring SN 1987A with XMM and eROSITA



0.5 – 2.0 keV
SRG/eROSITA

3 – 10 keV
SRG/eROSITA

c020 processing

c030 processing

c030, using
- new RMF
- new ARF with reduced HE sensitivity

Comparing the flux evolution of SN 1987A

- eROSITA CALPV & survey data (eRASS1-2 & eRASS3-4) compared before and after improved thresholds for pattern recognition & energy calibration (K. Dennerl, c030)
- Fluxes increase by 4-10% for valid patterns after applying improved thresholds & energy calibration
- Fluxes increase further by 9-12 % in 3-10 keV after applying new response (without HE correction), & is consistent with XMM fluxes within errors
- Fluxes increase further by ~40 % in 3-10 keV after applying new response (with HE correction, large errors dominate) -> not compatible?