



IACHEC Thermal SNRs **Working Group Report**

Wednesday May 13th

9:00 JST = 00:00 UT = 2:00 CEST = 20:00 Monday EDT



N132D:

- Paul: XMM model for Fe-K region Foster et al. 2025, arXiv:2504.19964
- Hiromasa: compare IACHEC model to XRISM data
- Paul: XRISM paper, XRISM Collaboration et al. 2024, PASJ, 76, 6, 1186, Fe-K complex is broader than the Si & S and the redshifts are different
- Paul: XRISM detects charge exchange in N132D, Gu, L., et al. 2025, arXiv:2504.03223

Cas A:

- Paul: XRISM, Fe-K velocities and broadenings, Bamba et al. 2025, arXiv:2504.03268
- Paul: XRISM, Si & S H-like and He-like have different redshifts, Suzuki et al. 2025, arXiv:2503.23640
- Paul: XRISM, Si & S velocities and broadenings, Vink et al. 2025, arXiv:2505.04691
- Paul: XRISM standard spectral models for two regions

E0102:

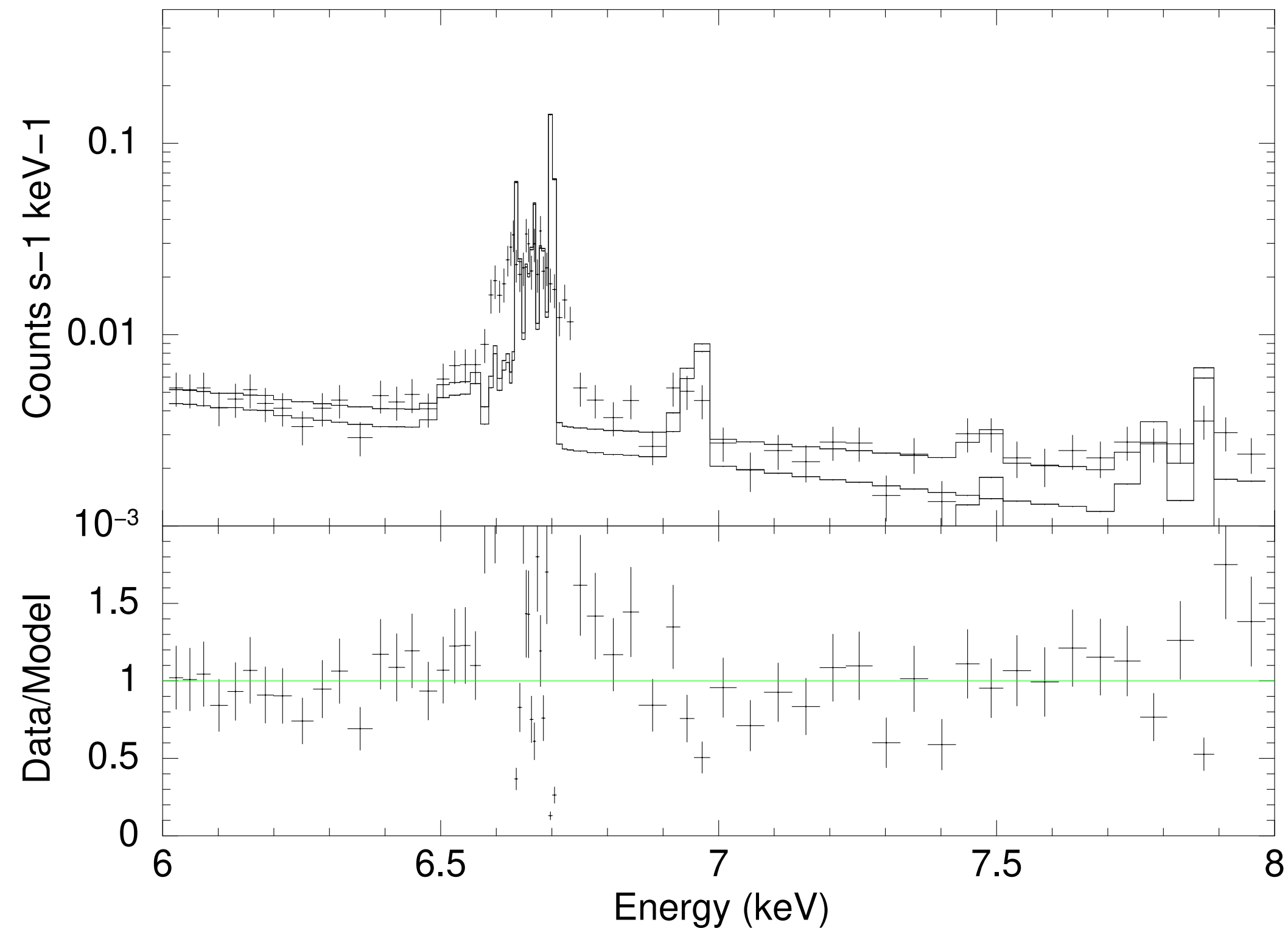
- Mayu: XRISM Xtend observations of E0102 to monitor contamination
- Hiromasa: XRISM Resolve spectra of E0102



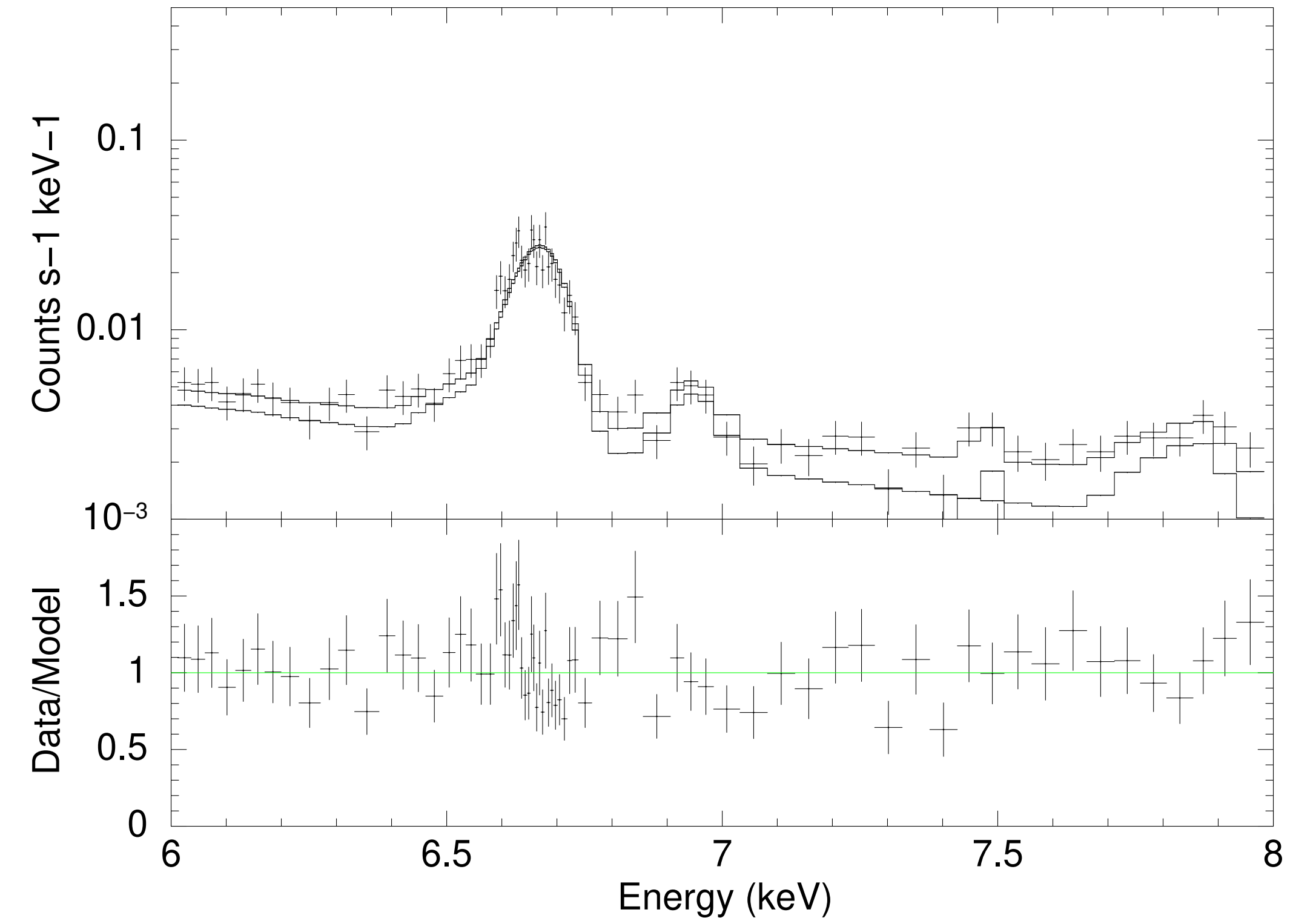
- Hiromasa Suzuki compared the 2021 version of the IACHEC model to the XRISM data ==> ***Broadening is necessary***
- IACHEC model will be updated based on XRISM results (XRISM Collaboration et al. 2024, PASJ, 76, 6 and arXiv:2504.03223) XMM results in Foster et al. 2025, arXiv:2504.19964

Suzuki, H. (U. of Miyazaki)

Resolve Spectrum with no broadening in IACHEC model

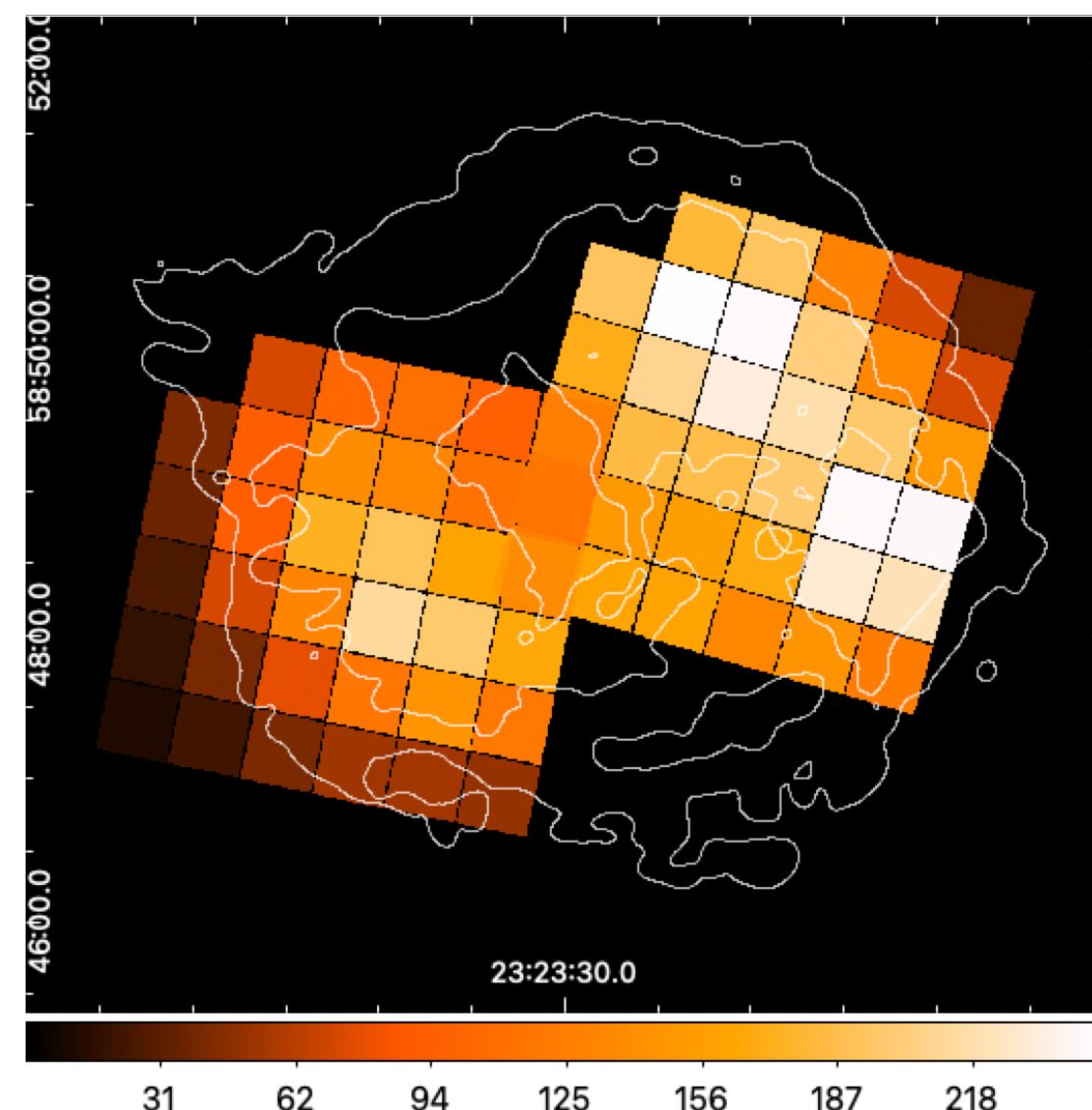
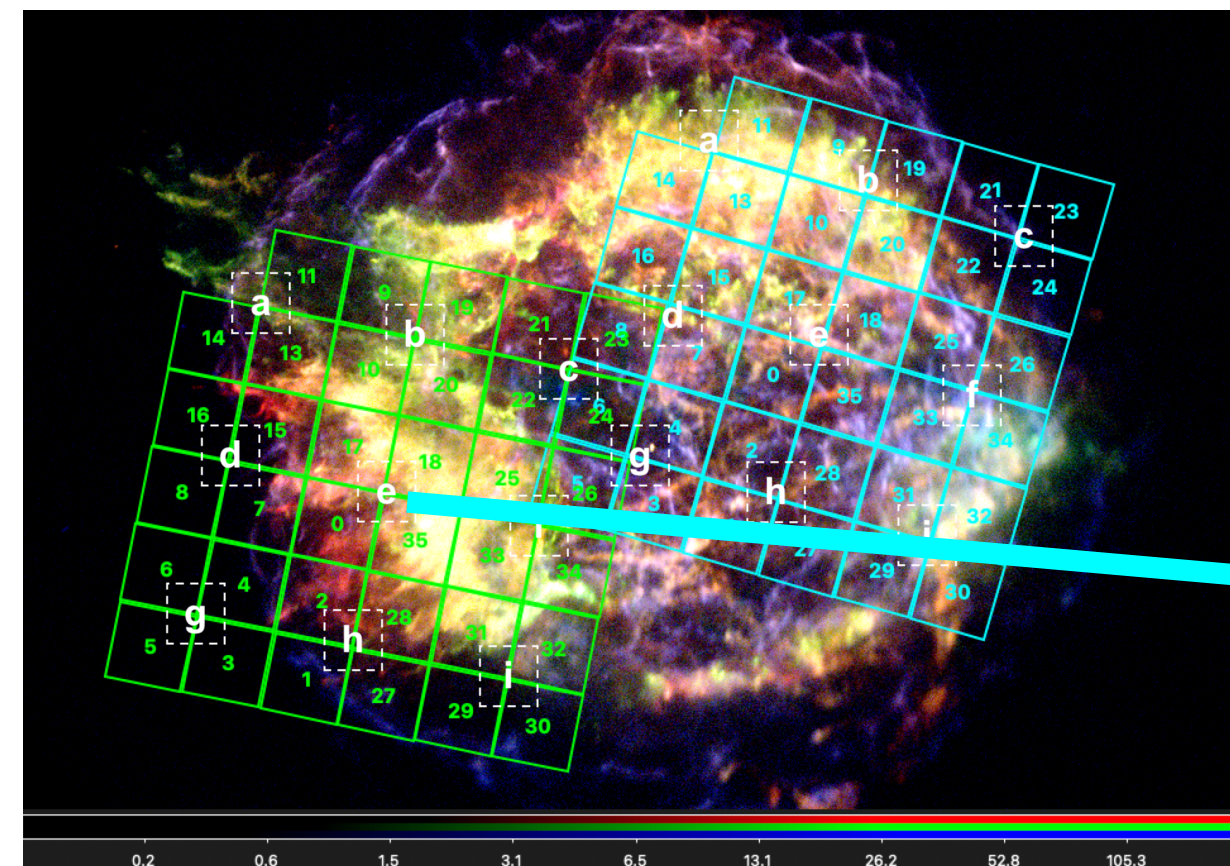


Resolve Spectrum with broadening in IACHEC model



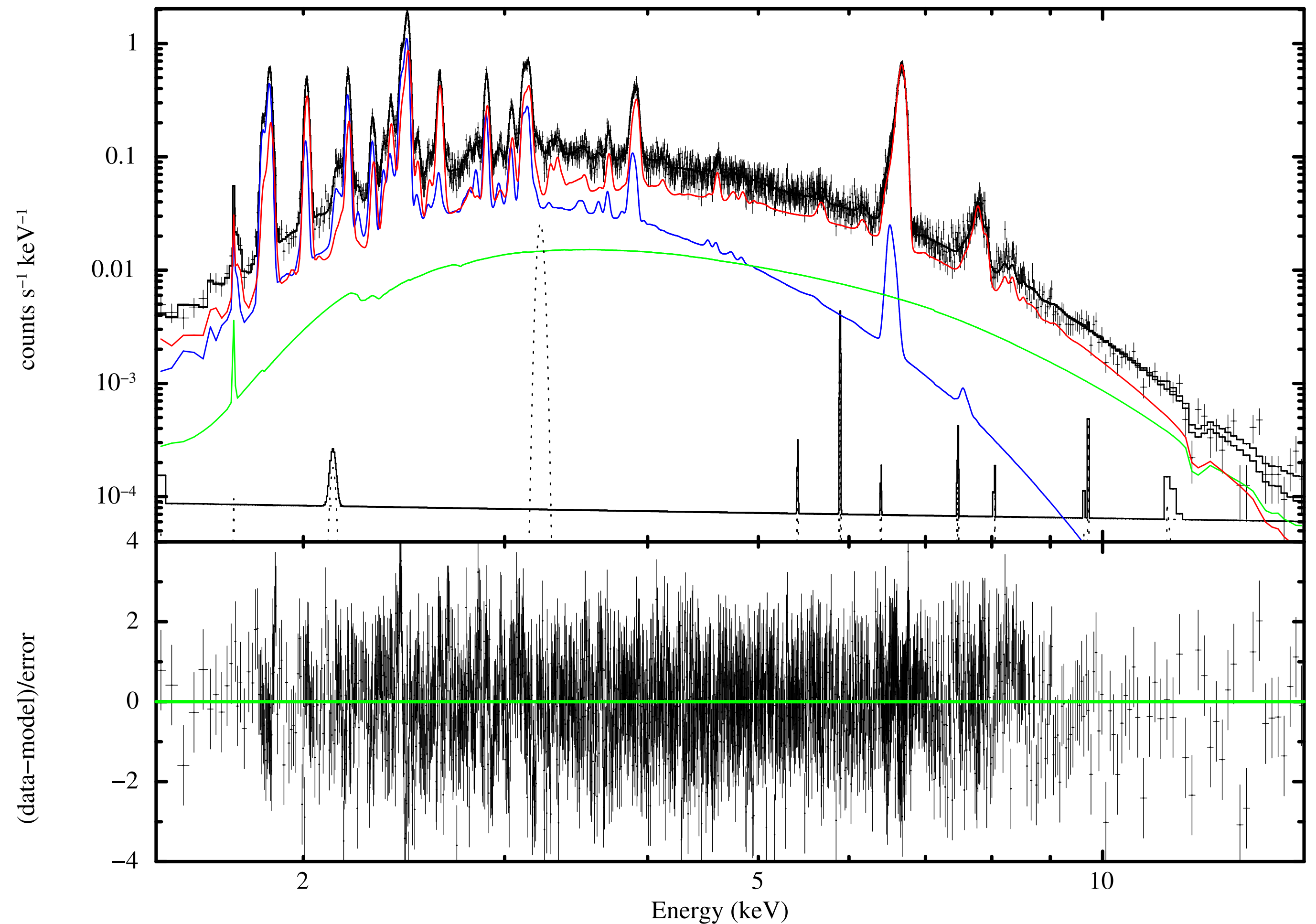


- Three XRISM papers on Cas A (arXiv:2504.03268, arXiv:2503.23640, arXiv:2505.04691), two more under review
- Velocity shifts and broadening are necessary. We have a semi-empirical model that fits the 1.5-10.0 keV band
- We will work on making this an IACHEC model



Resolve

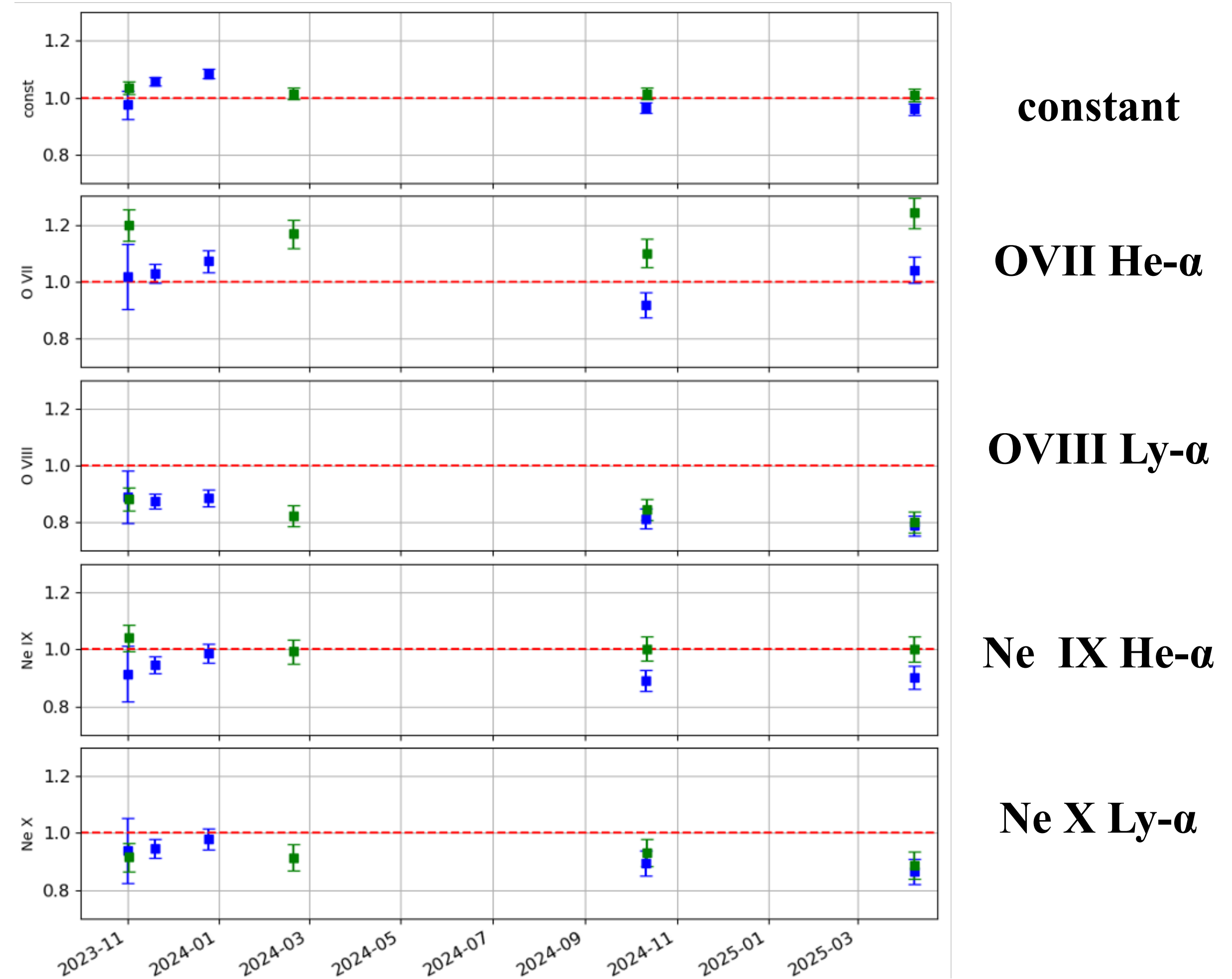
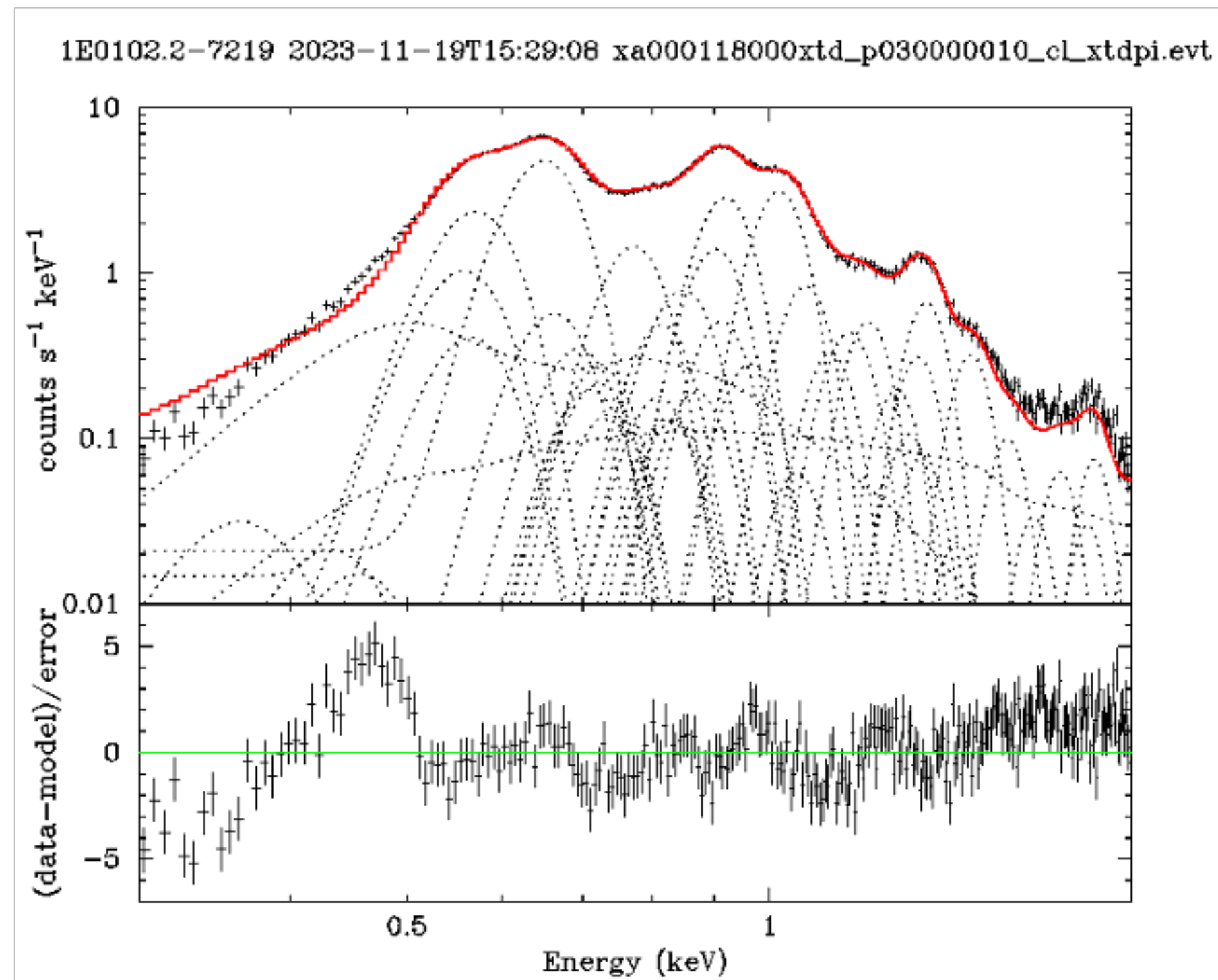
Cas A SE: xa000129000rsl_Hp_2x2pixe-rbopt, CStat=3821.5, DOF=3350, Chi=3761.5
bvvrnei+pow+zgauss+bvvpshock, kT1=1.041 keV, kT2=2.848 keV, AtomDB 3.0.9, corarf





- The Xtend team is using the IACHEC model for E0102 (Plucinsky et al. 2017) to verify their response function and monitor for contamination
- *There is no evidence for contamination on Xtend !!!!*

Higuchi, M. (Tokyo University of Science)





MAJOR ANNOUNCEMENT !!!

The Thermal SNRs Working Group has not had a co-chair since it inception.



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*Professor Hiromasa
Suzuki
(University of
Miyazaki)*



*Thank you
Hiromasa !!!!!*