

Detectors/Background WG

- Started in 2010 at Woods Hole
 - Airing of grievances and discussion
 - Topics too esoteric for larger plenary sessions
- Combined with the backgrounds WG in 2014
- Broadened from CCDs to Detectors in 2018
- Presentations about HXMT, ACIS, XMM and NuSTAR

On-ground and in-orbit calibration of Insight-HXMT/LE

Yang Yanji

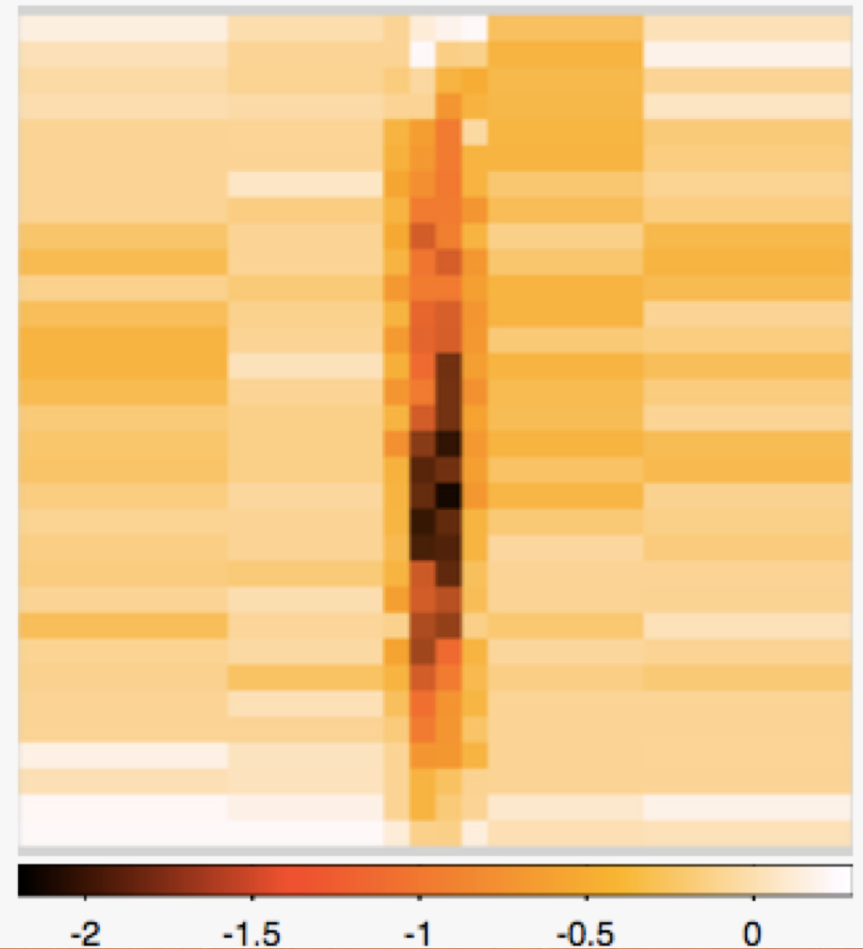
- Swept charge devices
- Substantial ground calibration effort
 - Range of temperatures (-80C to -30C)
 - Multiple observing modes
 - Consistent performance between devices
- Launched last summer! More to come.

Status of updating the Chandra ACIS respose and gain

Terry Gaetz

- Mid-chip gain droop, not currently well calibrated
- Mitigation approach developed, being tested

ACIS-I3, Al-K α (1.486 keV)

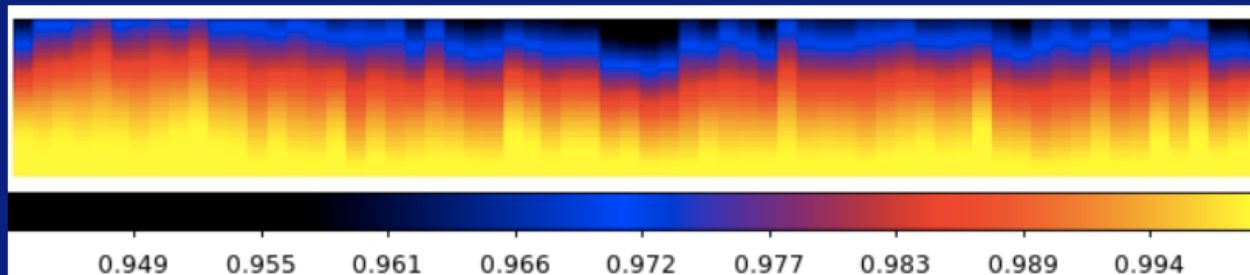


ACIS QEU Calibration Status

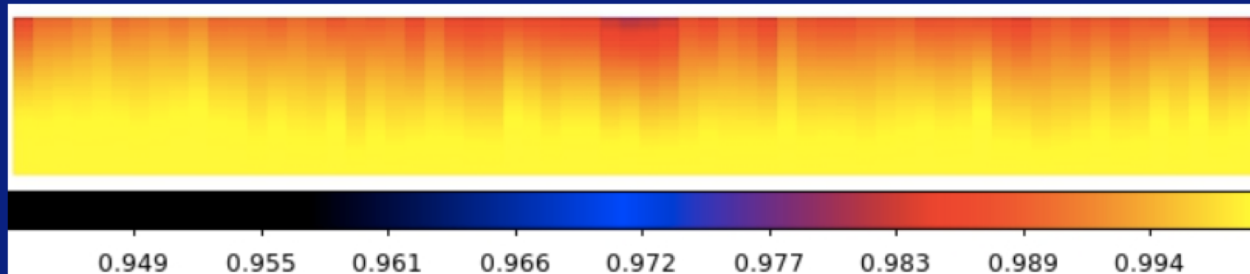
Nick Durham

- QE non-uniformity due to charge trailing and grade migration
- Evolves with time, needs updating

S2 5.62keV



S2 1.47keV

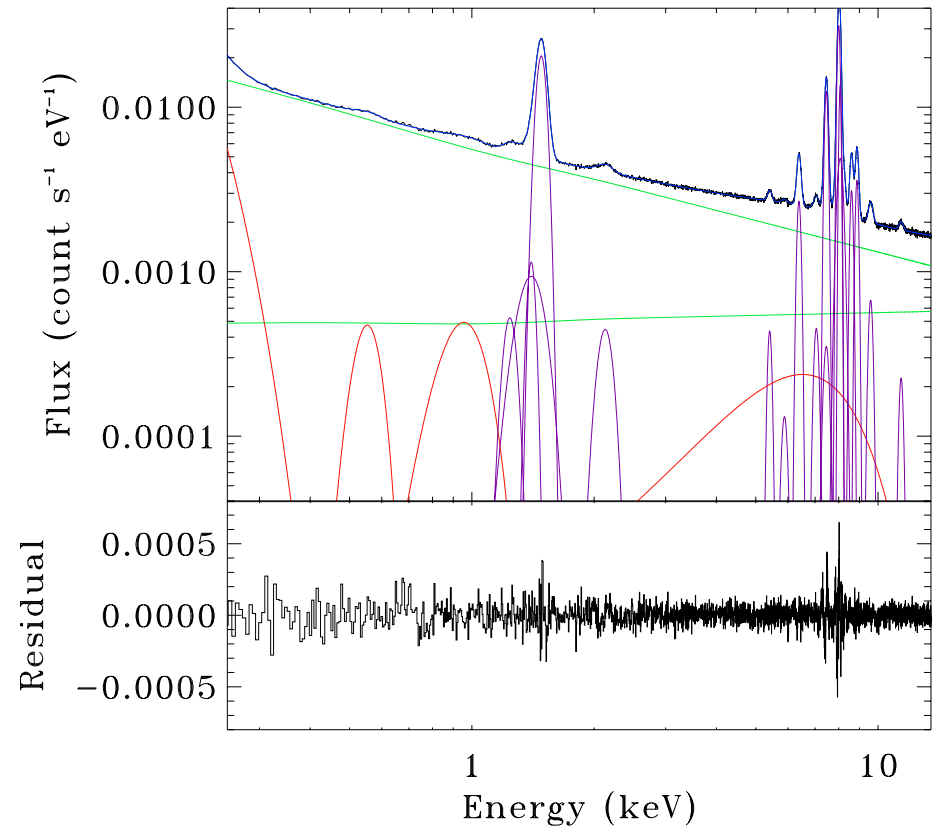
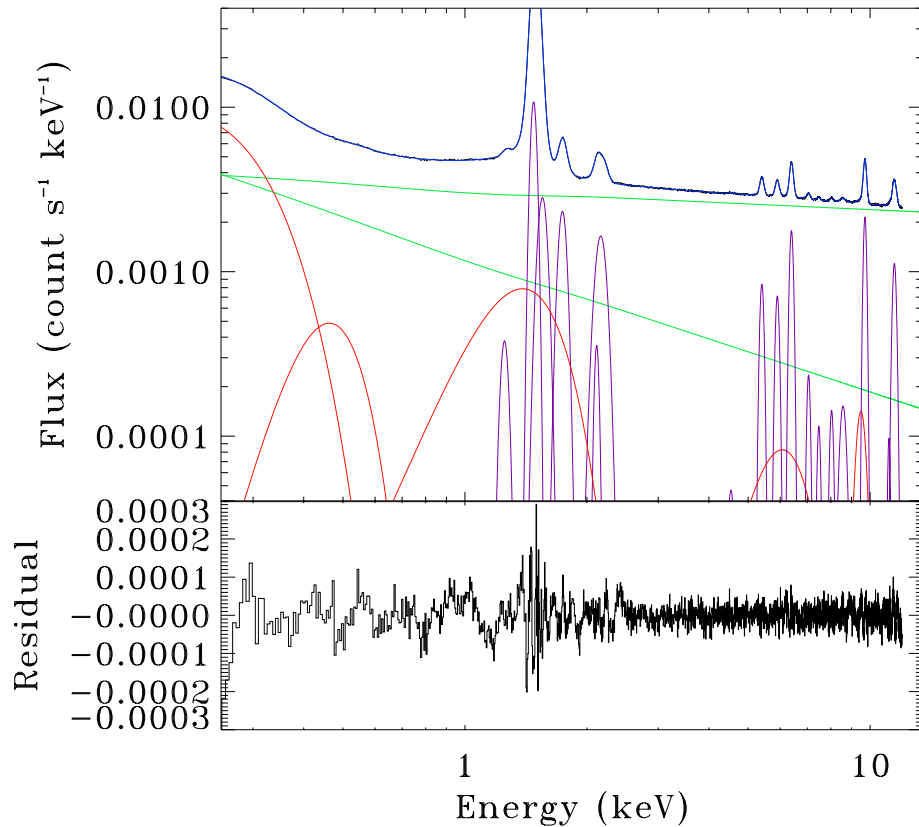


The XMM Quiescent Particle Background

K. D. Kuntz

- Unfocused – study using corners of EPIC-MOS & FWC
- Bulk of the QPB is Galactic Cosmic Rays
 - Anti-correlated with solar cycle
 - Spectrum varies from chip to chip and location on chip
 - Temporal variations of Spectrum?
 - Chandra says no, but low statistics
 - Remaining variation may be due to residual contribution from dayside magnetopause (WIP)

In the Spirit of IACHEC



The background spectra can be fit reasonably well with standard functions → simultaneous object/background fits possible without introducing large systematics!

Long-term gain calibration of the NuSTAR detectors

Brian Grefenstette

- Initial slope and offset values from ground calibration
- In-flight calibration with ^{155}Eu source, deployed in 2012 and 2015
- Monitored with background lines and Kepler
- 0.2% / year drop in slope (2012-2015) then plateau?
- Offset has no time dependence
- Current CALDB reproduces high-energy line energies to 0.1% over all dates (except maybe current year)

Cross-calibrating the XMM EPIC effective areas for a default empirical correction

Cornelia Heinitz

- CORRAREA: Currently non-default option in SAS
- Stacked residual method, referenced to pn
- Improvements/updates in progress
 - Automation, revising selection criteria & screening
 - Adding new observations, updating to new SAS version
 - Issues with pile-up