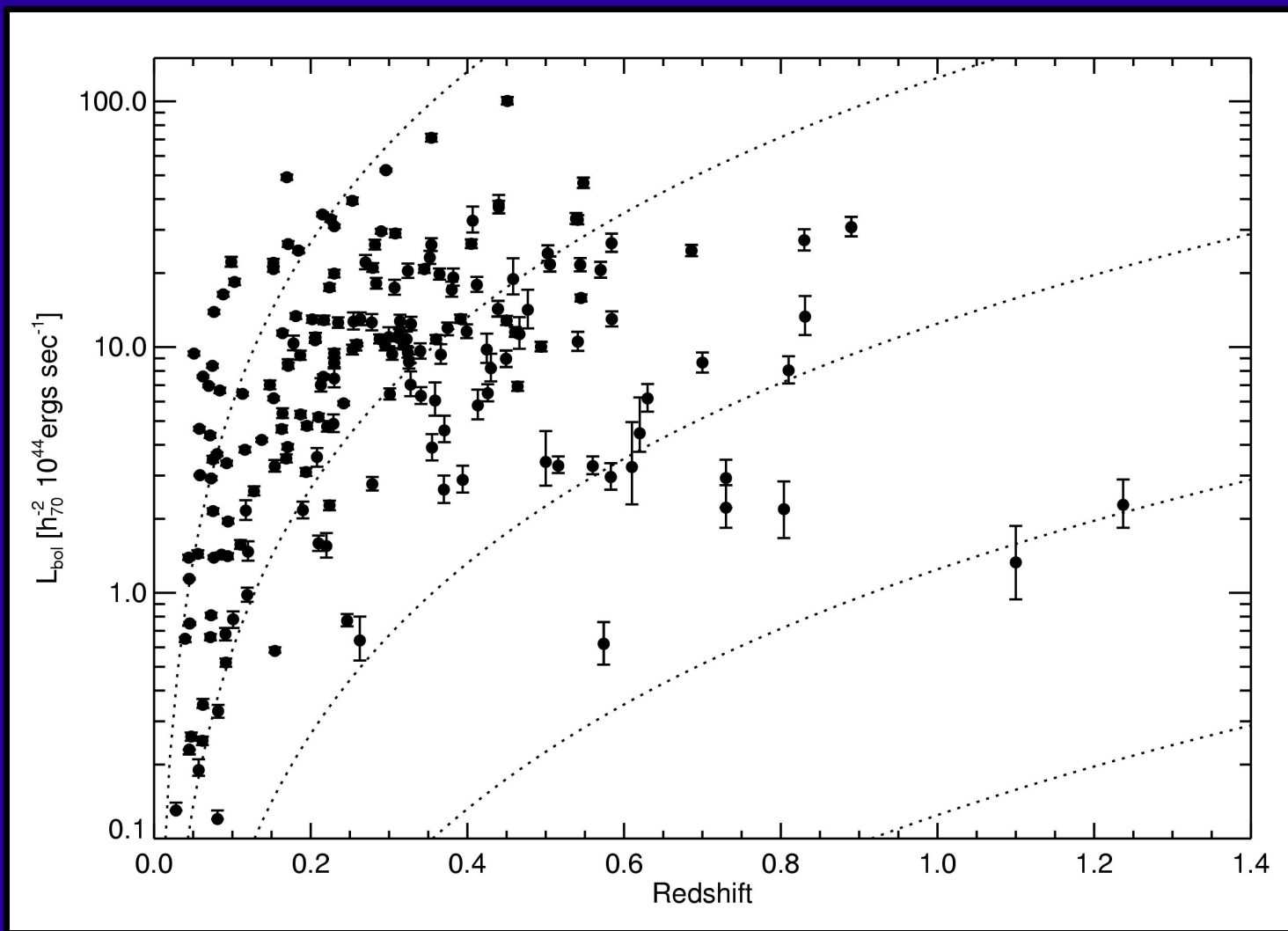


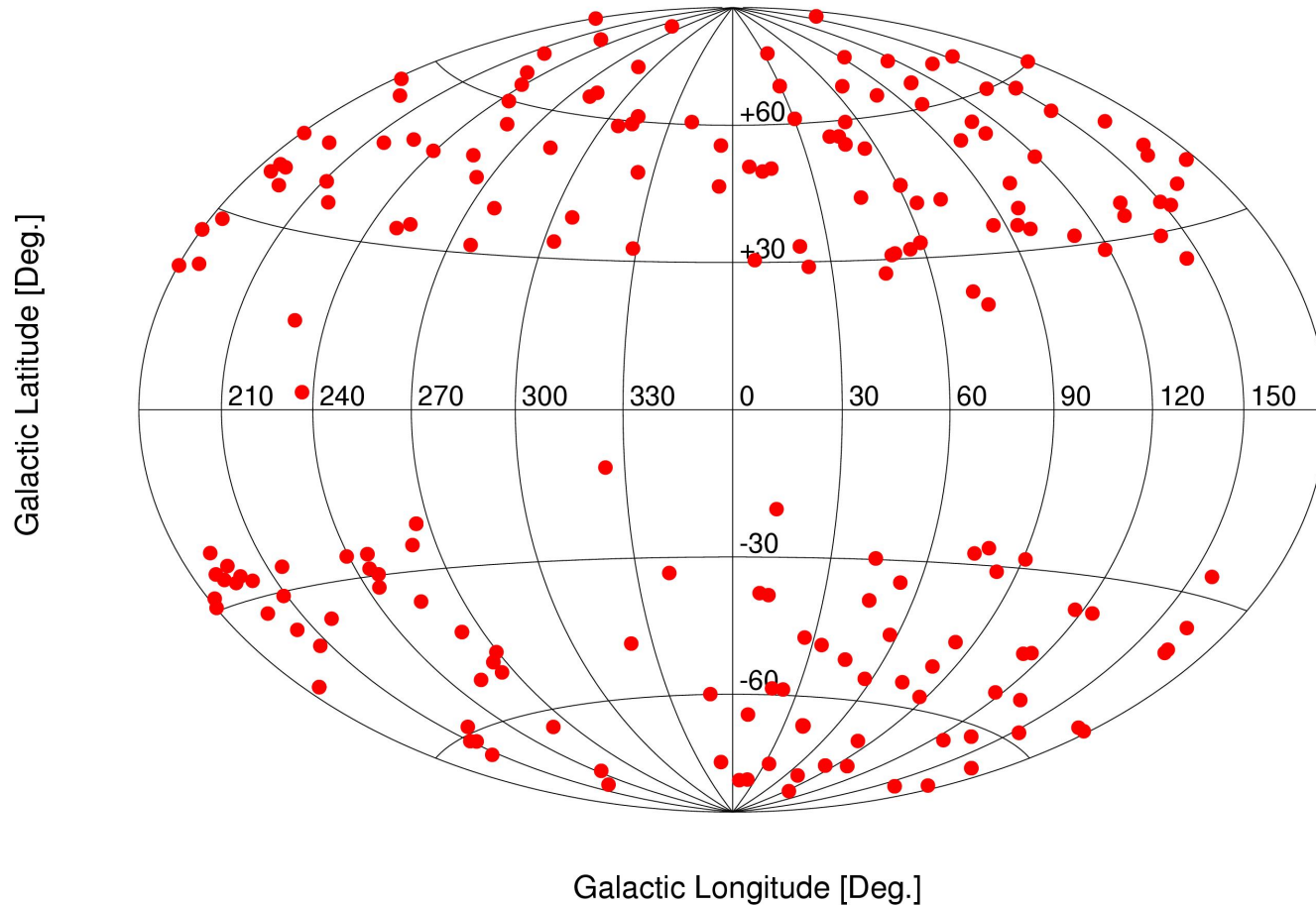
Band Dependence of X-ray Temperatures

- **Archival Chandra Sample**
- **Data Analysis**
- **Hard-band to Full-band Ratio (T_{HFR})**
- **T_{HFR} Correlations:**
 - **Cool Core and Non-cool Core**
 - **Merger Systems**

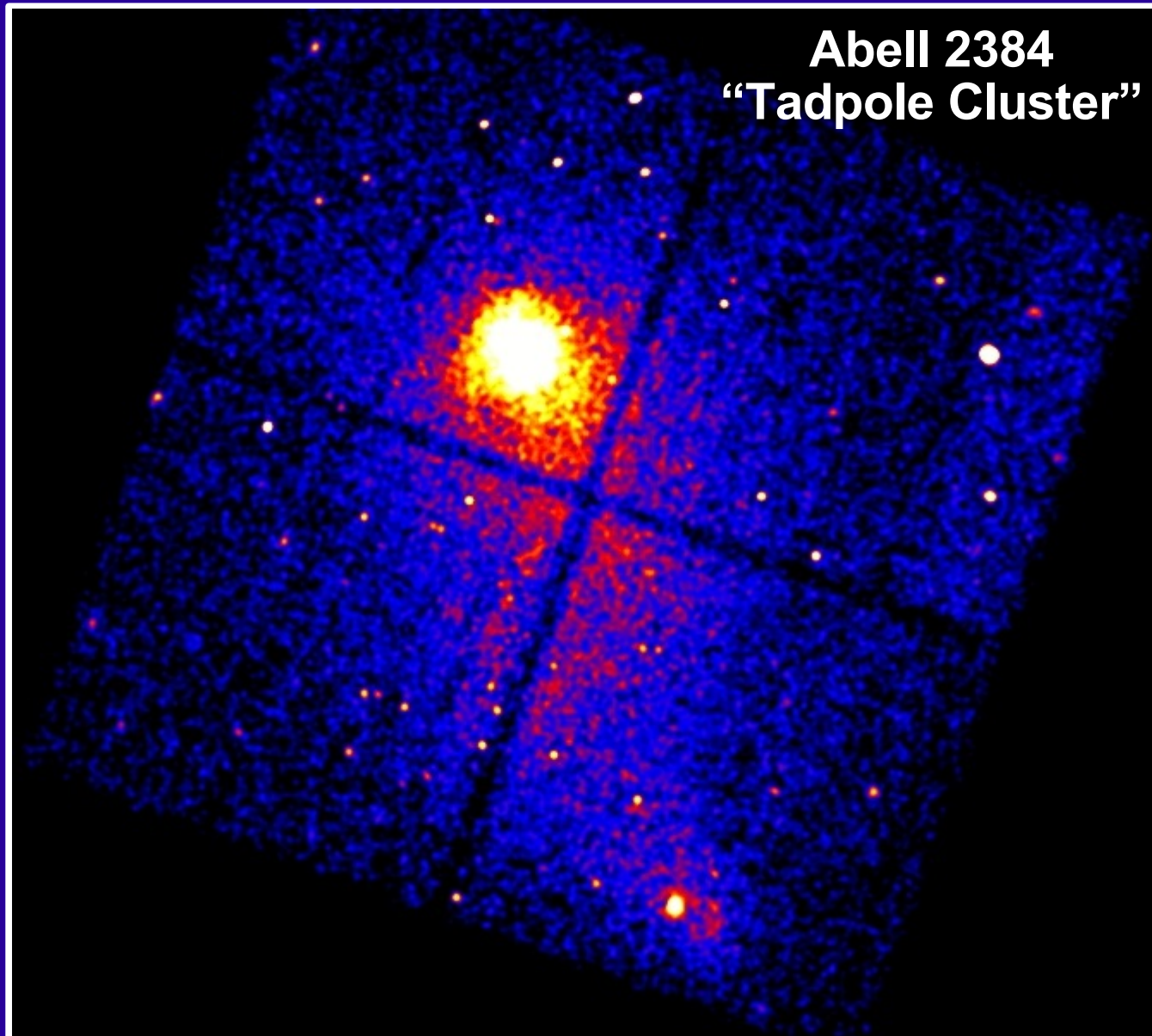
- Cross-referenced multiple flux-limited surveys with CDA
- Required minimum of R_{5000} in field
- 244 total observations for 193 clusters



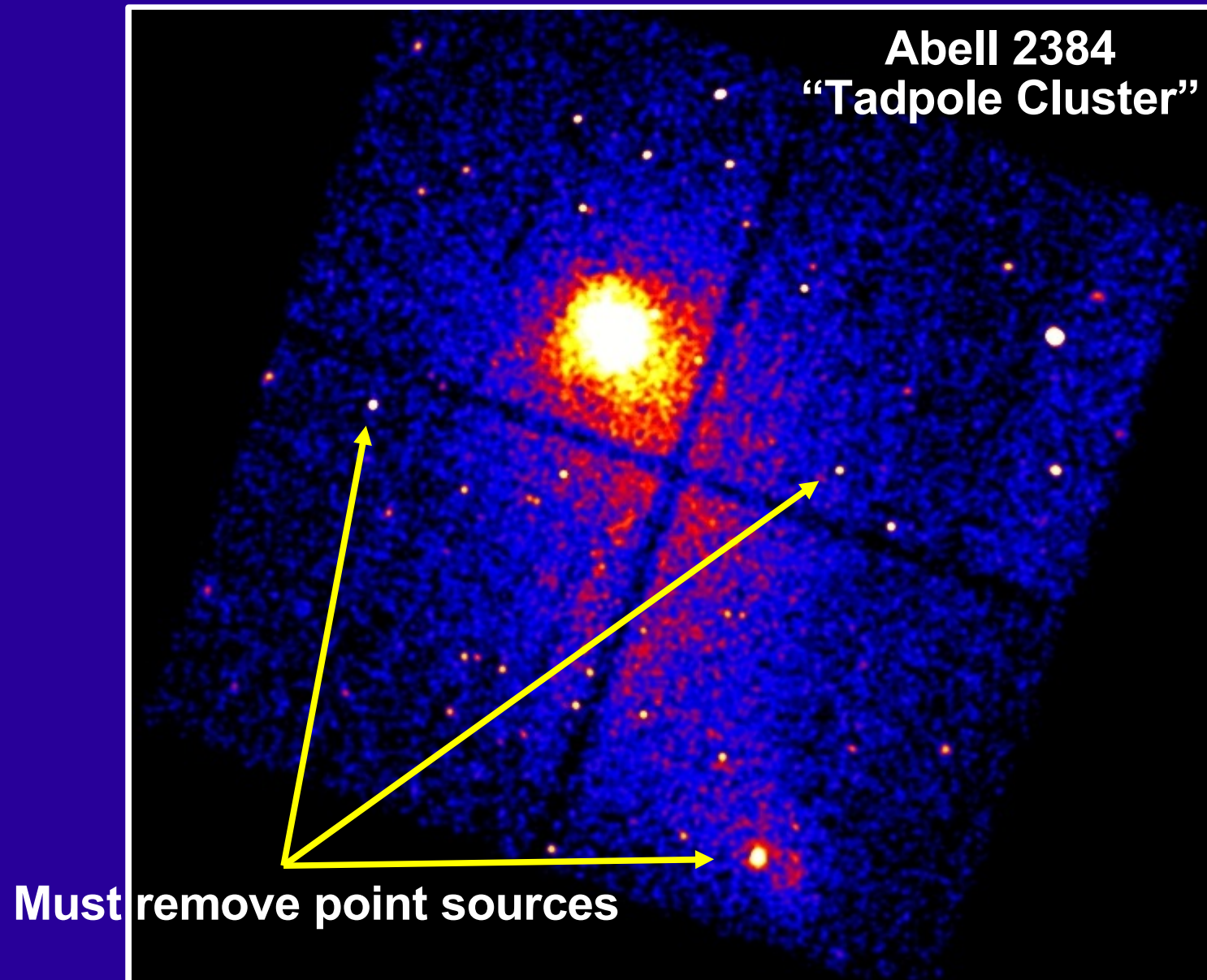
- Cross-referenced multiple flux-limited surveys with CDA
- Required minimum of R_{5000} in field
- 244 total observations for 193 clusters



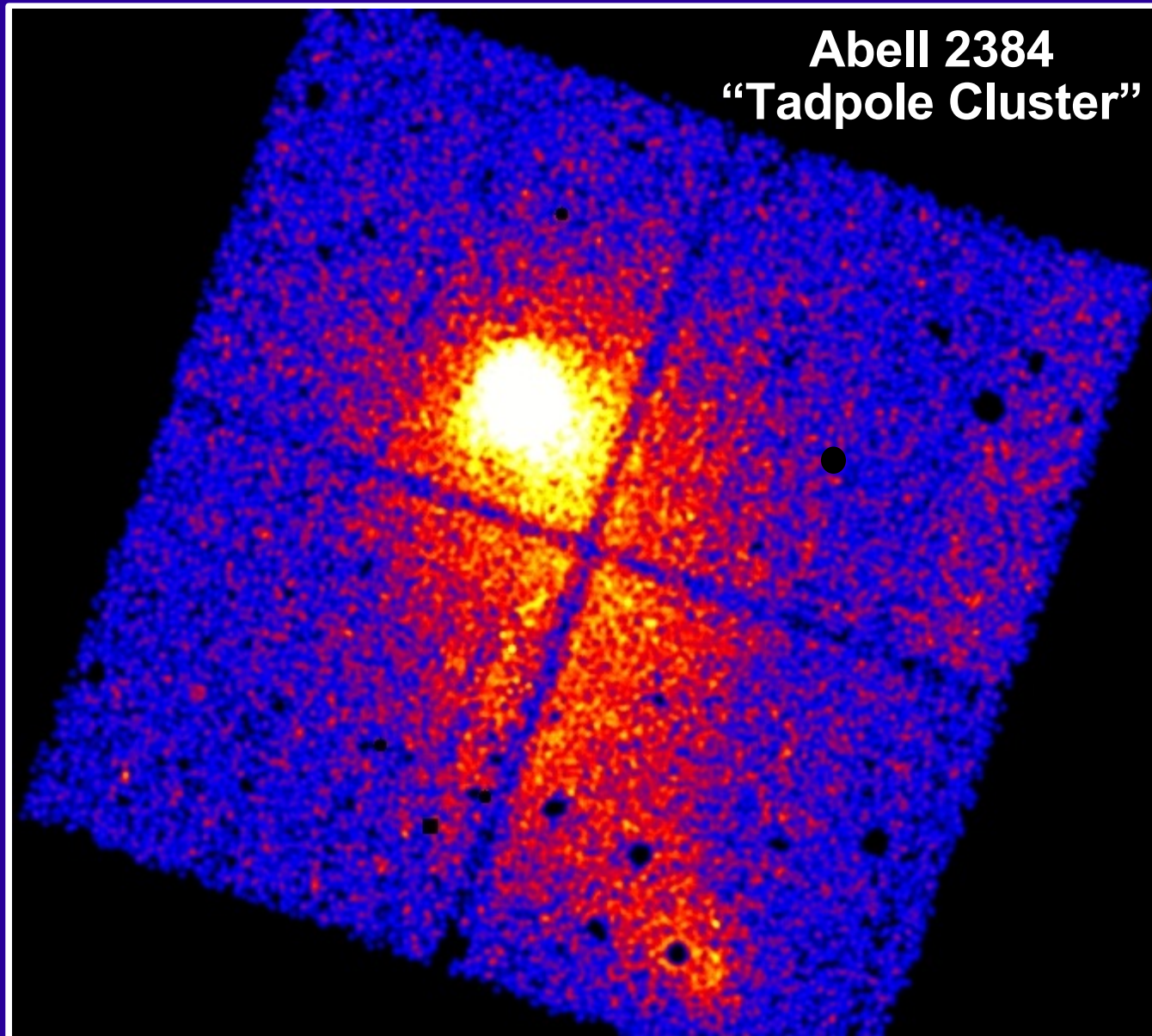
Data Analysis... in a hurry



Data Analysis... in a hurry

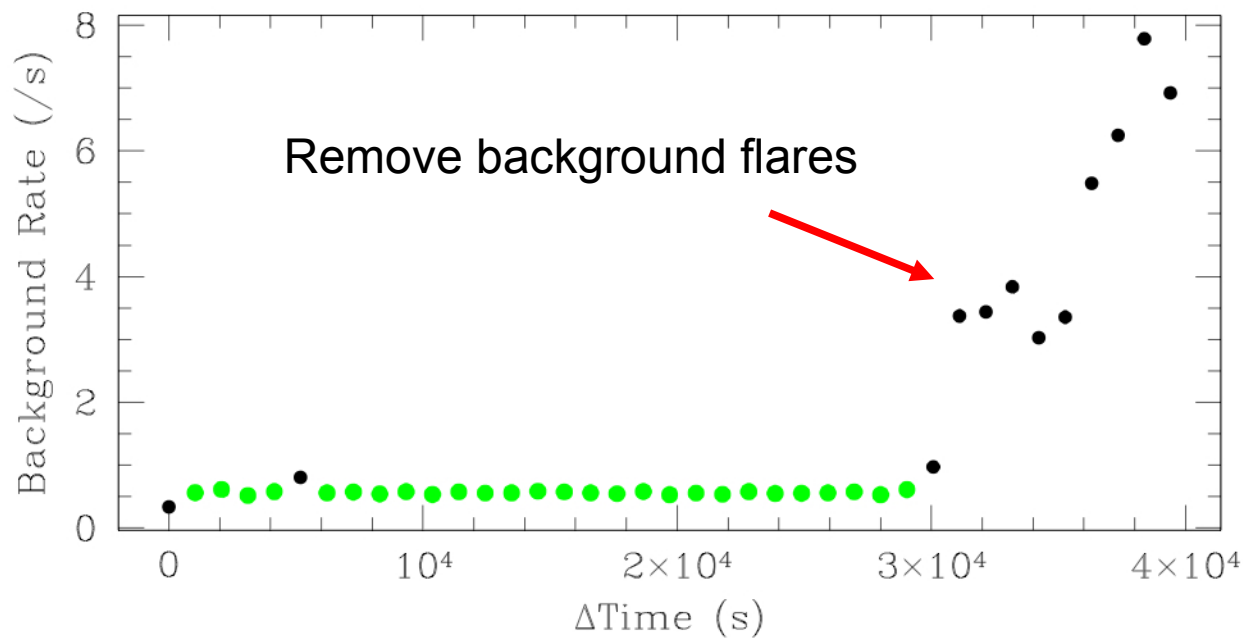


Data Analysis... in a hurry

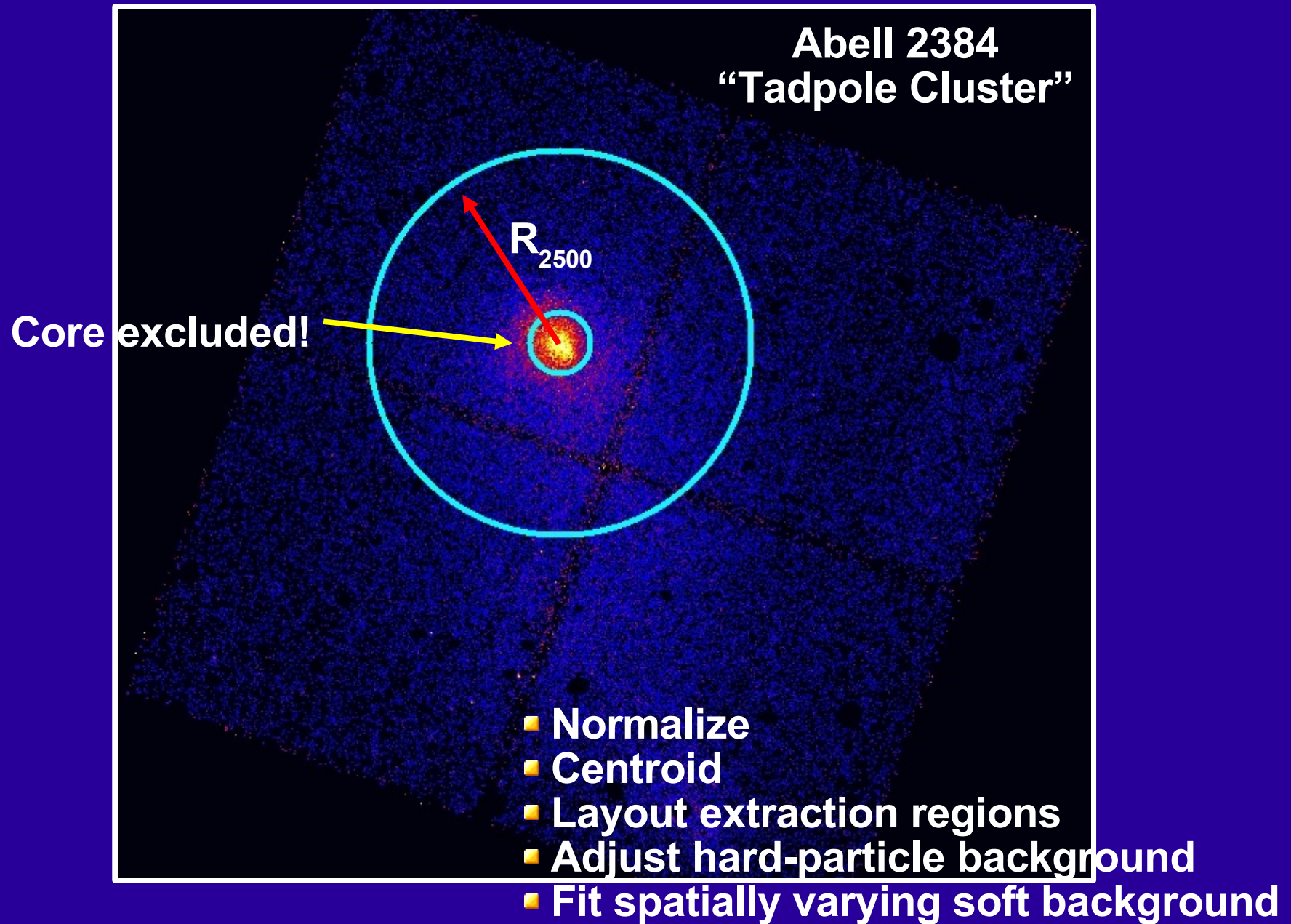


Data Analysis... in a hurry

Abell 2384
“Tadpole Cluster”

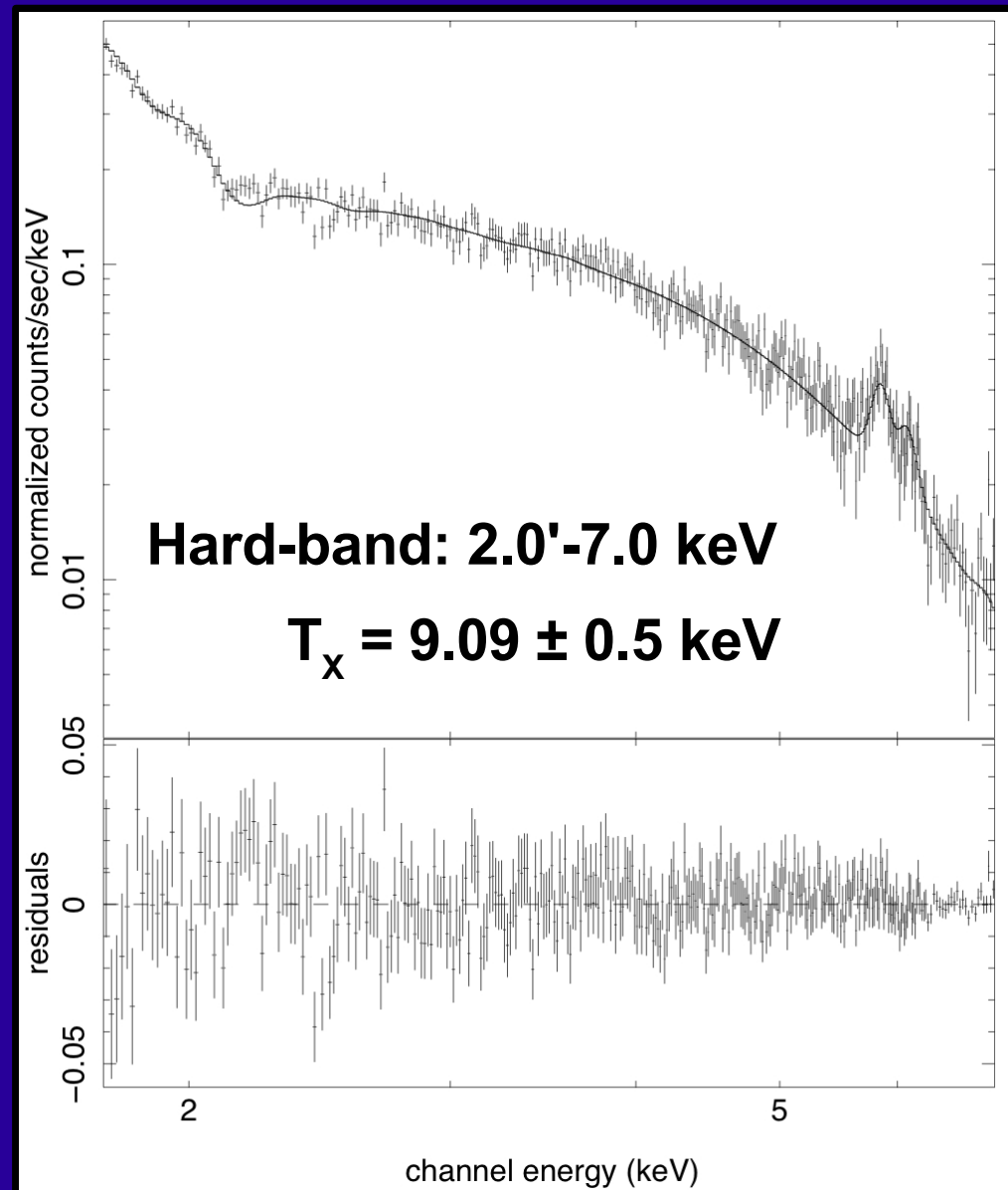
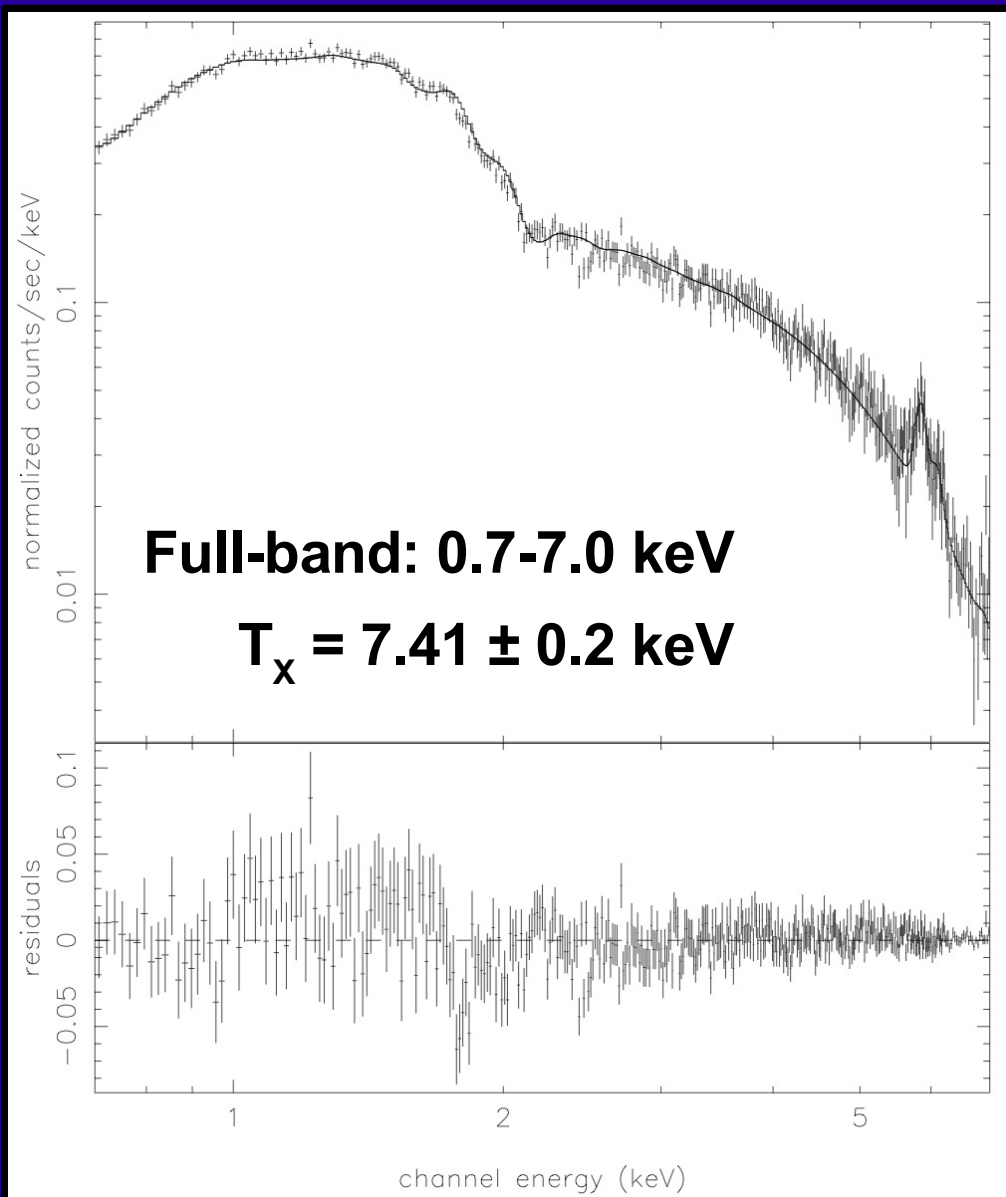


Data Analysis... in a hurry



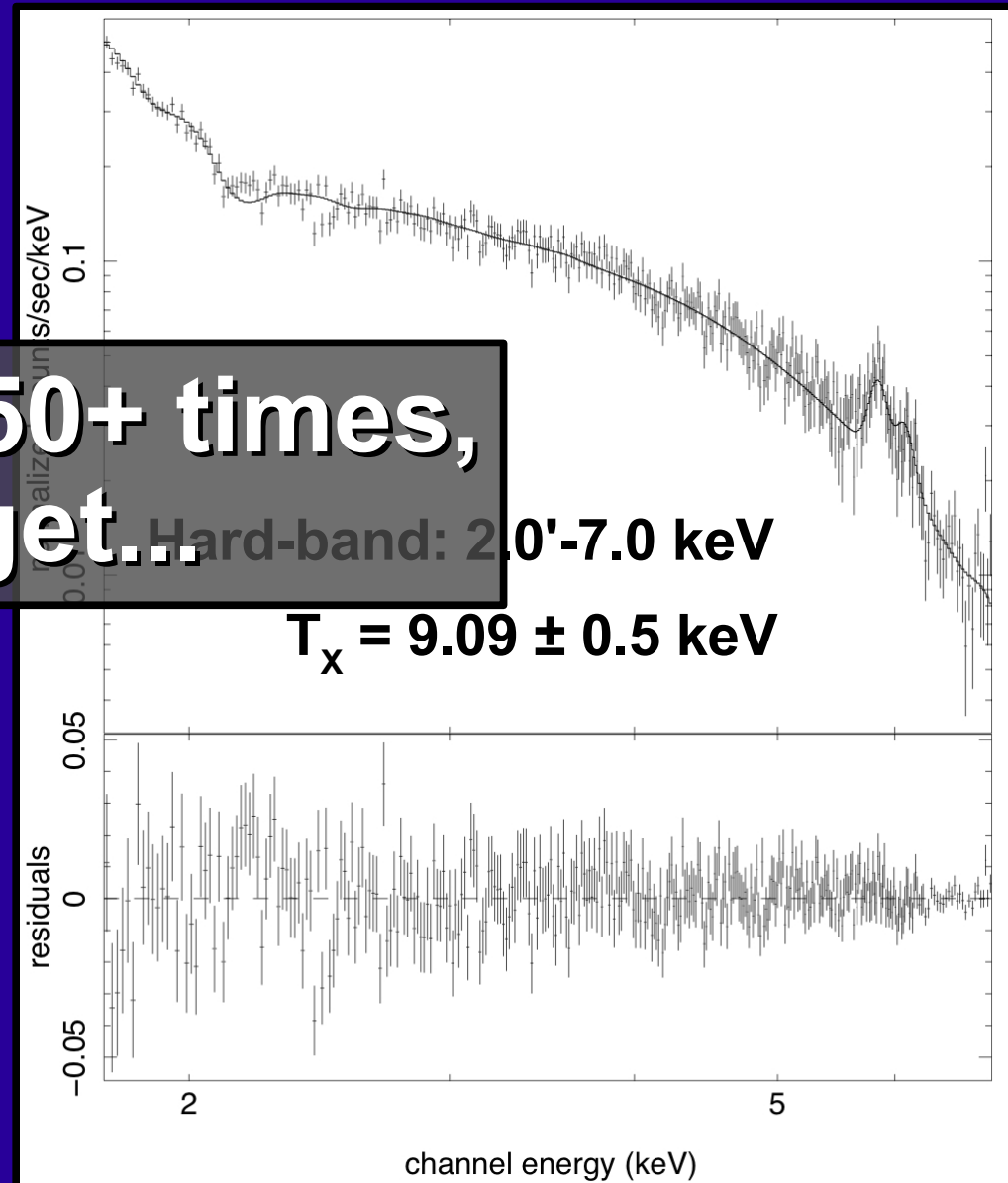
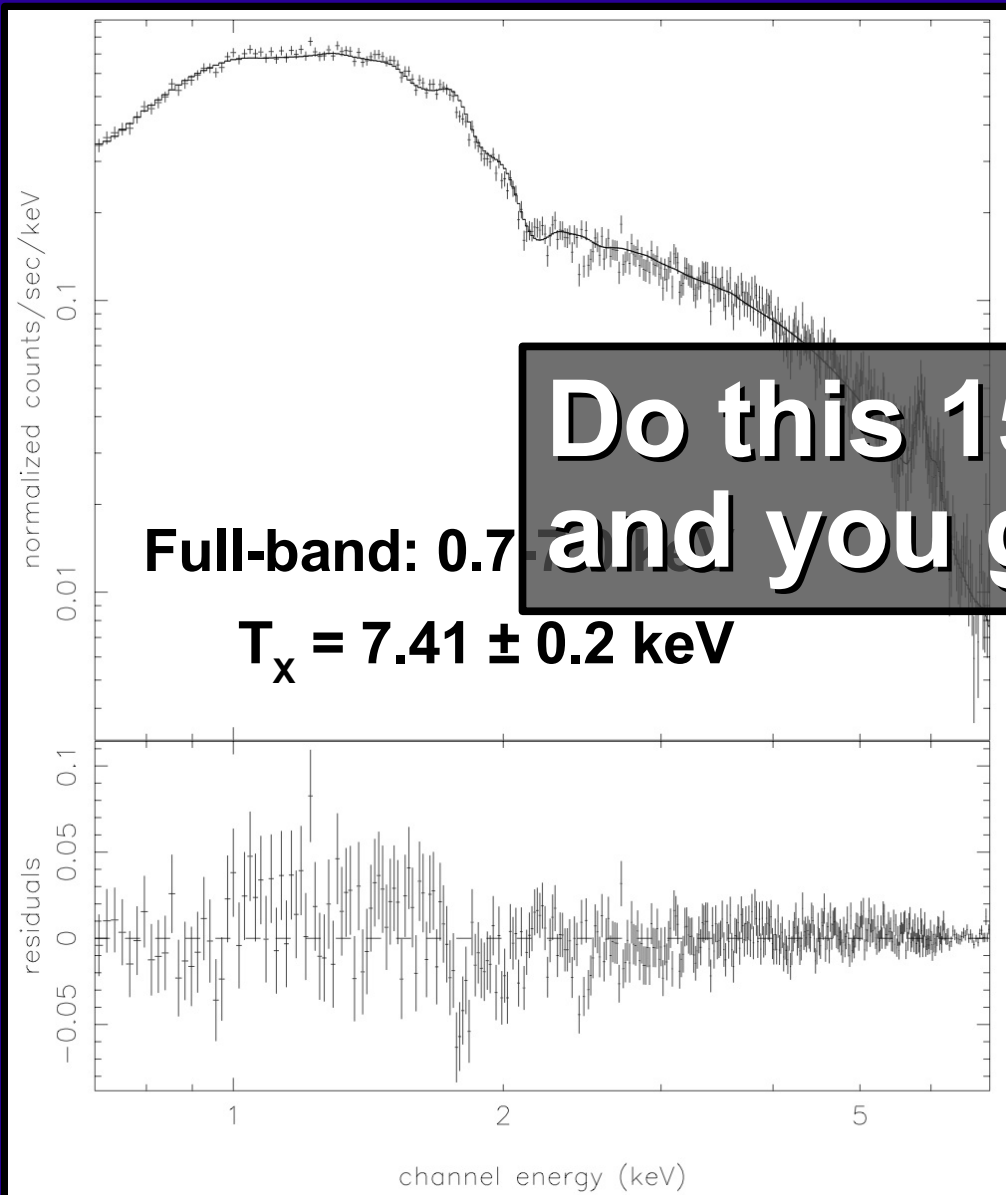
Inferring the gas temperature

- Single-phase MeKaL plasma
- N_{H} fixed to Galactic
- Metallicity is free parameter
- Soft background fixed and error added



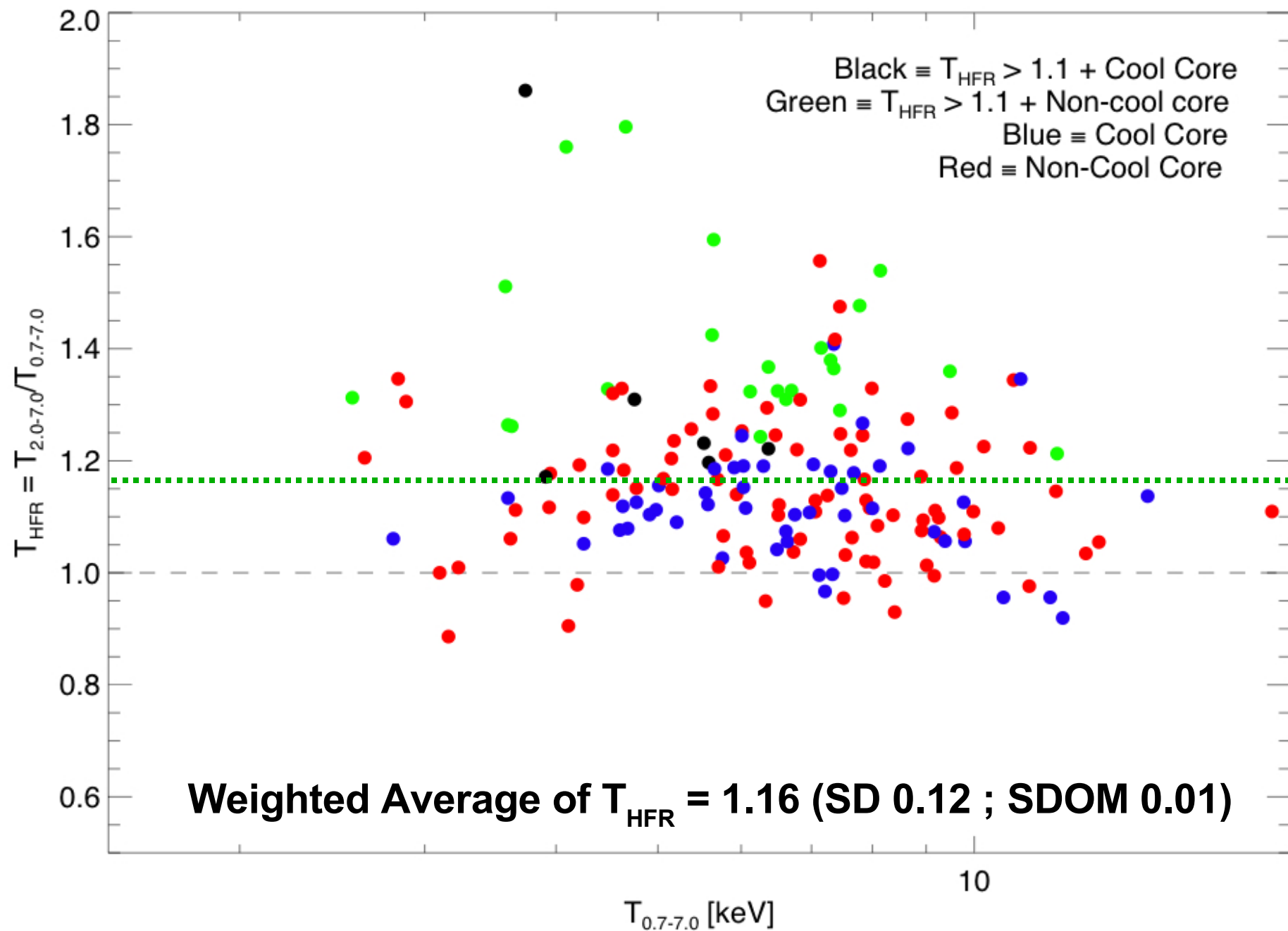
Inferring the gas temperature

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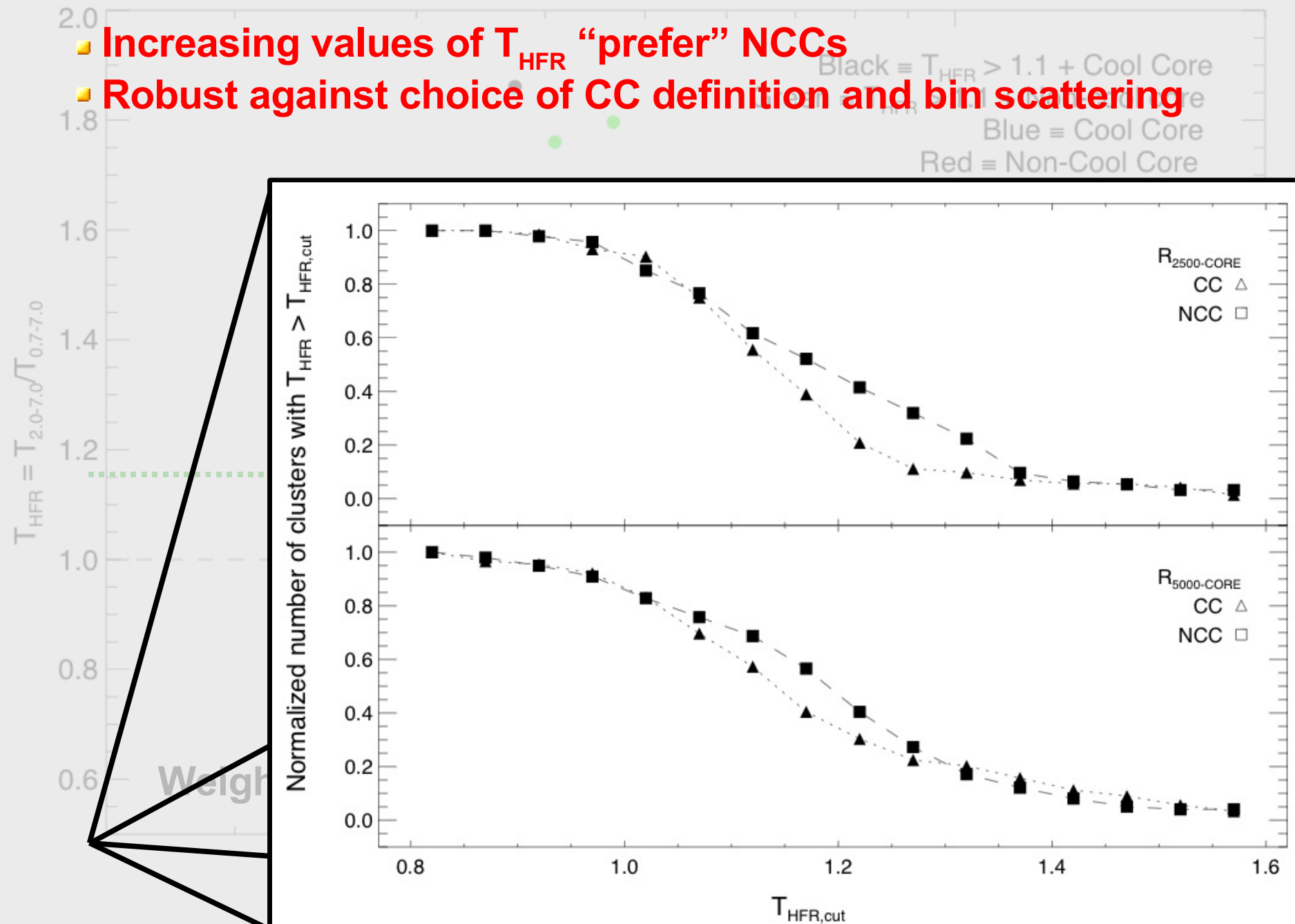
**Do this 150+ times,
and you get...**

The Big Result

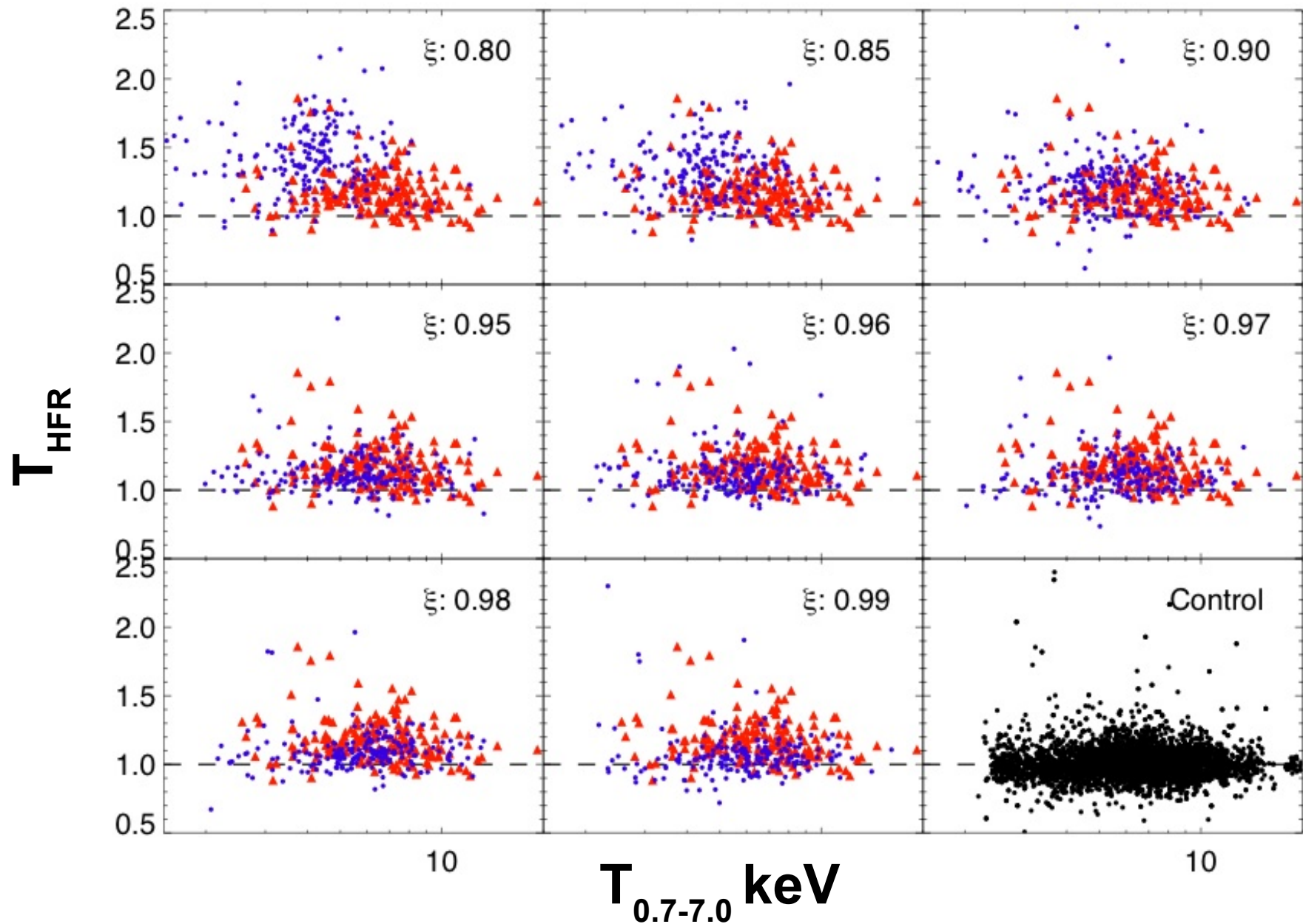


Culling out CCs using T_{HFR}

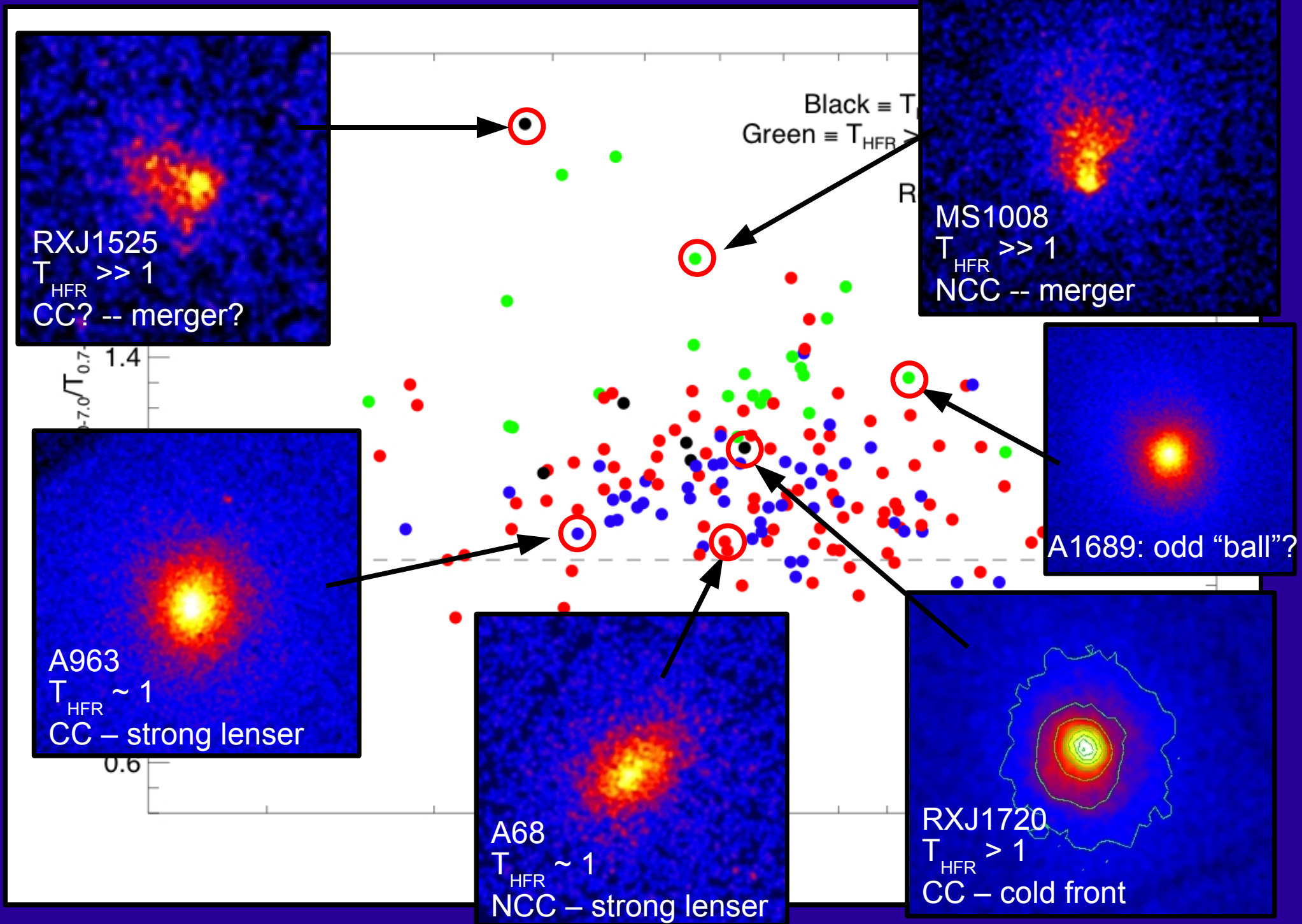
- Increasing values of T_{HFR} “prefer” NCCs
- Robust against choice of CC definition and bin scattering



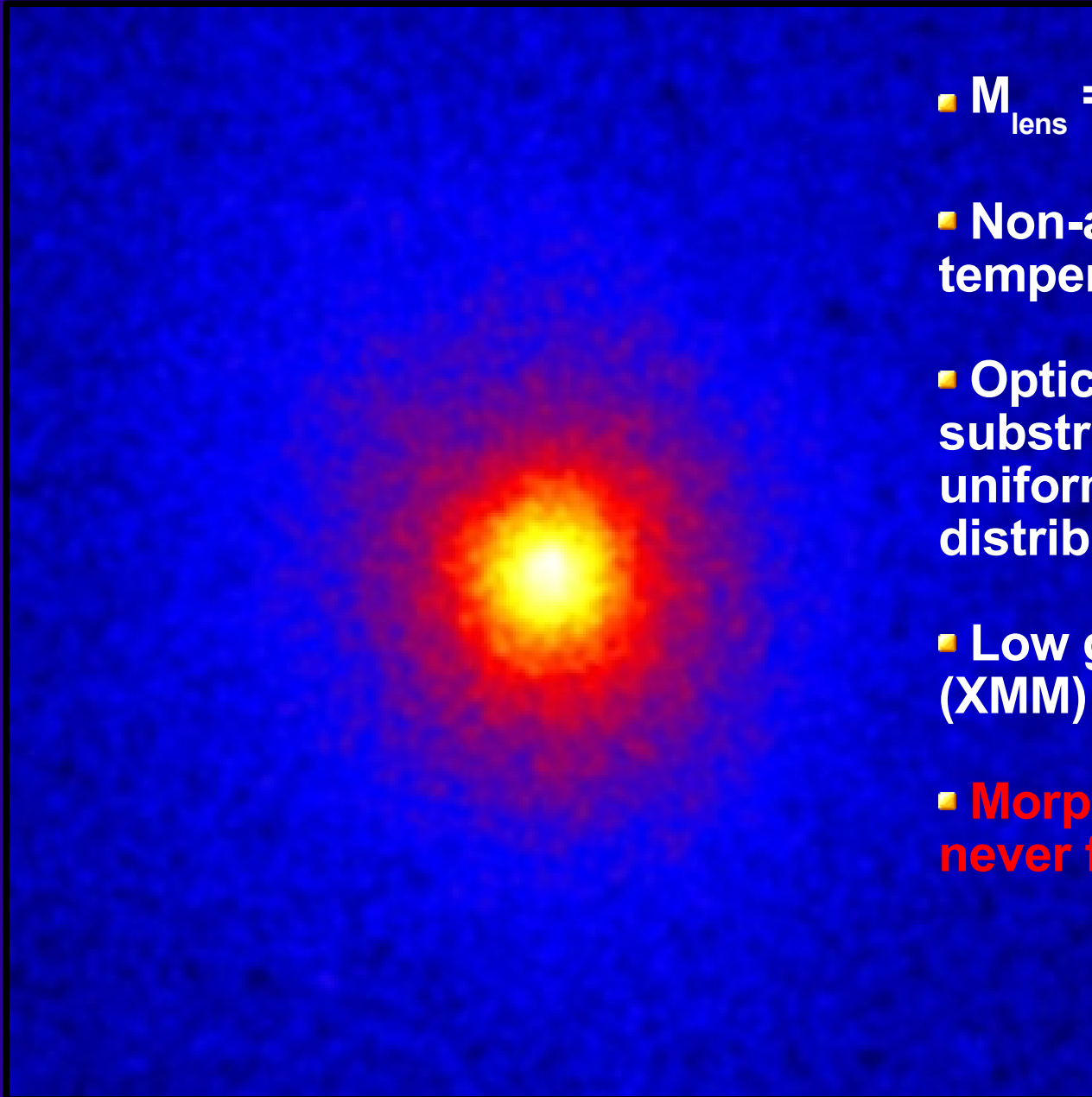
- Gut check with simulated spectra from XSPEC
- Repeat spectral analysis
- Observe skewing in simulations but not in control sample



Putting It All Together



Abell 1689: not so relaxed



- $M_{\text{lens}} = 2 * M_{\text{Xray}}$
- Non-axisymmetric temperature structure
- Optical observations find substructure and “non-uniform” galaxy redshift distribution
- Low gas fraction: ~7% (XMM)
- Morphological tests would never find this as a merger