

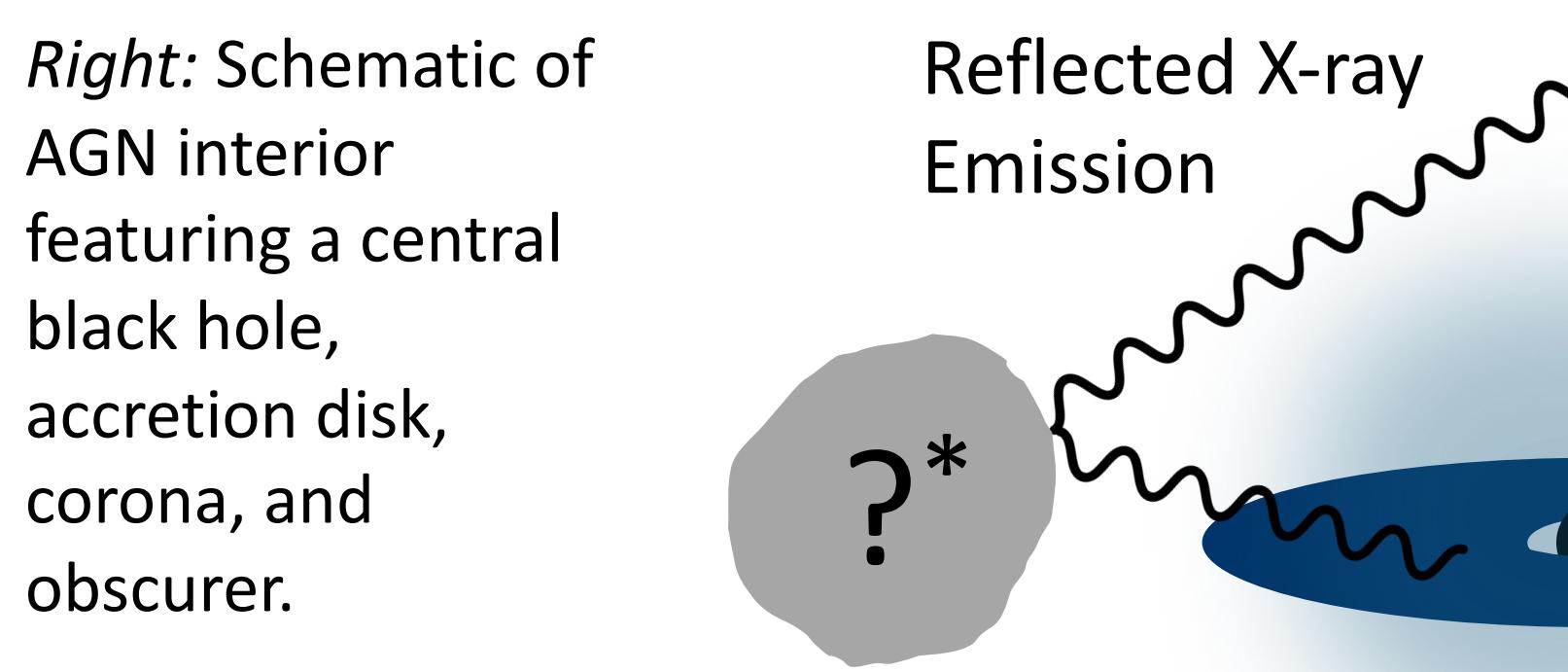
Disentangling a New Compton-thick AGN From a Background Quasar through X-ray Spectral Modeling

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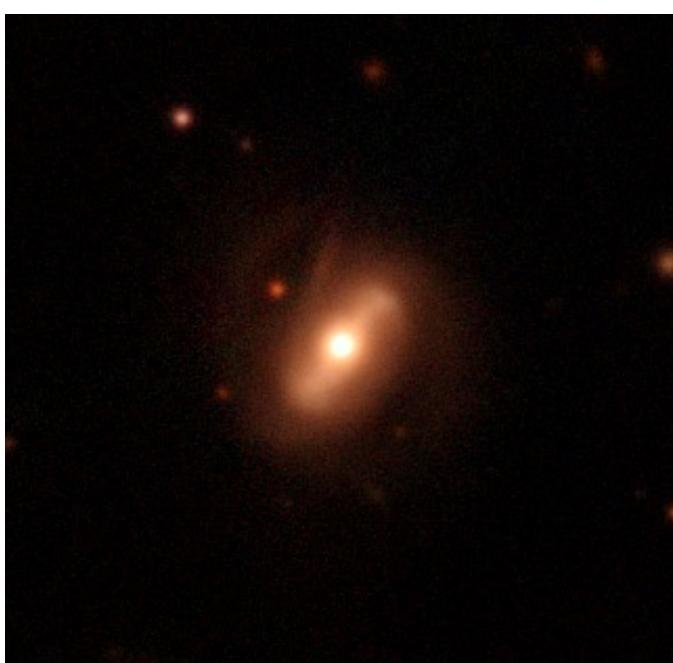
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Active Galactic Nuclei (AGN) in X-Rays



*Geometry of obscurer is unknown. See obscuration models for possibilities!

IRAS 21363-2700

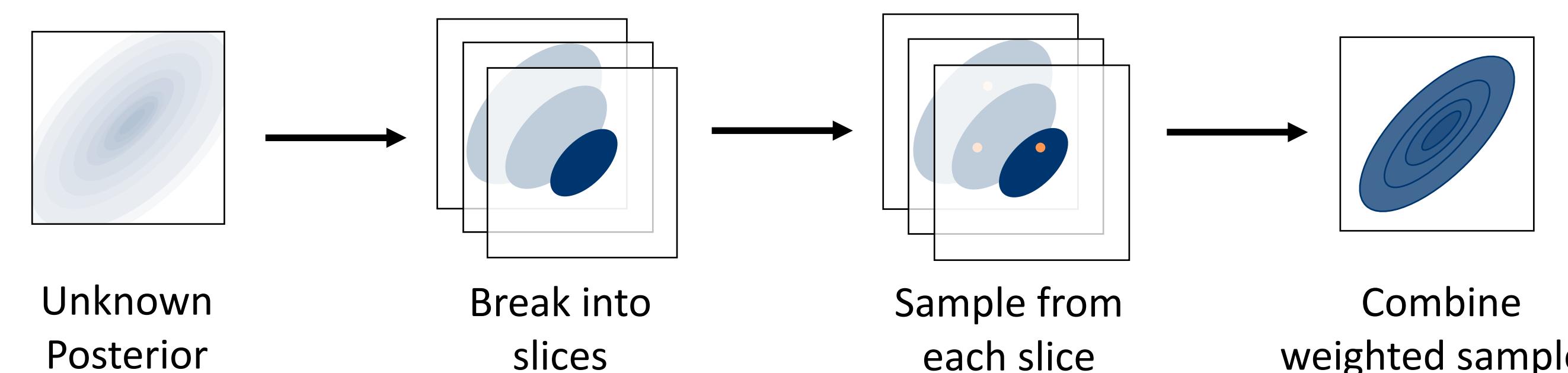


- Infrared flux measurements suggested an active galaxy (AGN), but no major X-ray telescopes previously detected it
- AGN suspected to be Compton-thick

Left: Optical Pan-STARRS image

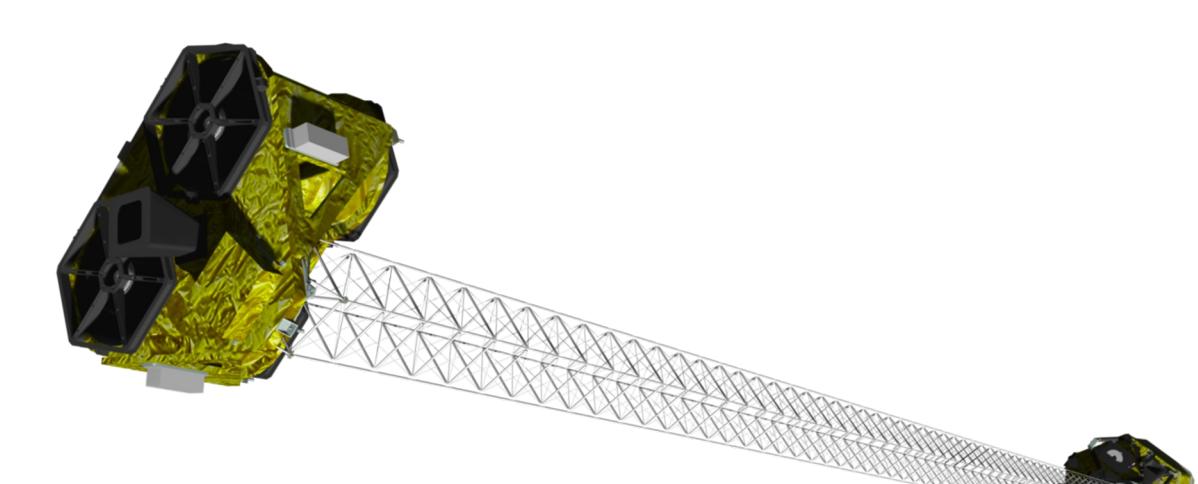
Nested Sampling

Figure adapted from Speagle 2019



Disentangling Sources

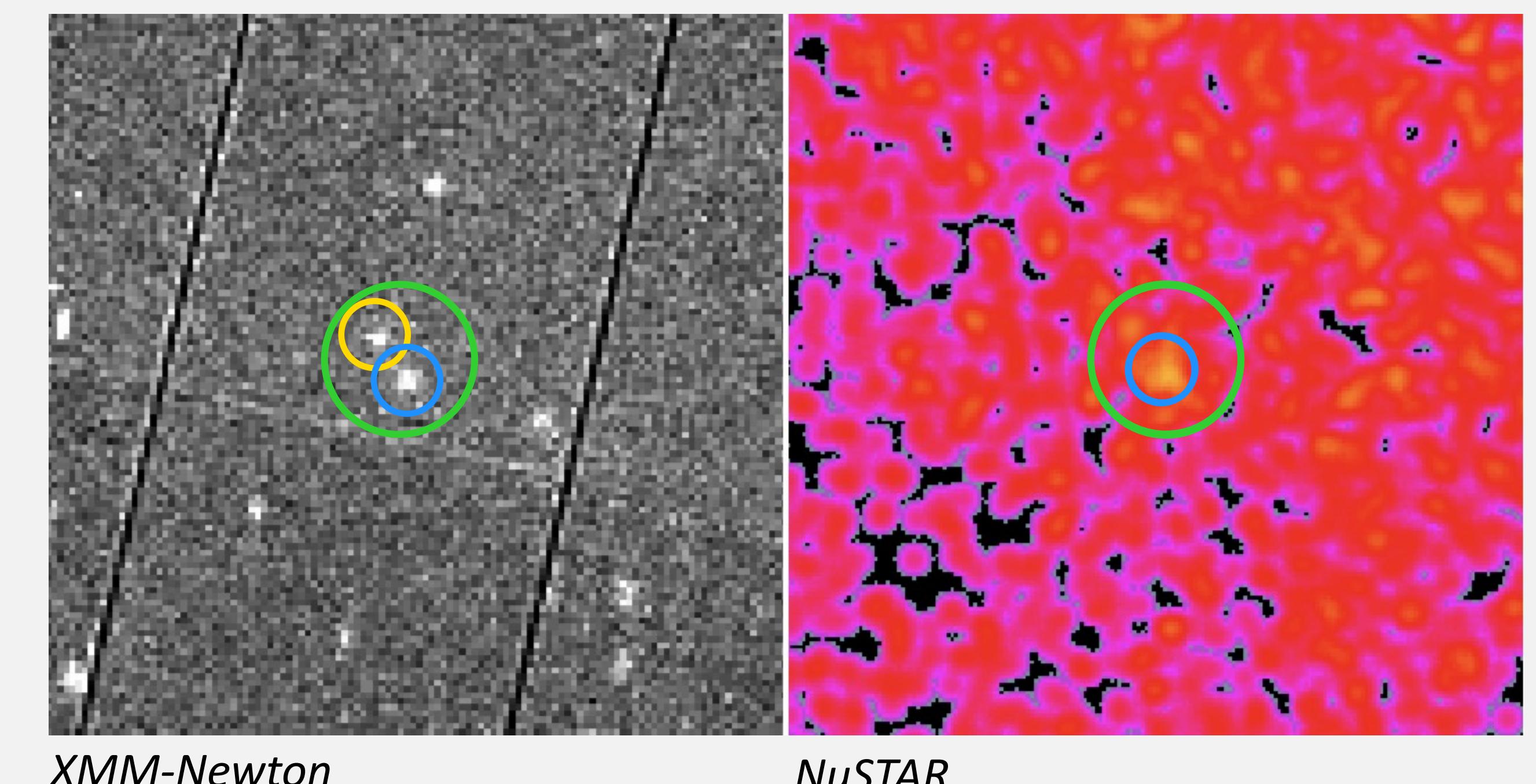
(Constant \times AGN Model) + (Constant \times Quasar Model)



Scan for abstract and references!

We discovered a growing black hole ensrouded by dust using X-ray vision

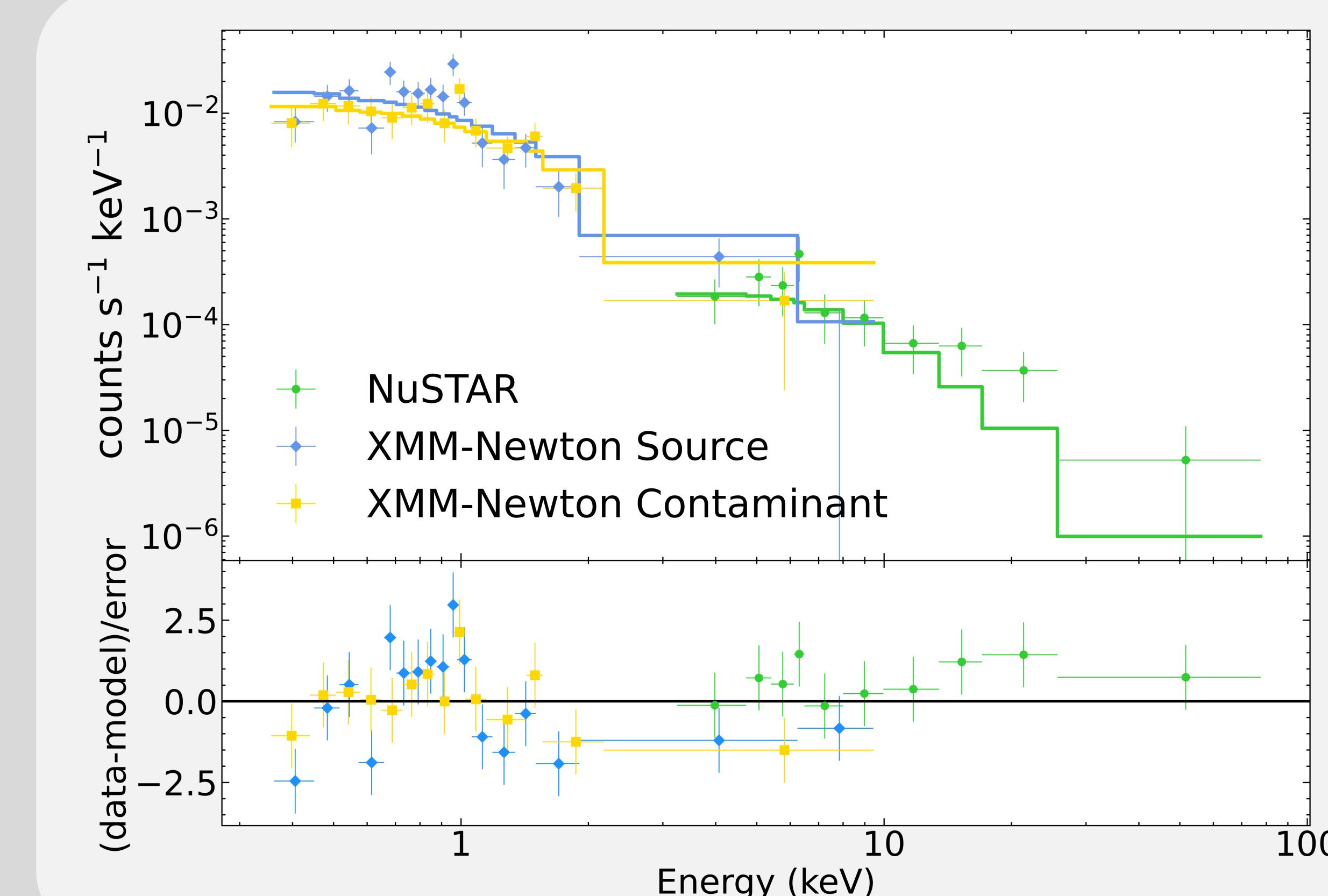
X-Ray Observations



Spectrum Extraction Regions:

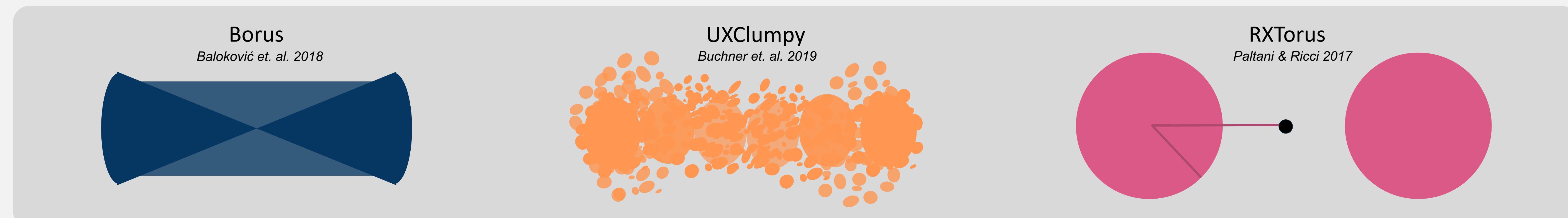
■ = NuSTAR ■ = XMM-Newton Source ■ = XMM-Newton Contaminant

Simple Power-law Model

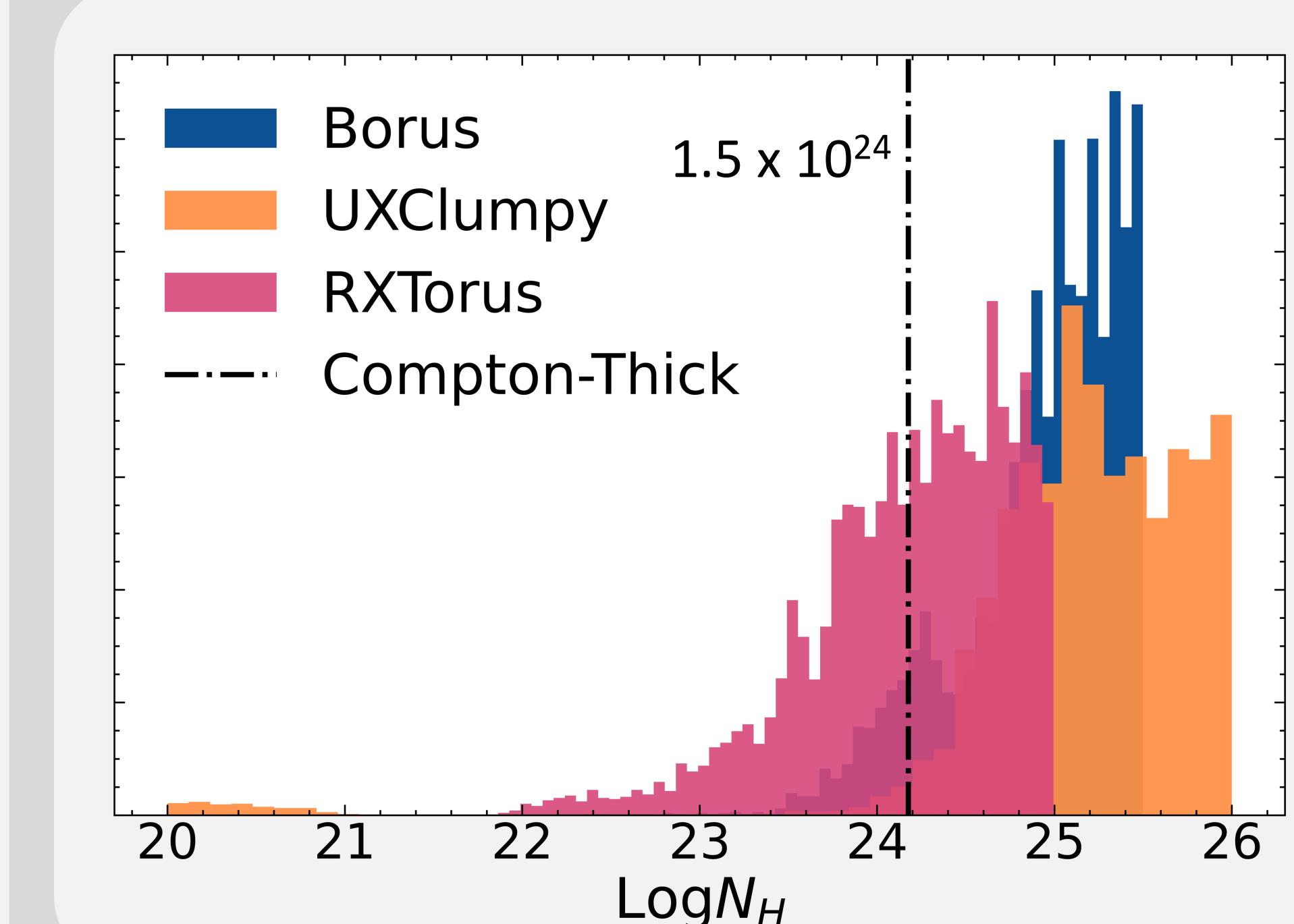


Top: Rebinned data and folded model using simple power-law fits for both AGN and Quasar continuums, using same color code as extraction regions. Bottom: Residual plot of above model, with spectral features visible

Physically Motivated Obscuration Models

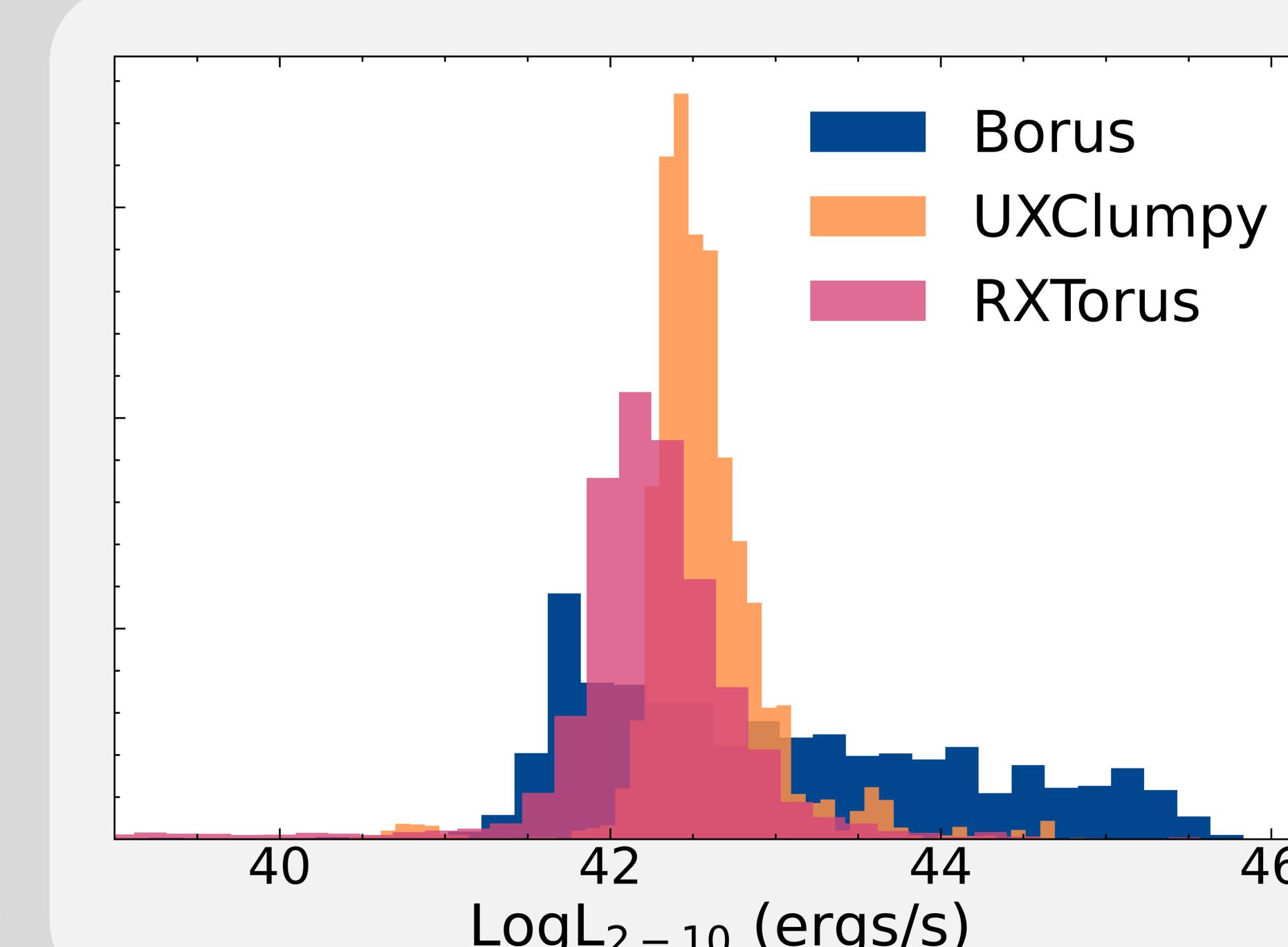


Column Density



Above: Histogram of line-of-sight column density for each model posterior. Density where AGN becomes optically thick to Compton scattering is represented with a dashed line.

Intrinsic Luminosity



Above: Histogram of intrinsic luminosity between 2-10 KeV in log units for each model posterior. Note interesting shape and extent of Borus, which is function of model geometry.

Looking Forward... HEX-P

Below: Simulated spectrum of IRAS 31363-2700 using High Energy X-ray Probe response files

