



Thermal SNRs as Standard Candles:

E0102

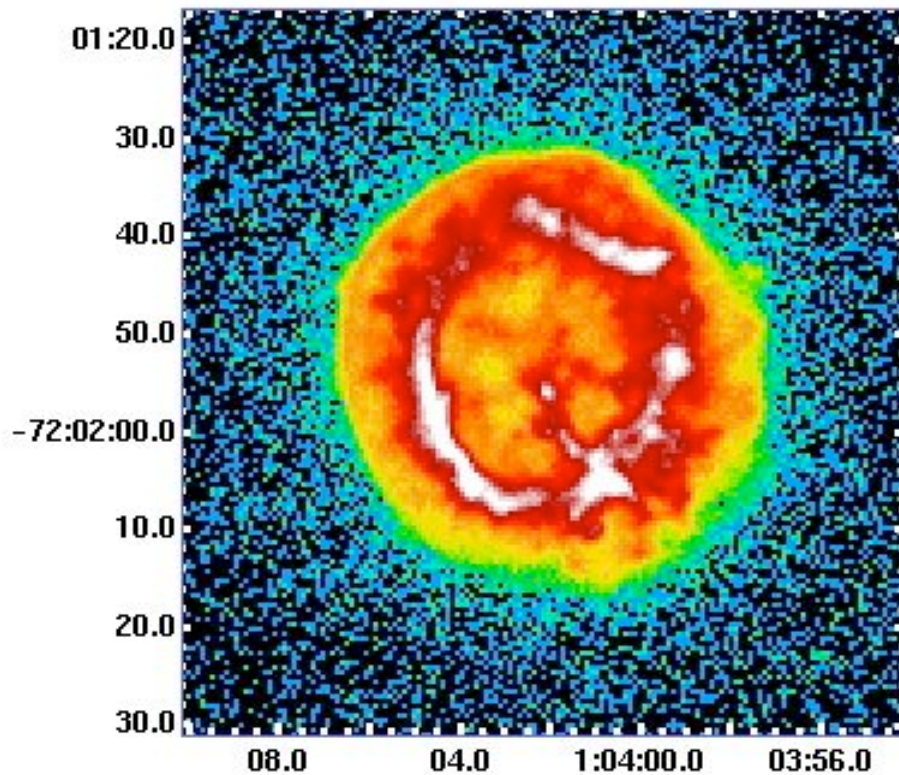
N132D

Cas A

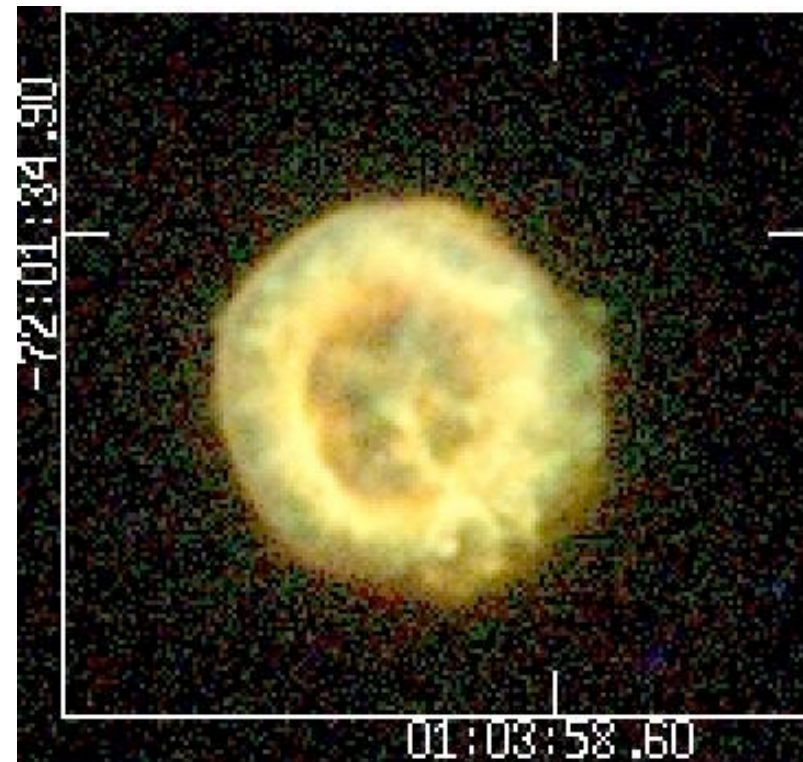


Gratuitous Pretty Pictures of E0102

S3 Summed Data ~100 ks



Three Color Image



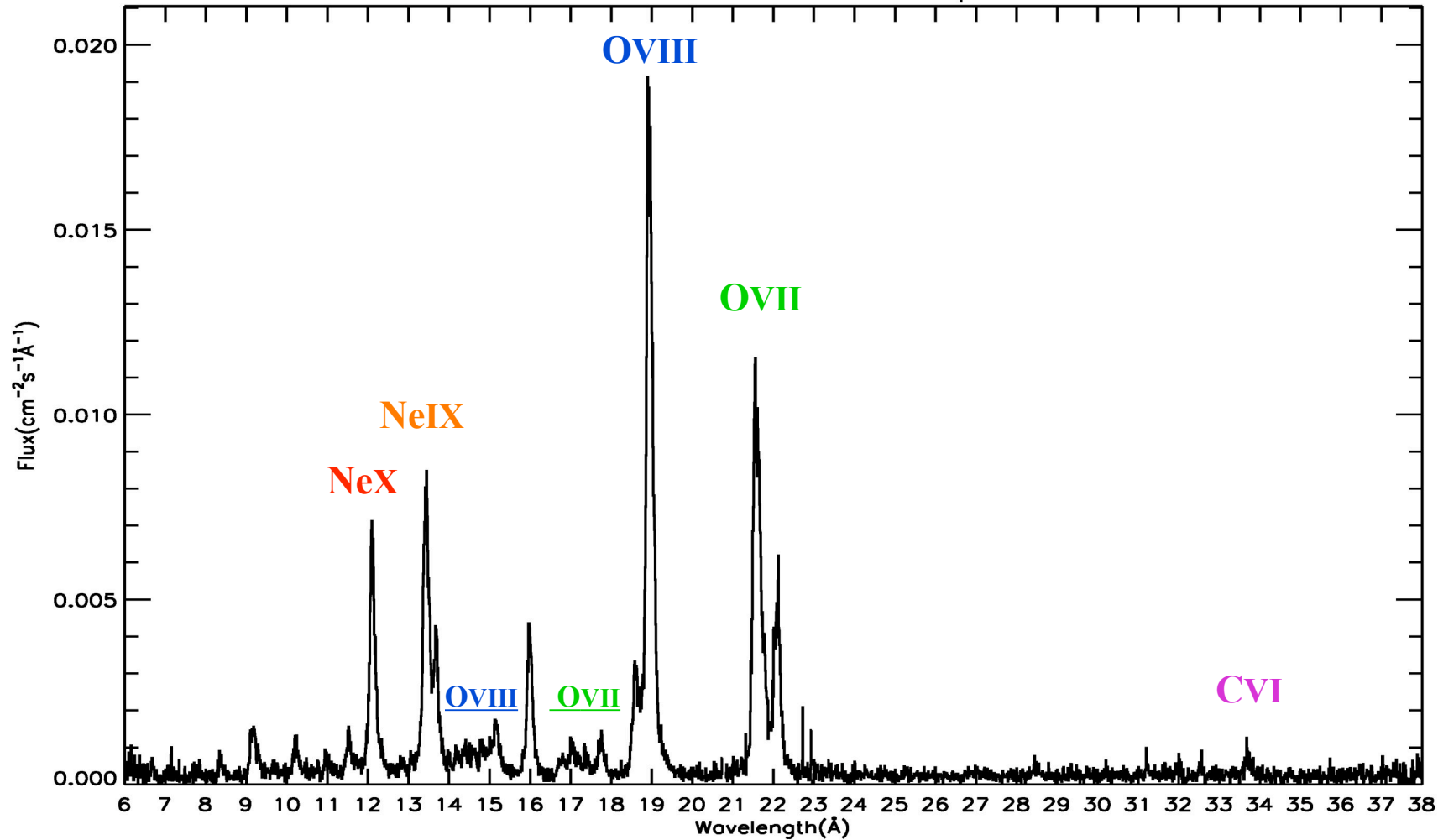


Chandra X-Ray Observatory

CXC

RGS Spectrum from Pollock

SNR 1ES0102-7219 RGS fluxed spectrum





Spectral Model

- 1) Empirical model: Bremsstrahlung, Gaussians for lines, radiative recombination edges, absorption component only modifies the Bremsstrahlung
- 2) 39 Gaussians for C, O, Ne, Mg, Si, S, and Fe lines
- 3) 6 radiative recombination edges
- 4) Not a physical model !!!! The purpose is calibration, not Astrophysics

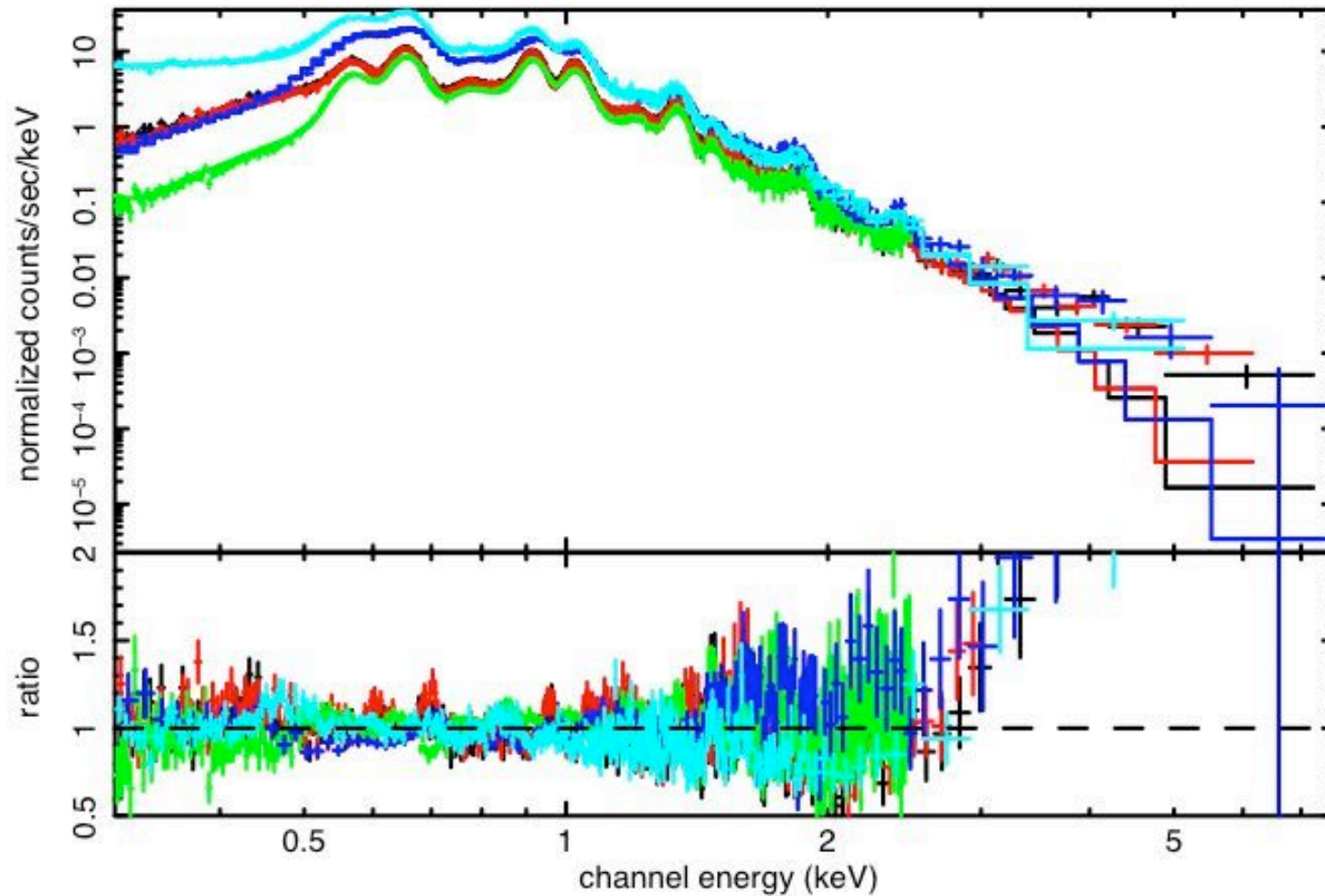


Chandra X-Ray Observatory

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Overplot Pollock RGS Model on MOS1/2, ACIS S3, pn, and XIS1 data

black=MOS1, red=MOS2, green=suzaku, blue=ACIS S3, lightBlue=PN



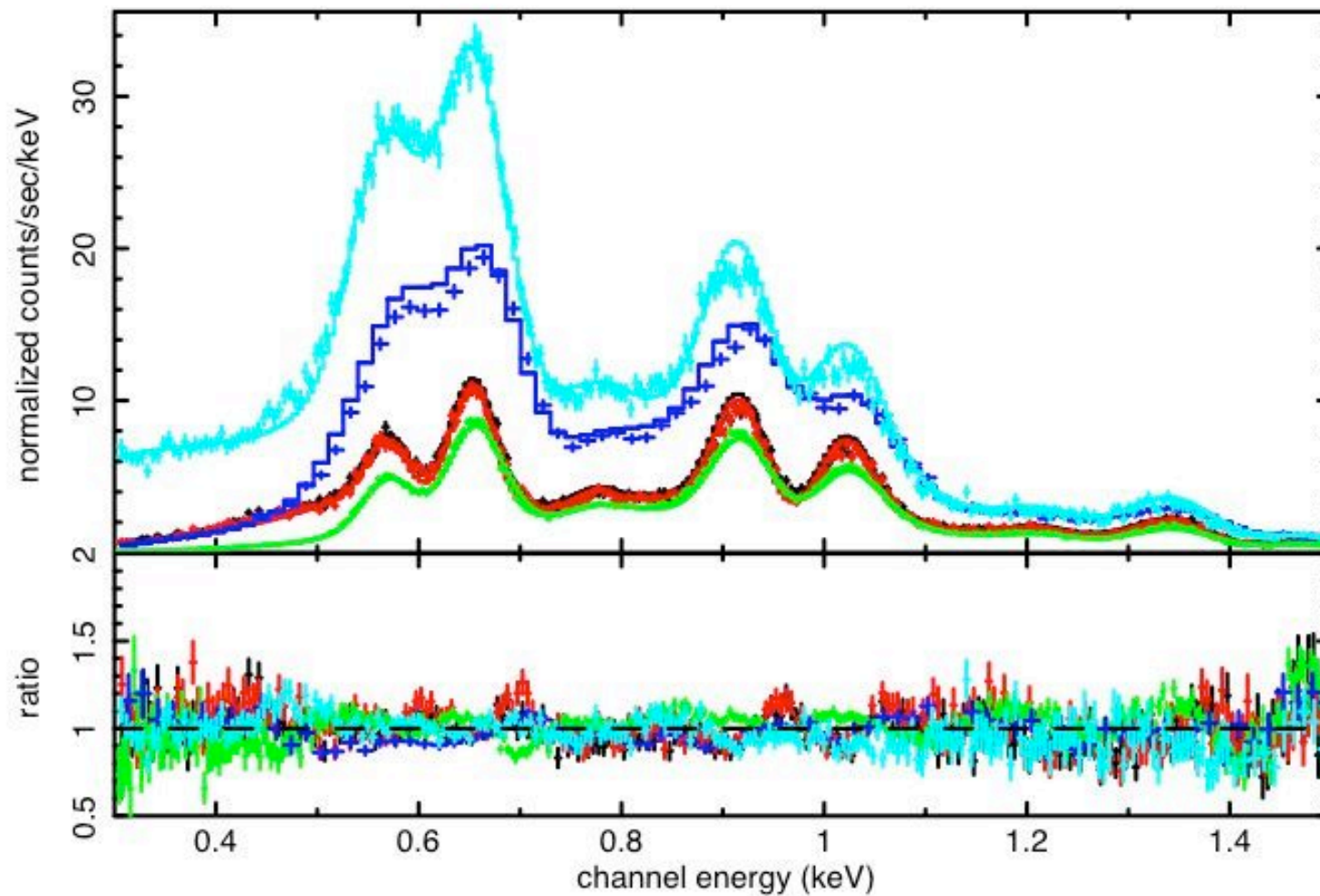


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Overplot Pollock RGS Model on MOS1/2, ACIS S3, pn, and XIS1 data

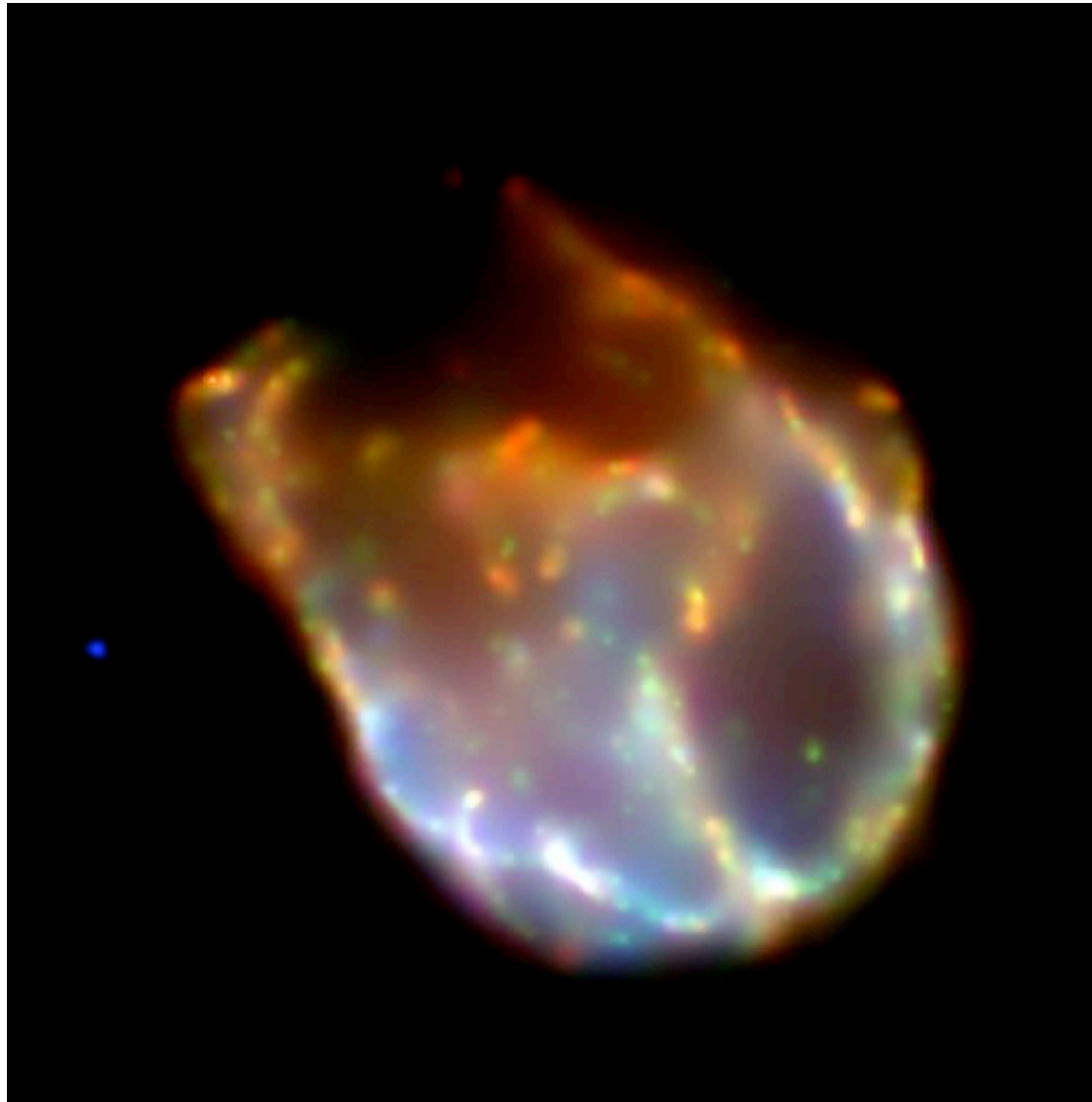
black=MOS1, red=MOS2, green=suzaku, blue=ACIS S3, lightBlue=PN





Issues for Further Study

- 1) Absorption model - phabs vs. tbabs, separate components for Galactic and SMC ? - ACTION: Andy, can the RGS data distinguish ?
- 2) Fe lines - Identification of weak Fe lines - ACTION: Randall, Andy
- 3) Continuum model - use APEC no-line continuum with variable O, Ne, Mg lines - ACTION: Randall provides model to group
- 4) Ne X sequence as a sanity check - ACTION: Andy provides to Randall
- 5) Analyze RGS data at different position angles - ACTION: Andy
- 6) Create ATABLE model from RGS data - ACTION: Andy (**complete !**)
- 7) MIT HETG team must compare Andy's model to HETG data - ACTION: Dan Dewey
- 8) Add Si XIII line at 2.1826 keV to CCD model - ACTION: Paul, Joe
- 9) Post revised model on IACHEC web page - ACTION: Paul, Joe
- 10) Fit Chandra, XMM, Suzaku, Swift data with revised model - ACTION: group



N132D

1.0 X 0.75 arcmin

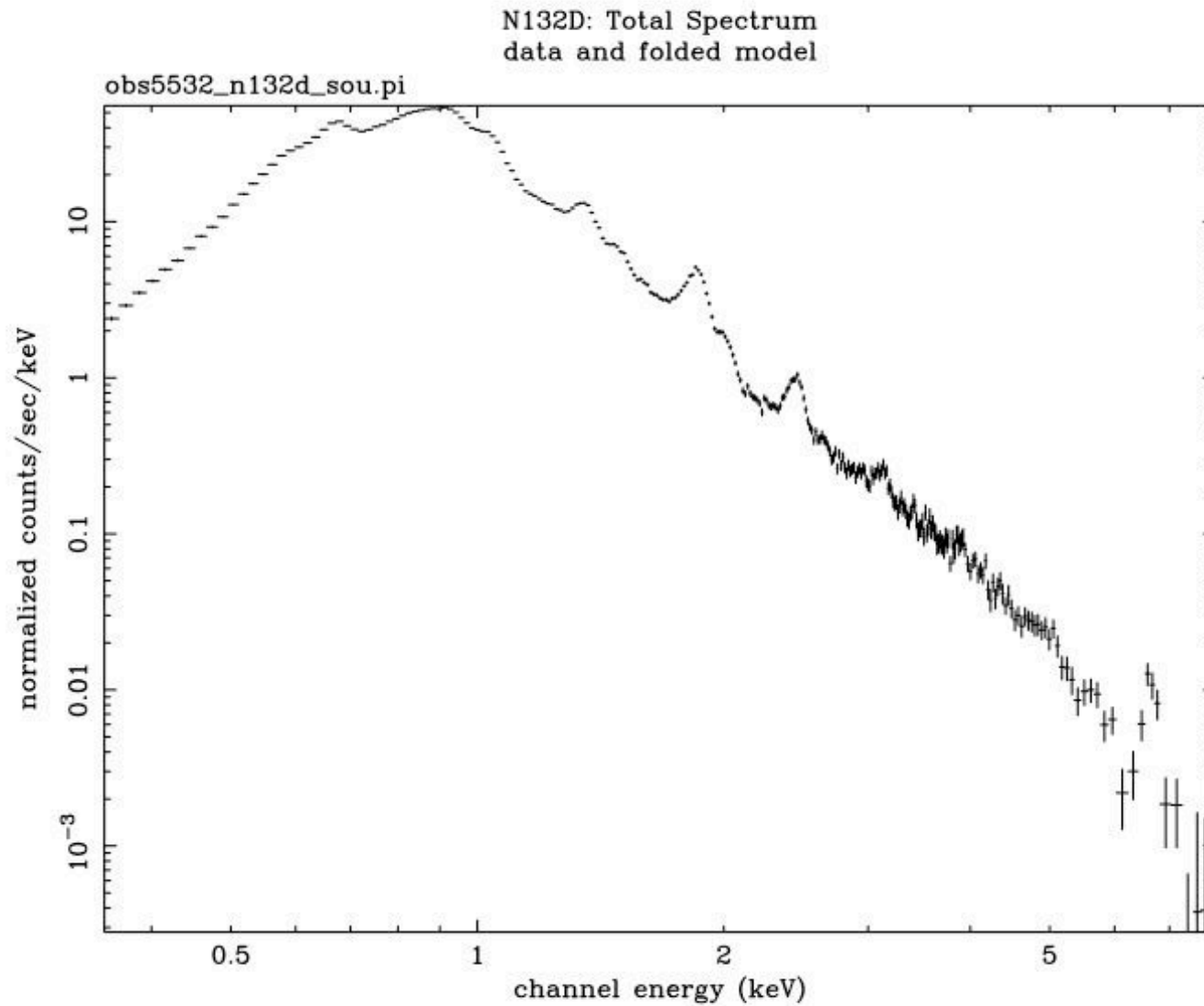
Significant spectral variations as a function of position

Significant Fe emission which complicates spectrum below 1.2 keV



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N132D

Significant

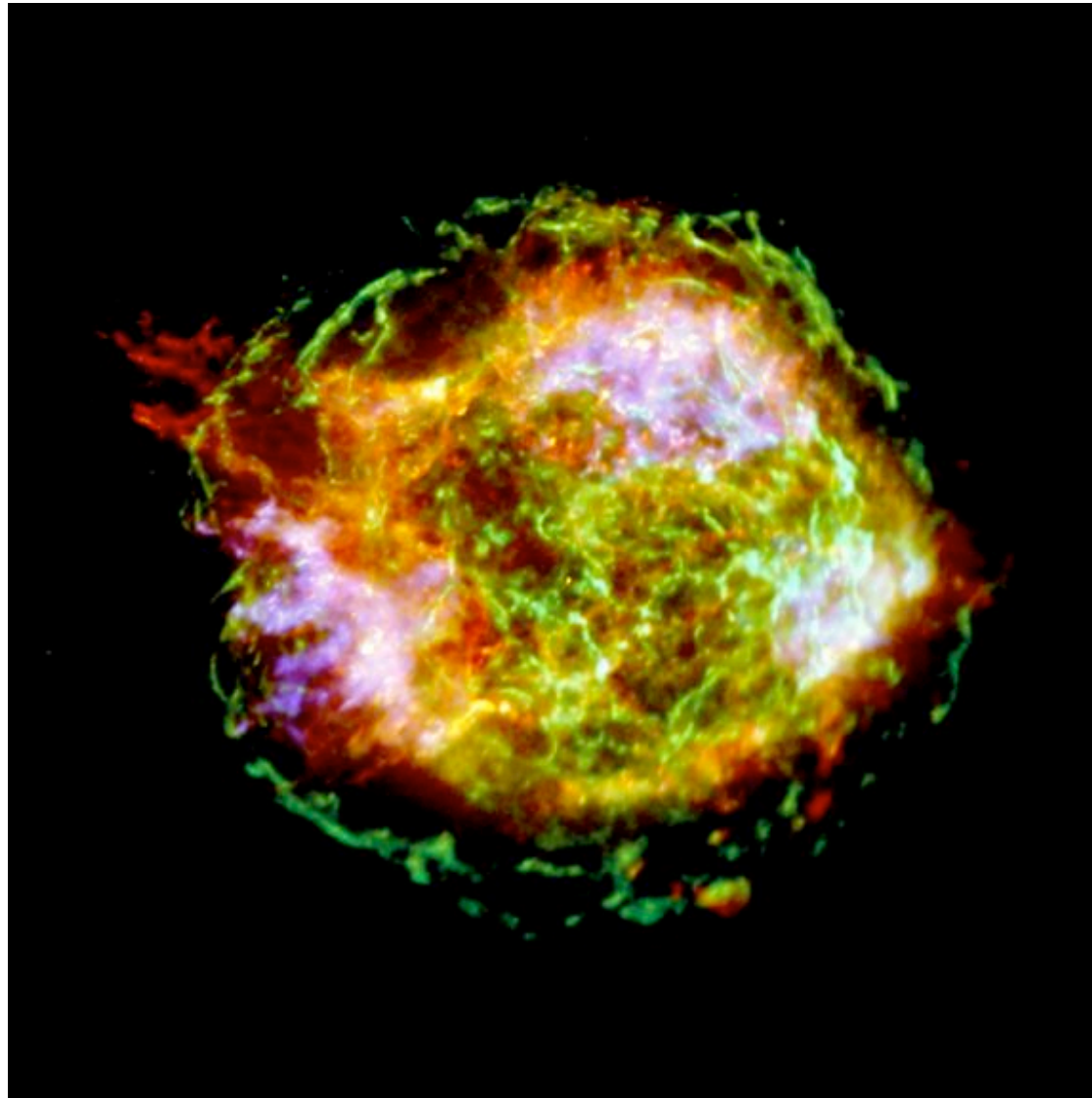
Fe emission

Complicates

Spectrum

below

1.2 keV



Cas A

4 X 4 arcmin

Significant spectral variations throughout the remnant

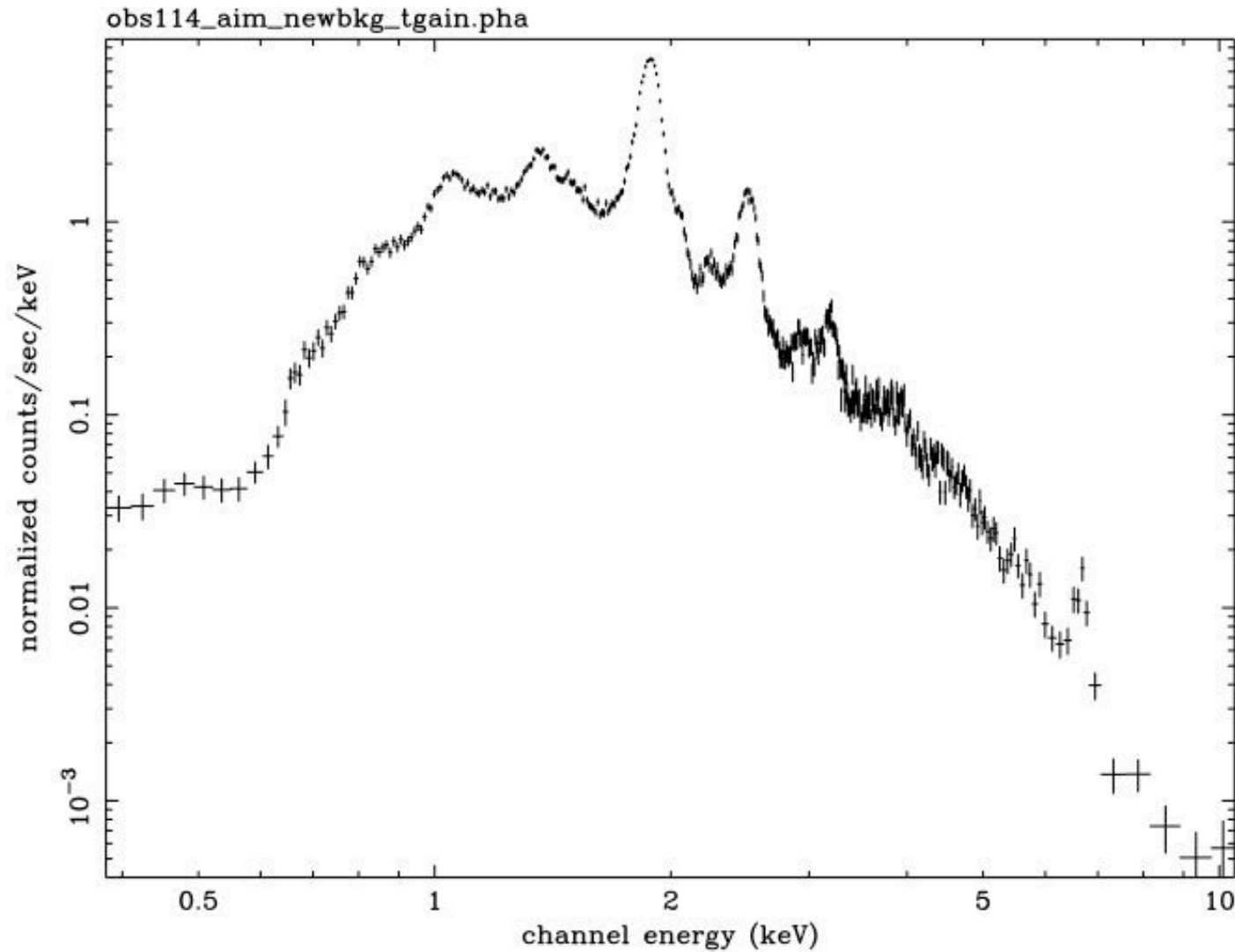
Strong Si & S lines useful for gain and spectral redistribution calibration



Chandra X-Ray Observatory

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Cas A: OBSID 114, Representative Spectrum from one region



Cas A

Spectrum
from one
region

Strong Si
& S lines