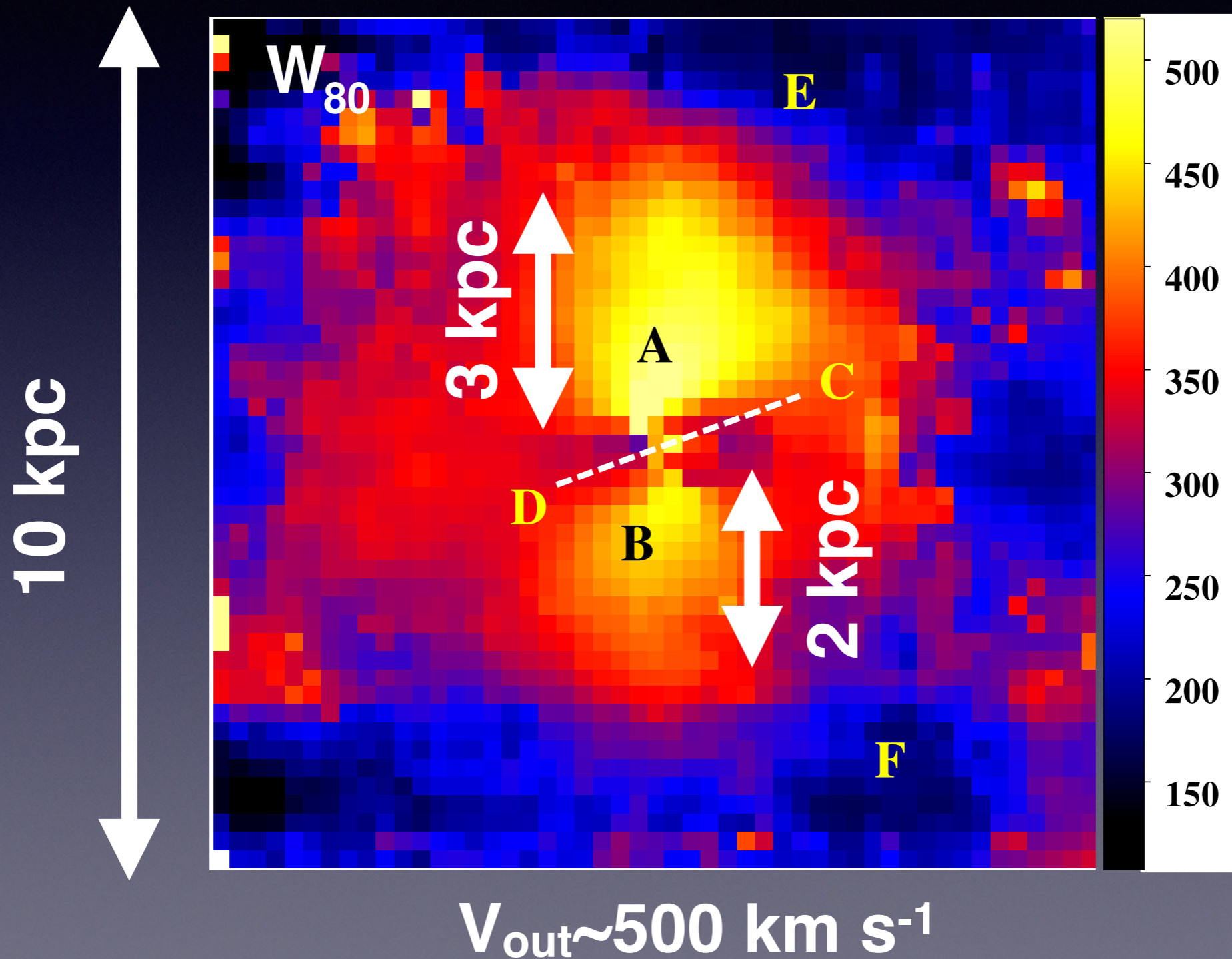# The case of the galactic wind in 1H 0419-577
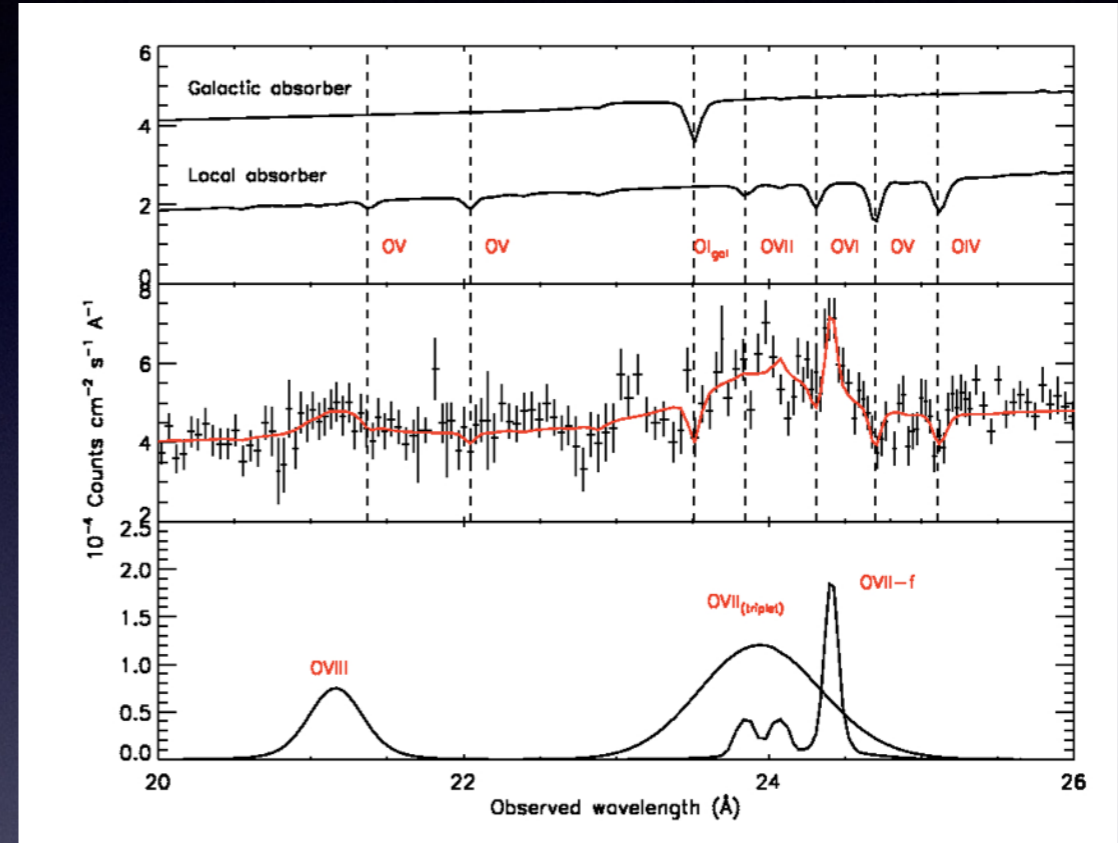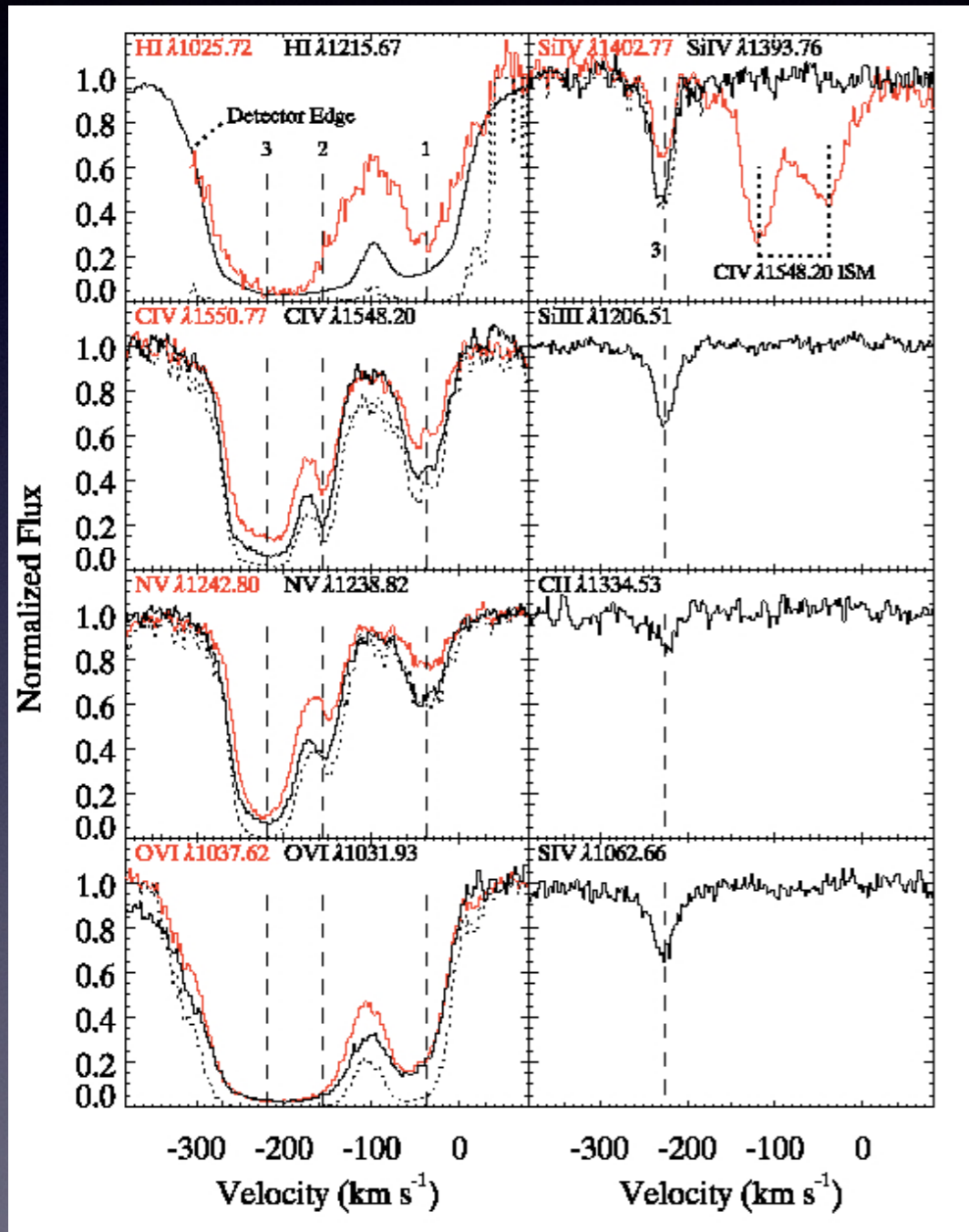
Di Gesu L. Costantini E., Piconcelli, E. et al.

The galactic outflow: [O III]

The galactic outflow: WA
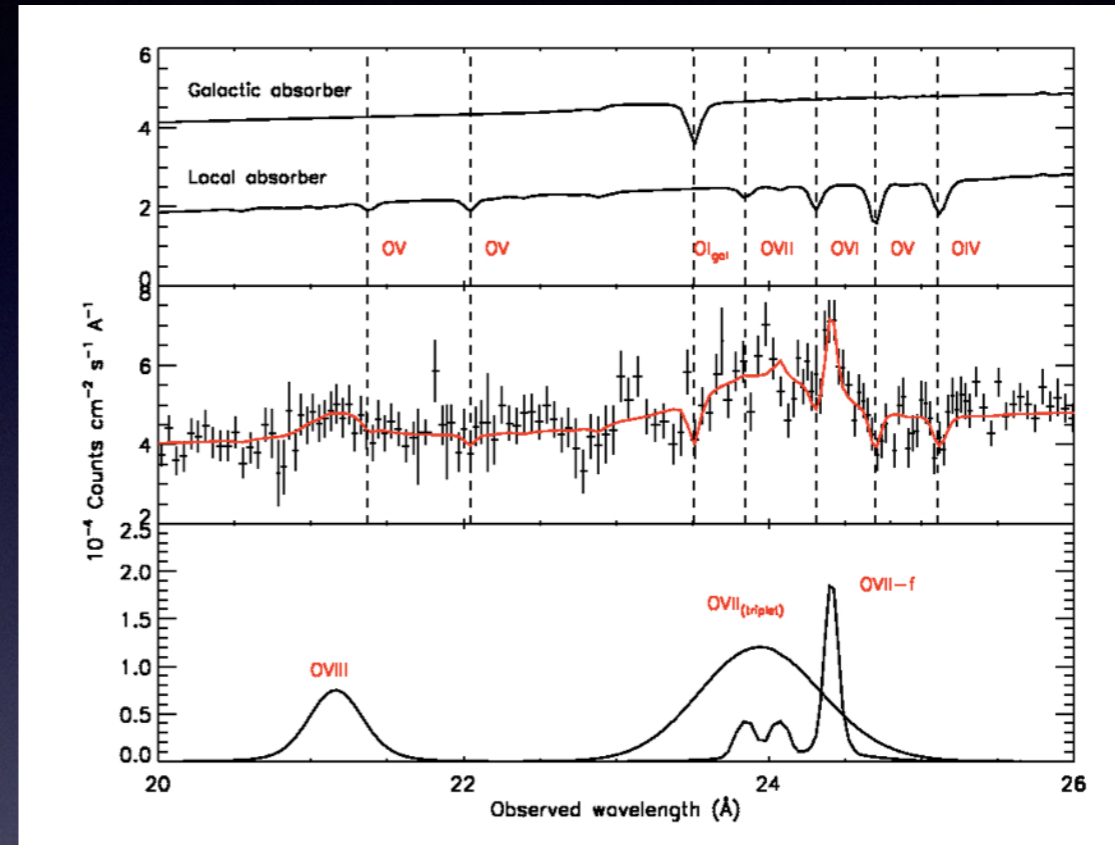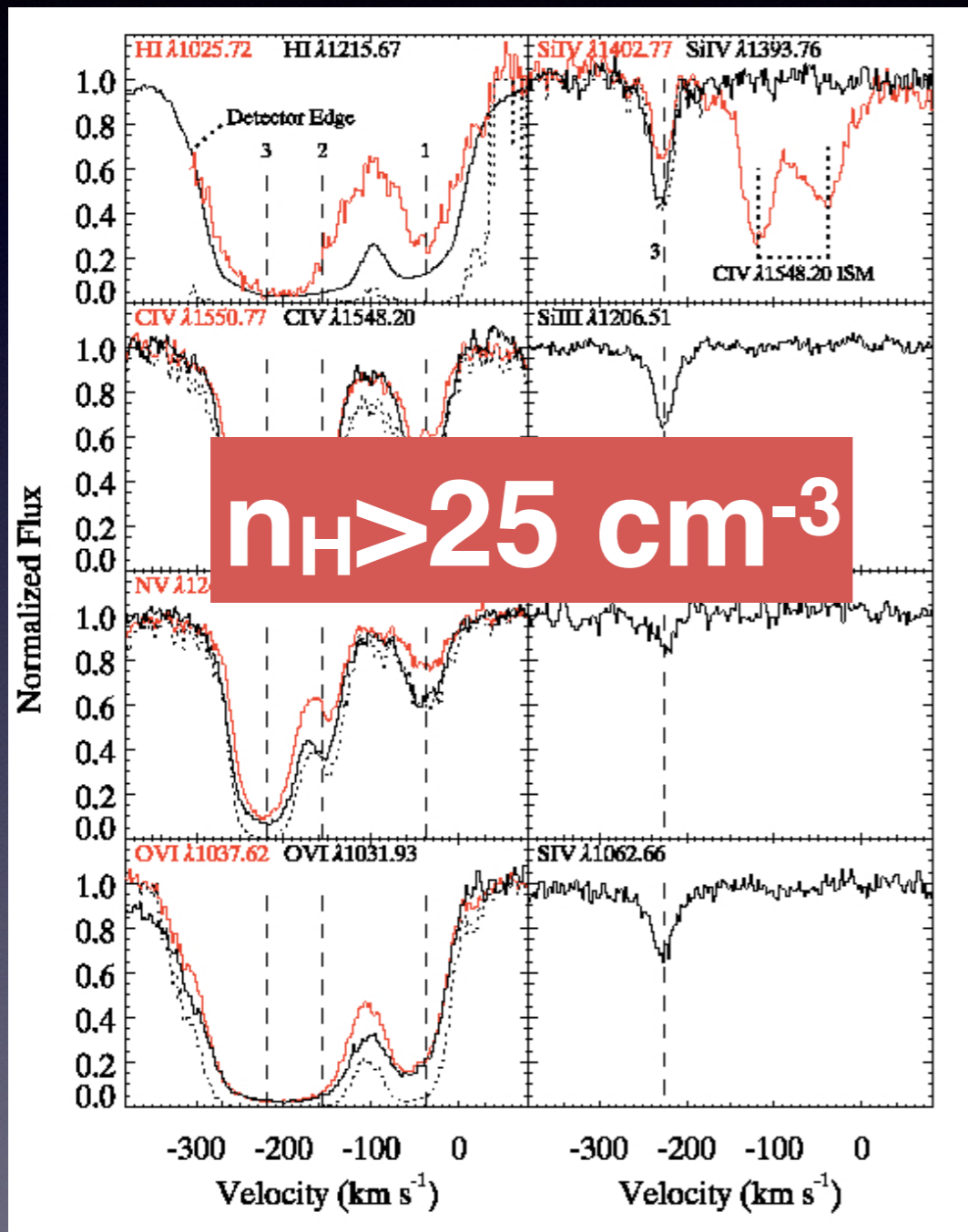
The galactic outflow: WA

n_H>25 cm⁻³

The galactic outflow: WA

Edmonds et al. 2011

Di Gesu et al. 2013

log ξ ~0.03
log N_H~19.9 cm^{-2}

n_H>25 cm^{-3}

The galactic outflow: WA

Edmonds et al. 2011

Di Gesu et al. 2013

log ξ ~0.03
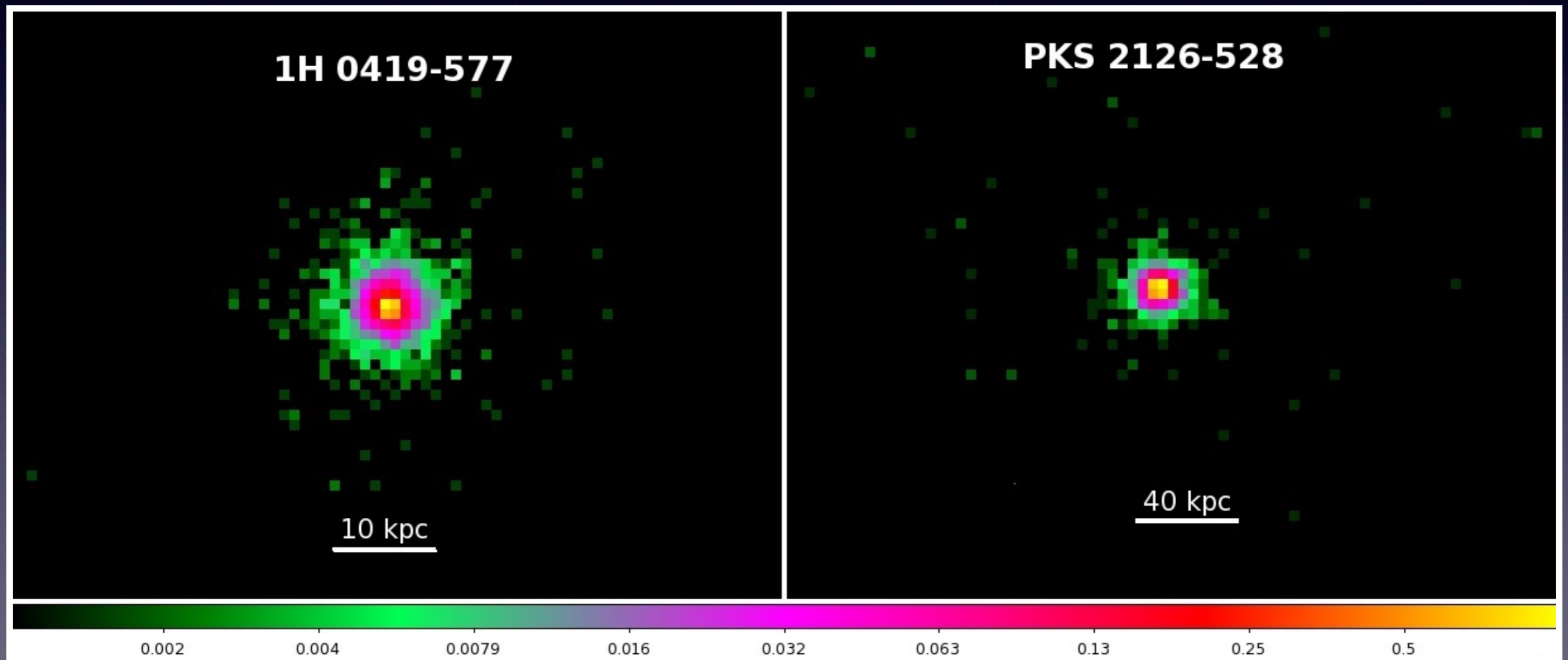log N_H~19.9 cm^{-2}
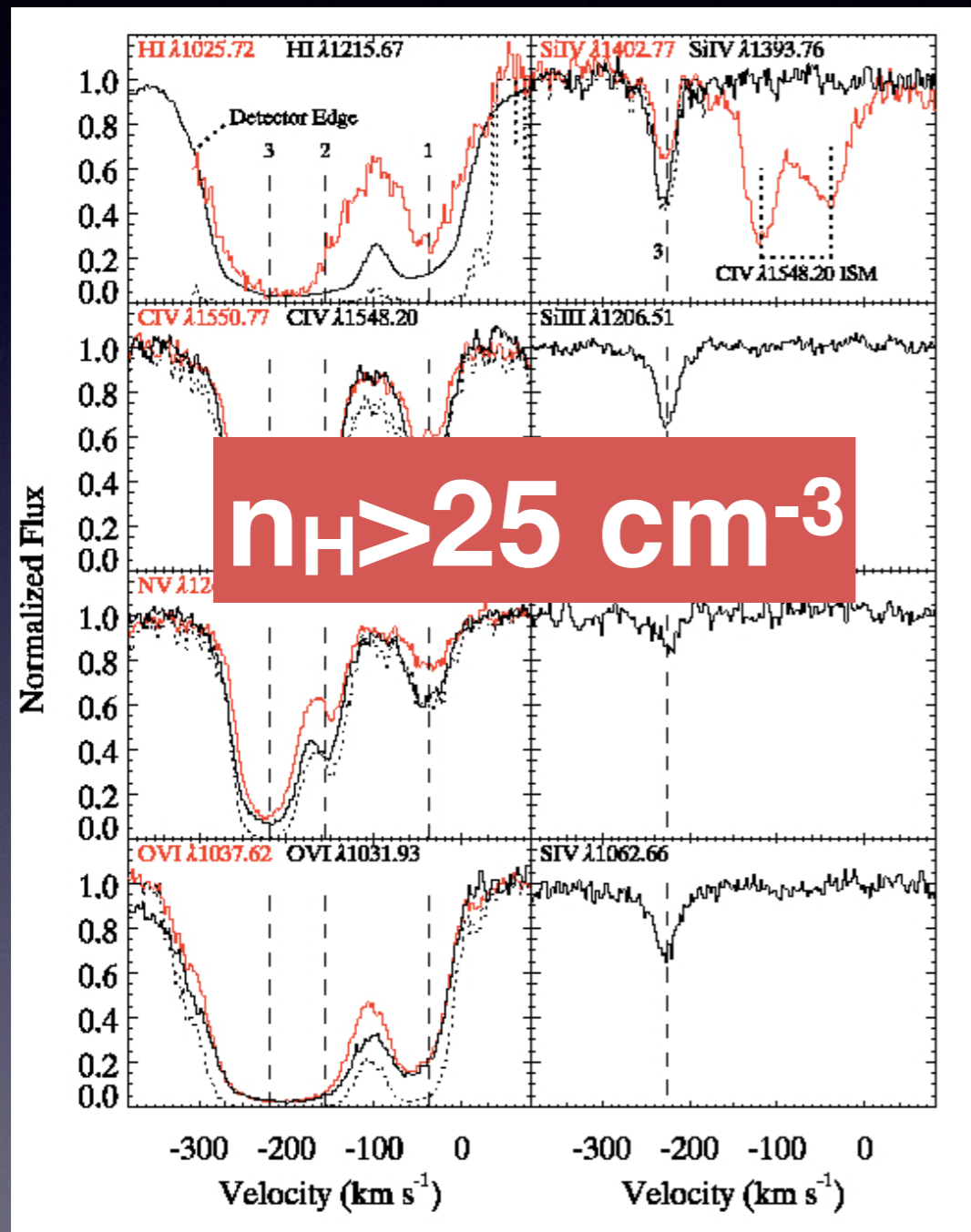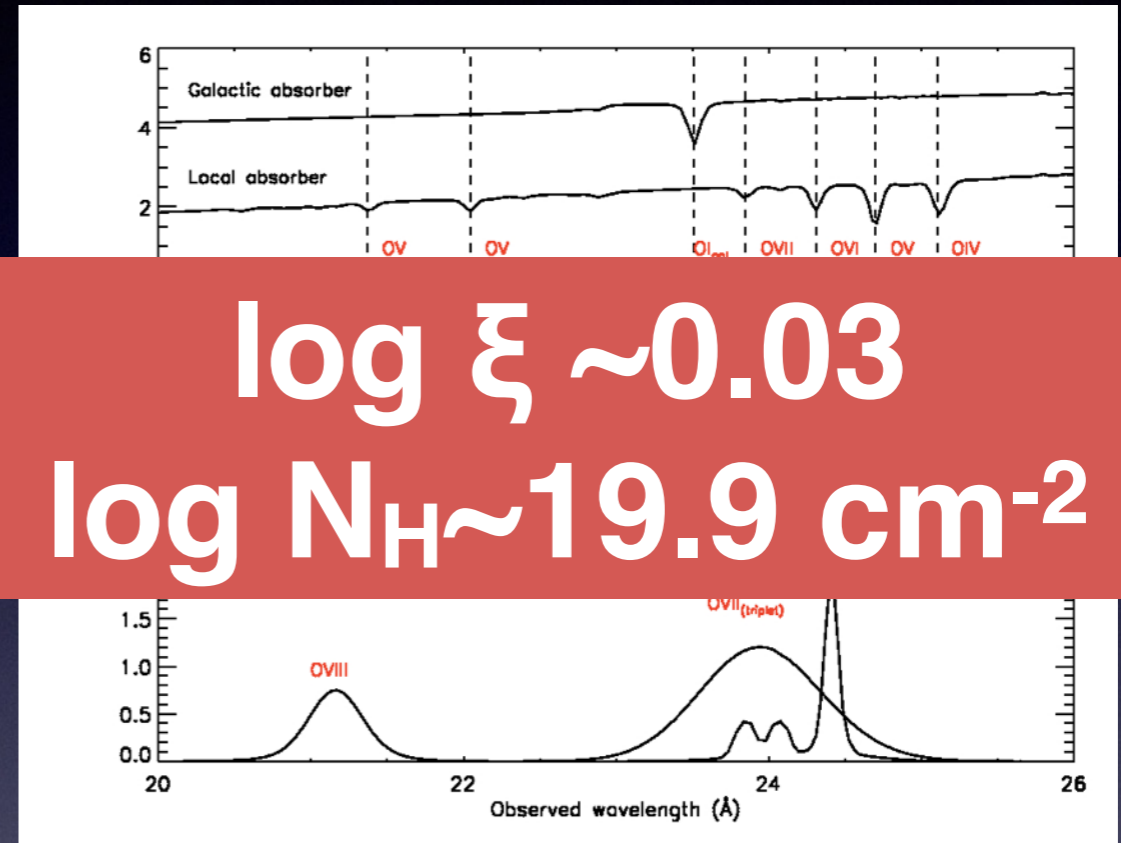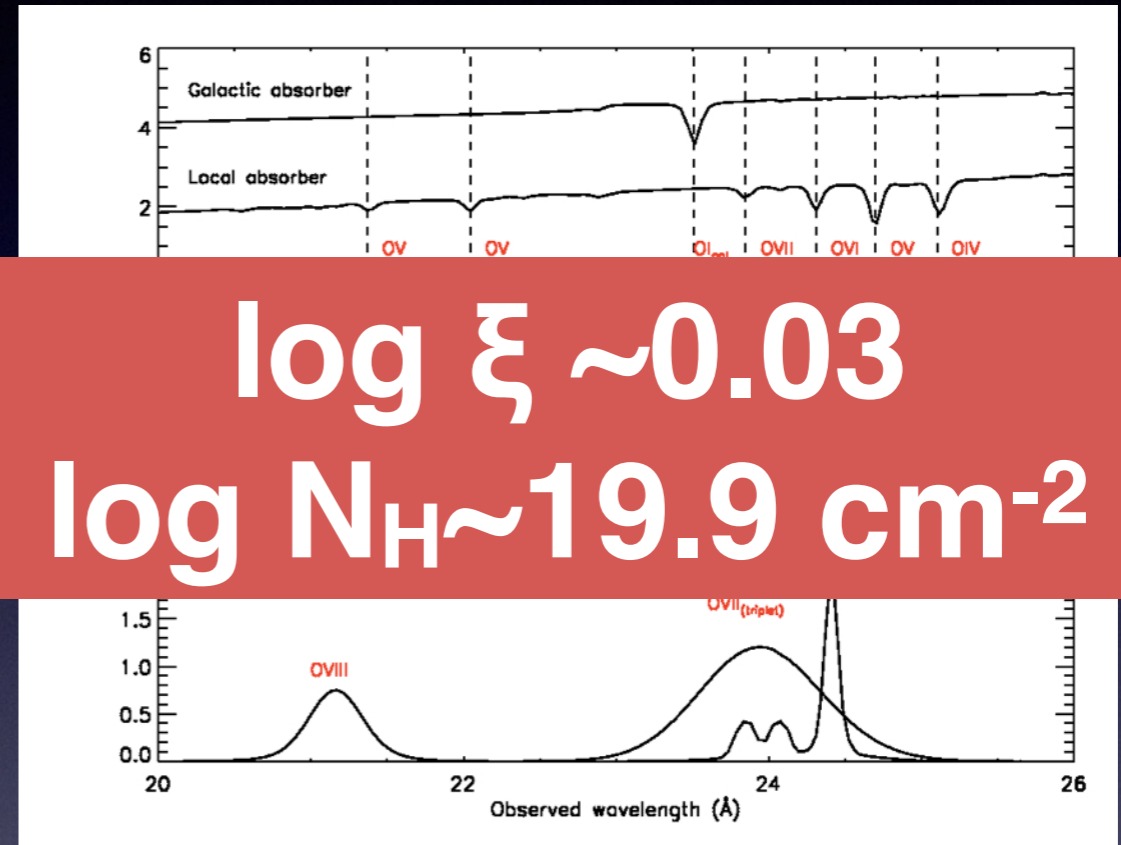
n_H>25 cm^{-3}

$$d \geq \sqrt{\frac{L_{ion}}{n_H \xi}} \approx 4\,\text{kpc}$$

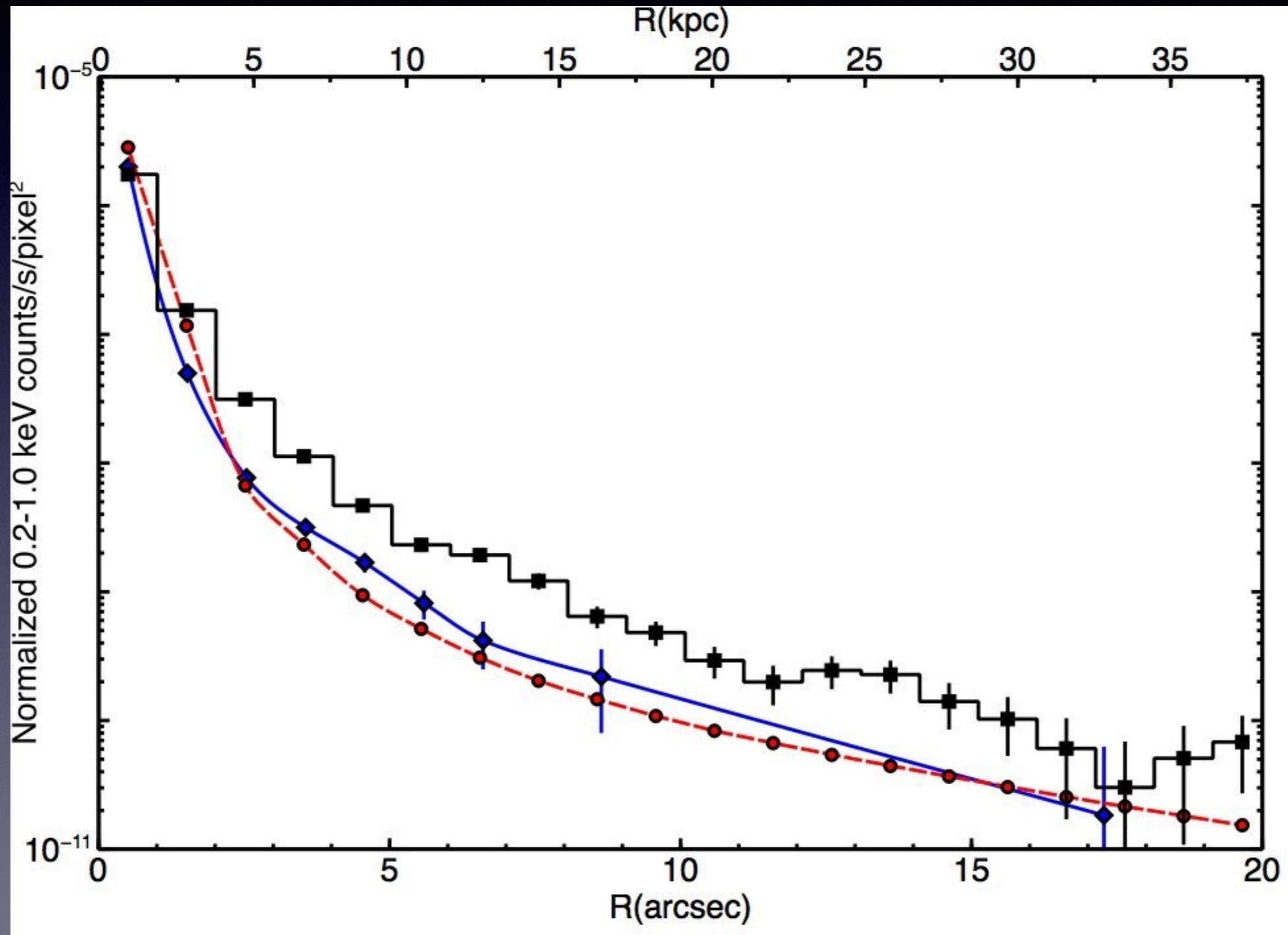# Extended X-ray emission: ROSAT
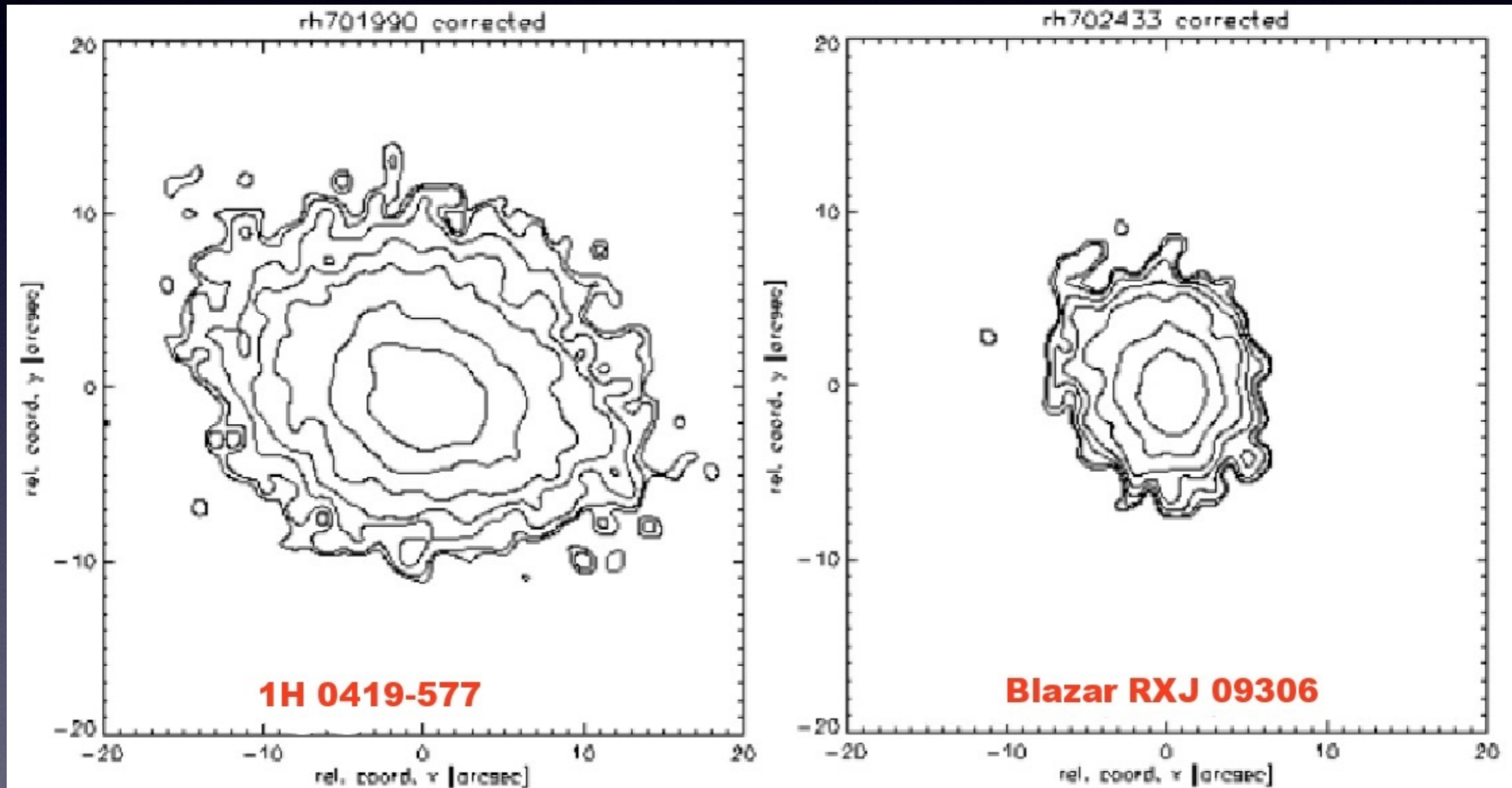
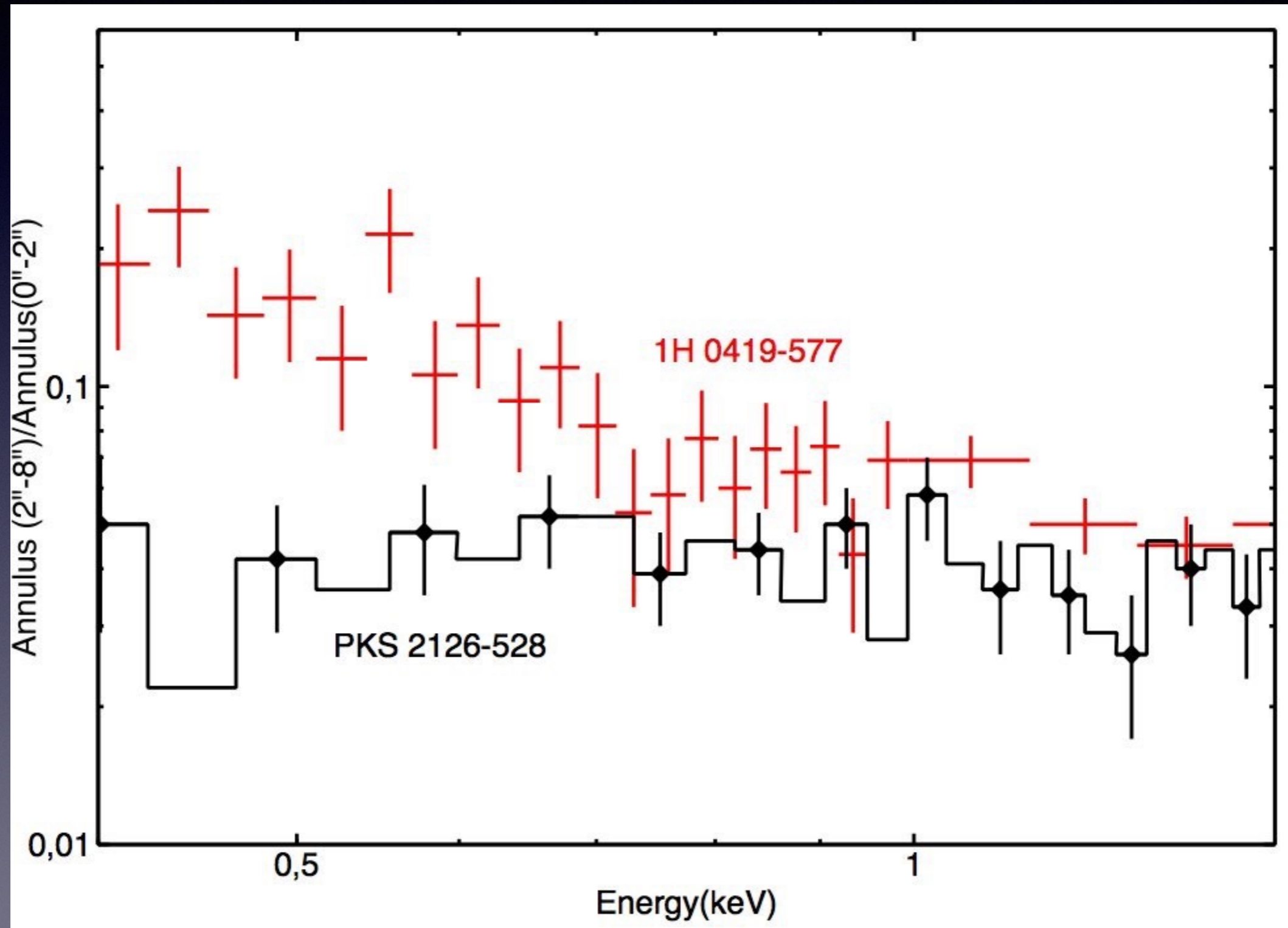*Predhel&Prieto 2001*

Extended X-ray emission: Chandra-ACIS

Di Gesu et al. (to be submitted)
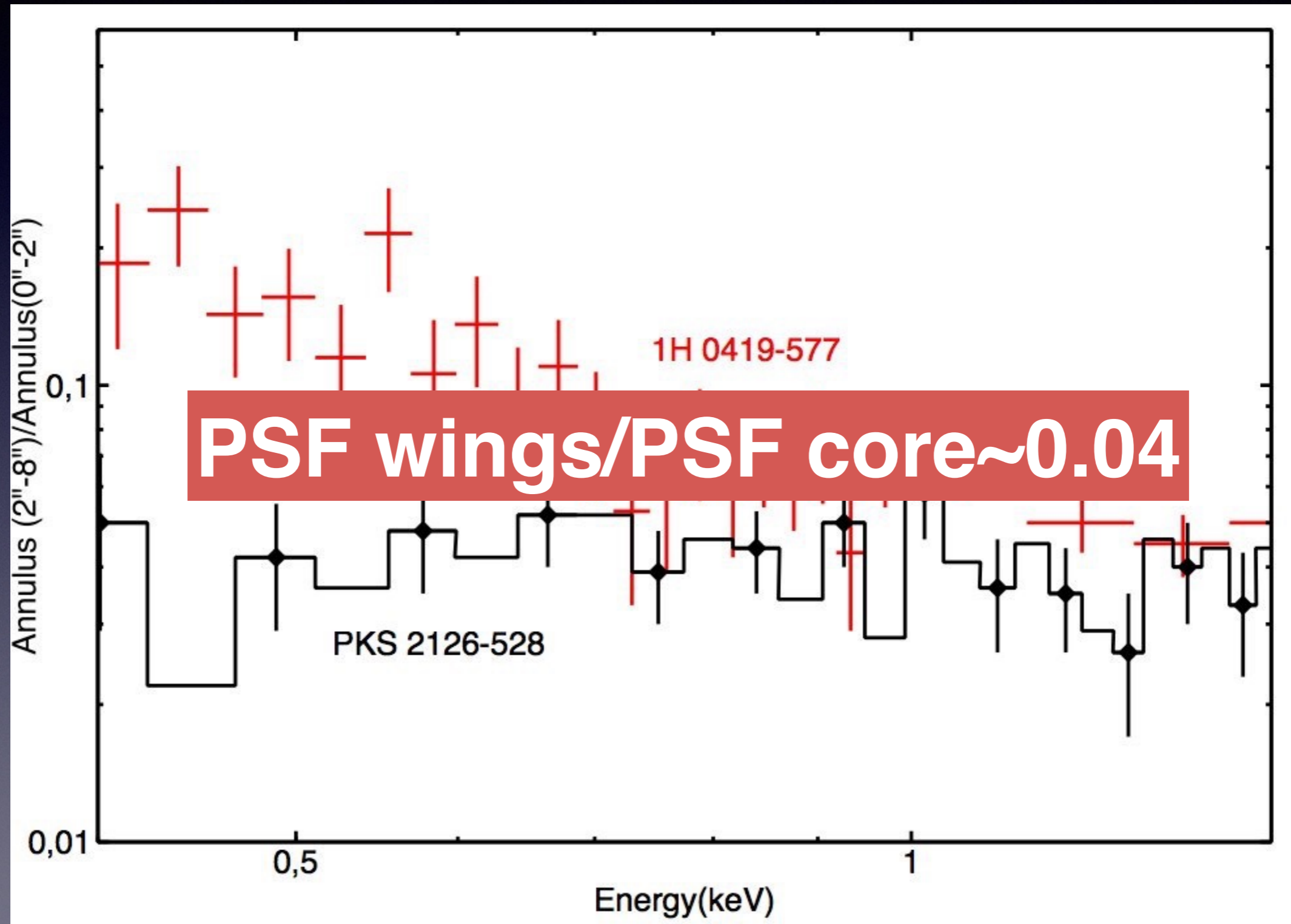
Surface brightness profile

Spectrum

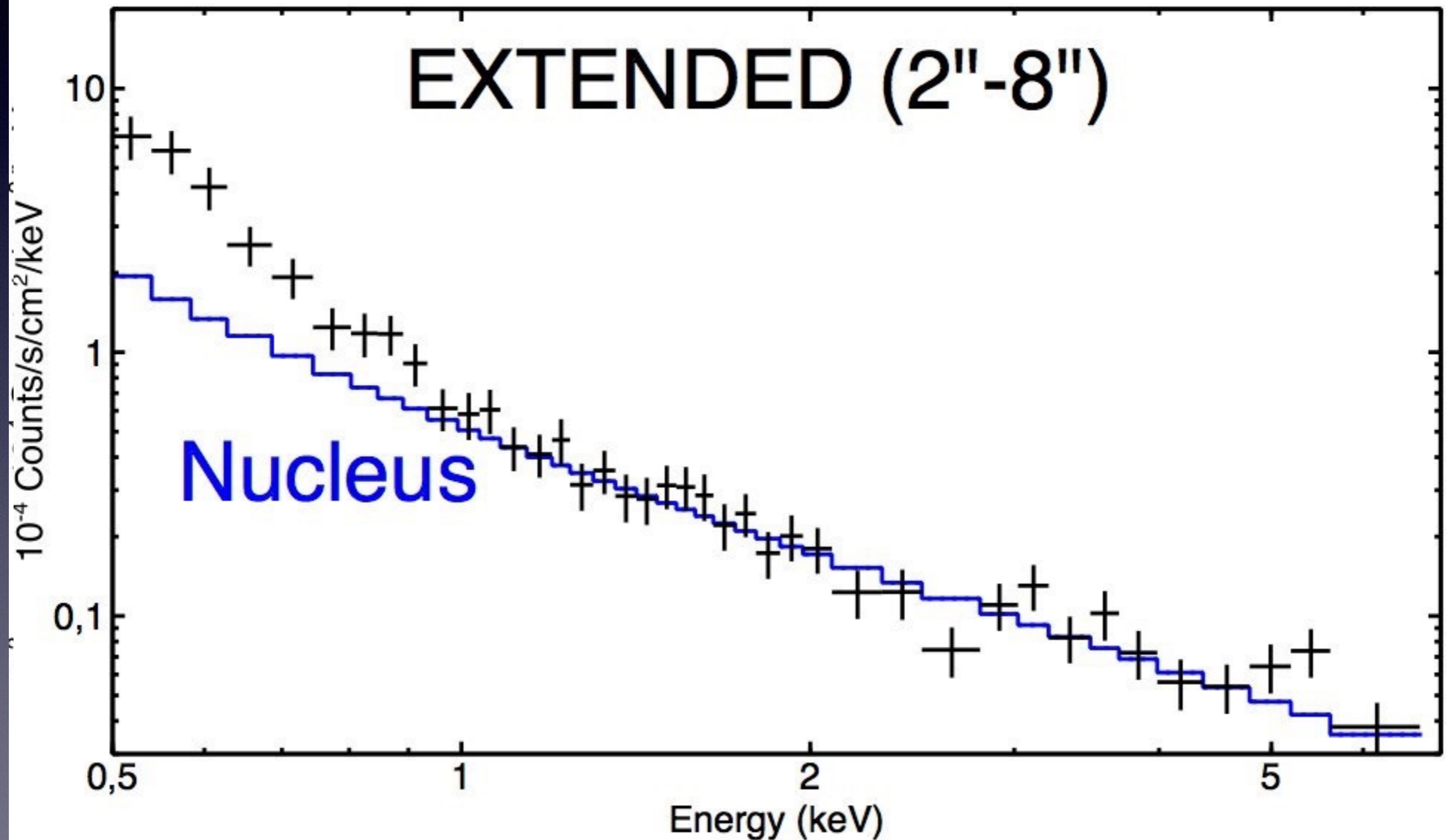# Spectrum

Modeling the nuclear contamination

Modeling the nuclear contamination

EXTENDED (2"-8")

$L \sim 2E^{42}$ erg s^{-1}

Nucleus

10^{-4} Counts/s/cm^2/keV

Energy (keV)
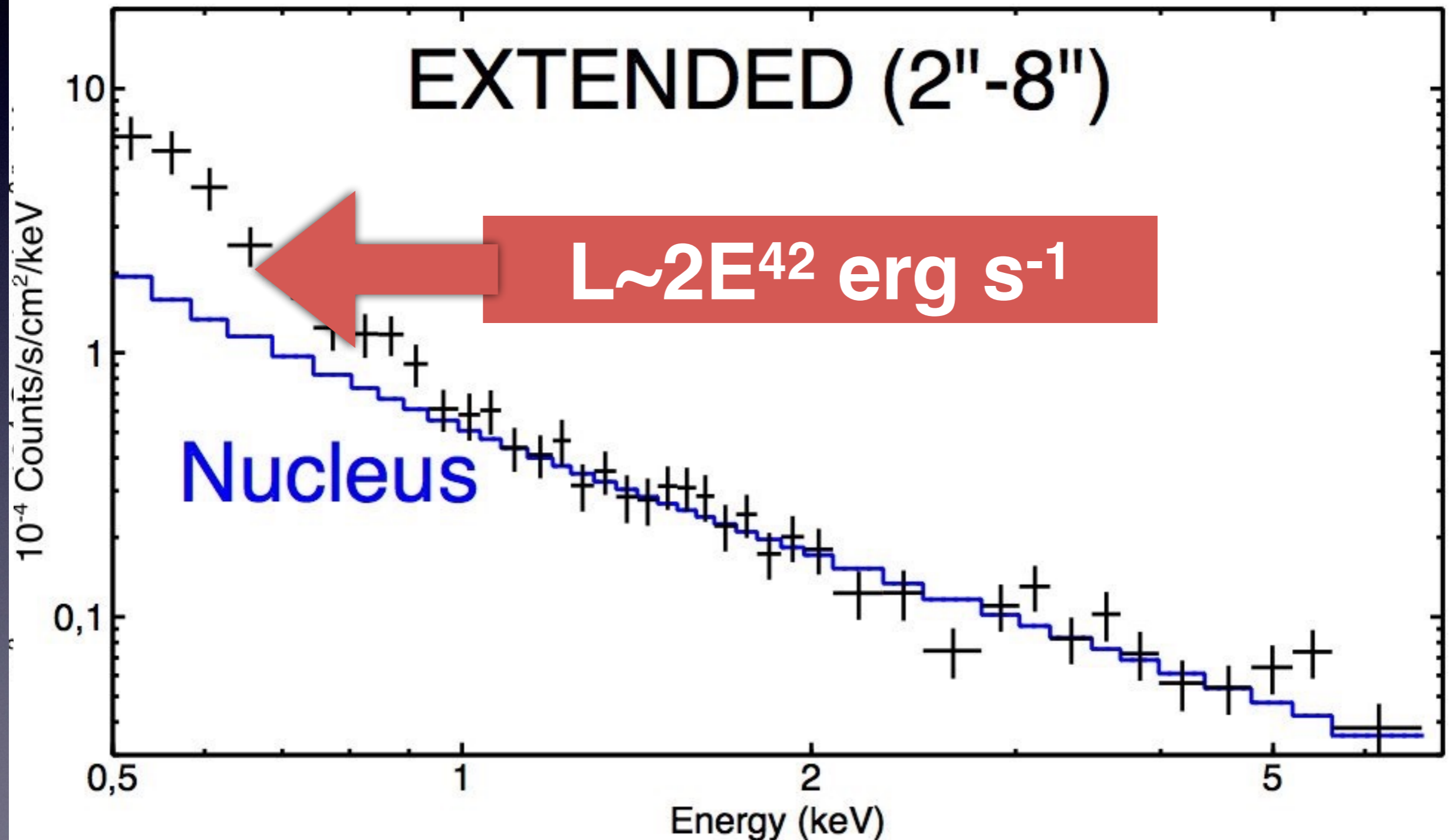
This is not:

DUE to the X-ray halo
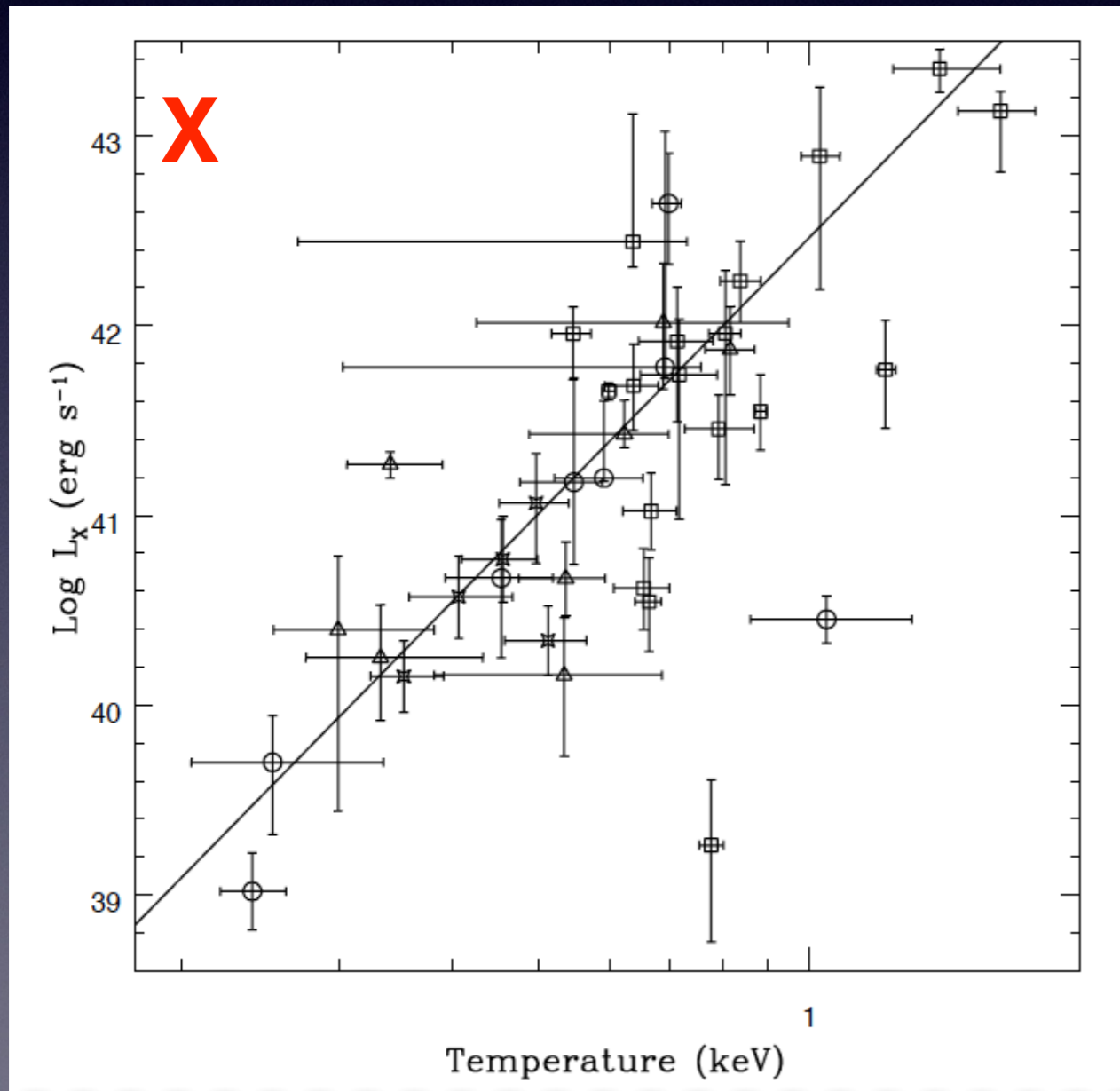
due to the starburst

O'Sullivan 2003

$L_{24\mu m}$=9E10 $L_\odot$

Rieke 2009

SFR <70 $M_\odot$/yr

Ranalli 2003

$L_{X,SFR}$< 3E^{41} ergs s^{-1}

Photoionized Nebula

log ξ ~1.3
log N_H~21.1 cm^{-2}
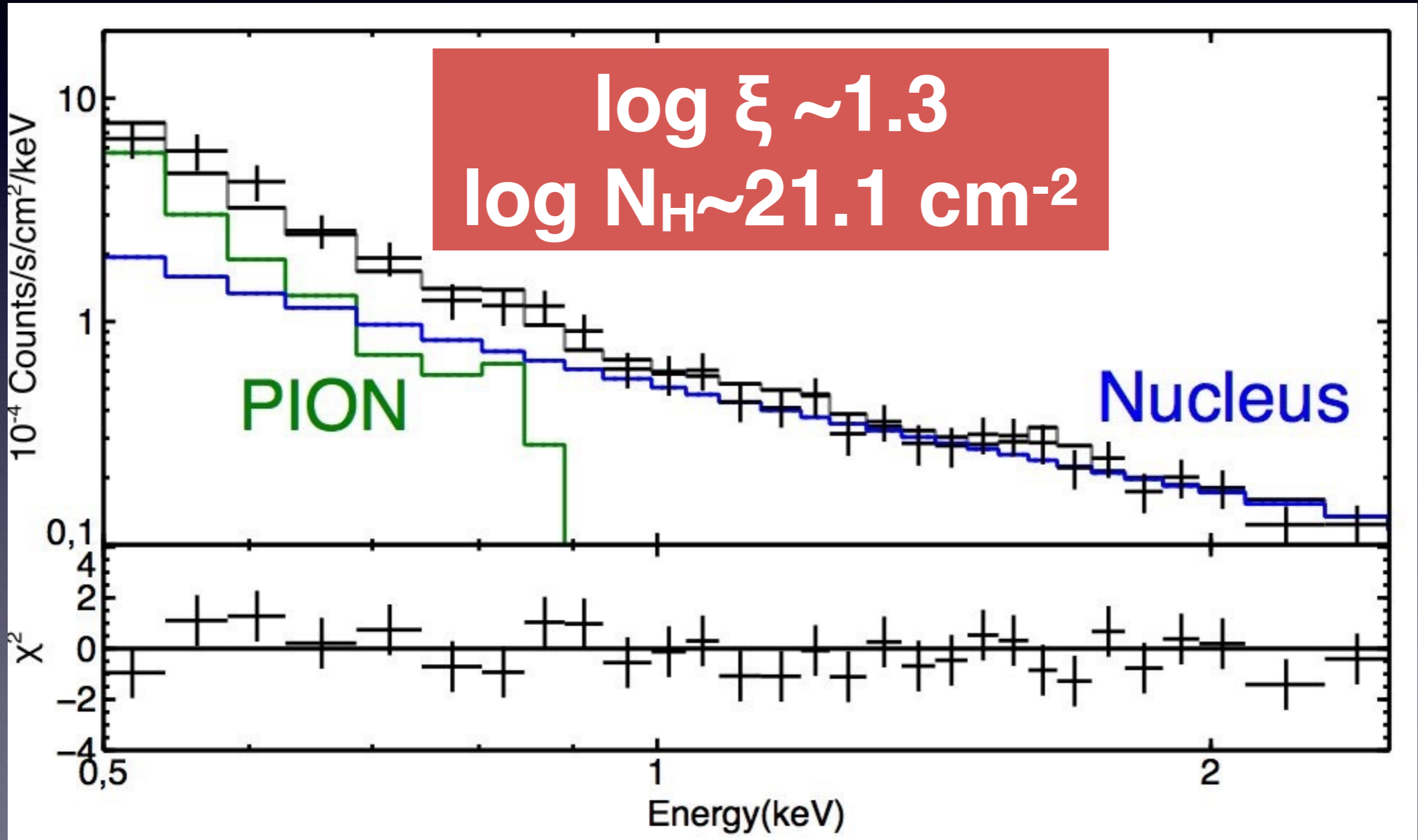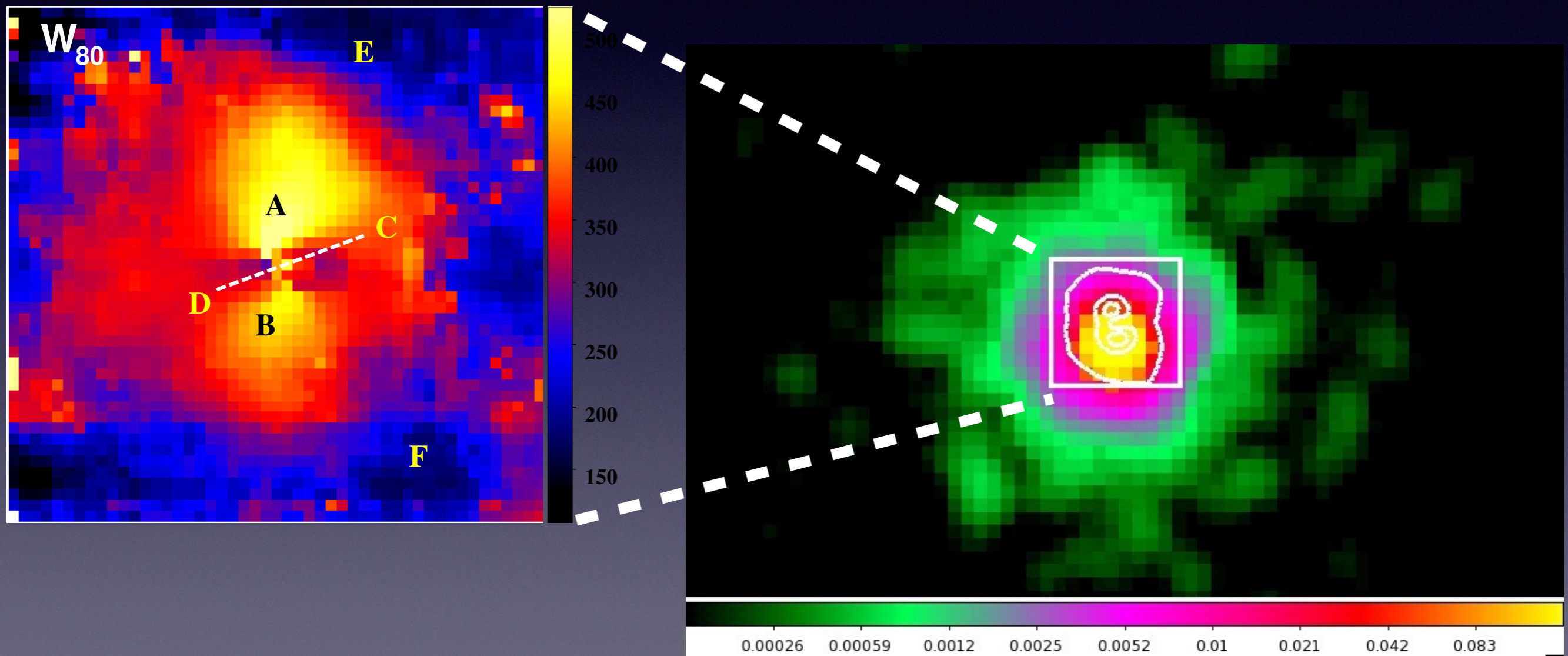
[O III] vs soft X-ray

[O III] vs soft X-ray
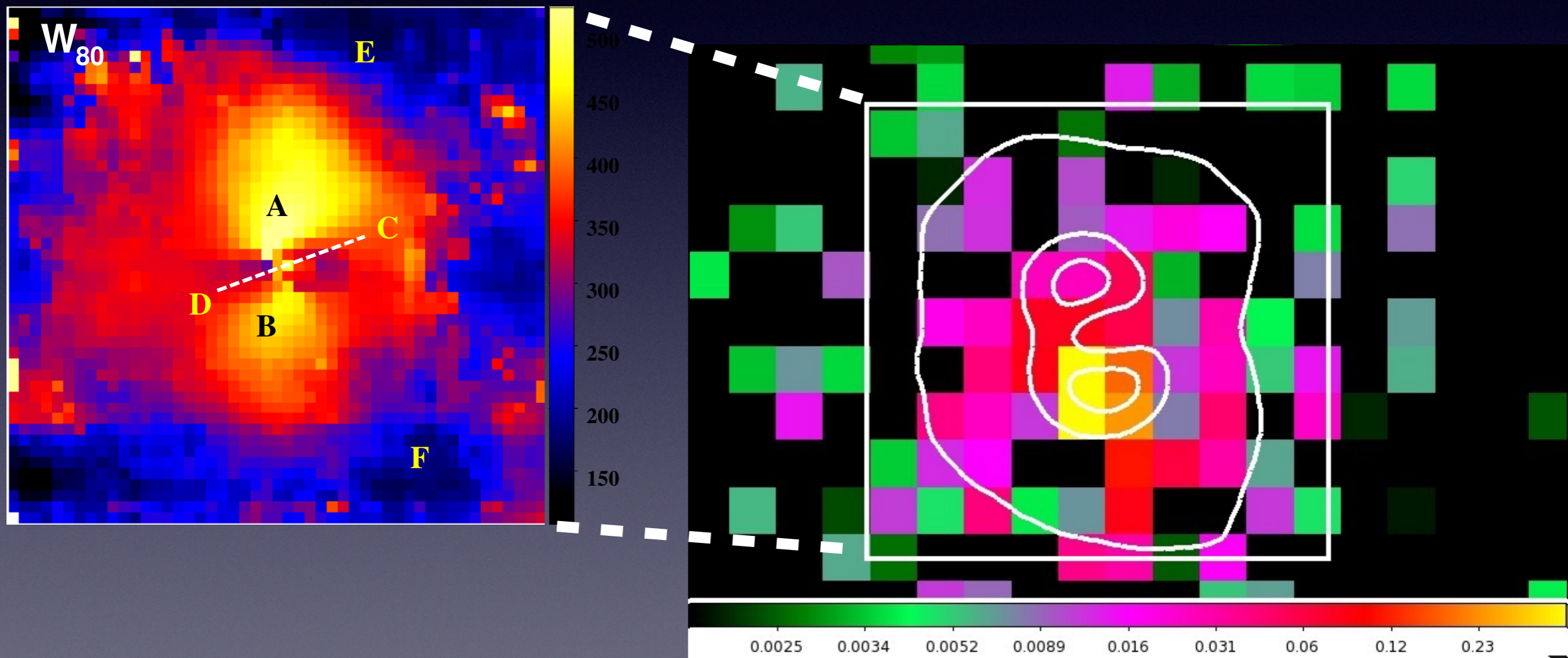
No connection with the WA

log ξ ~1.3
log N_H~21.1 cm^{-2}
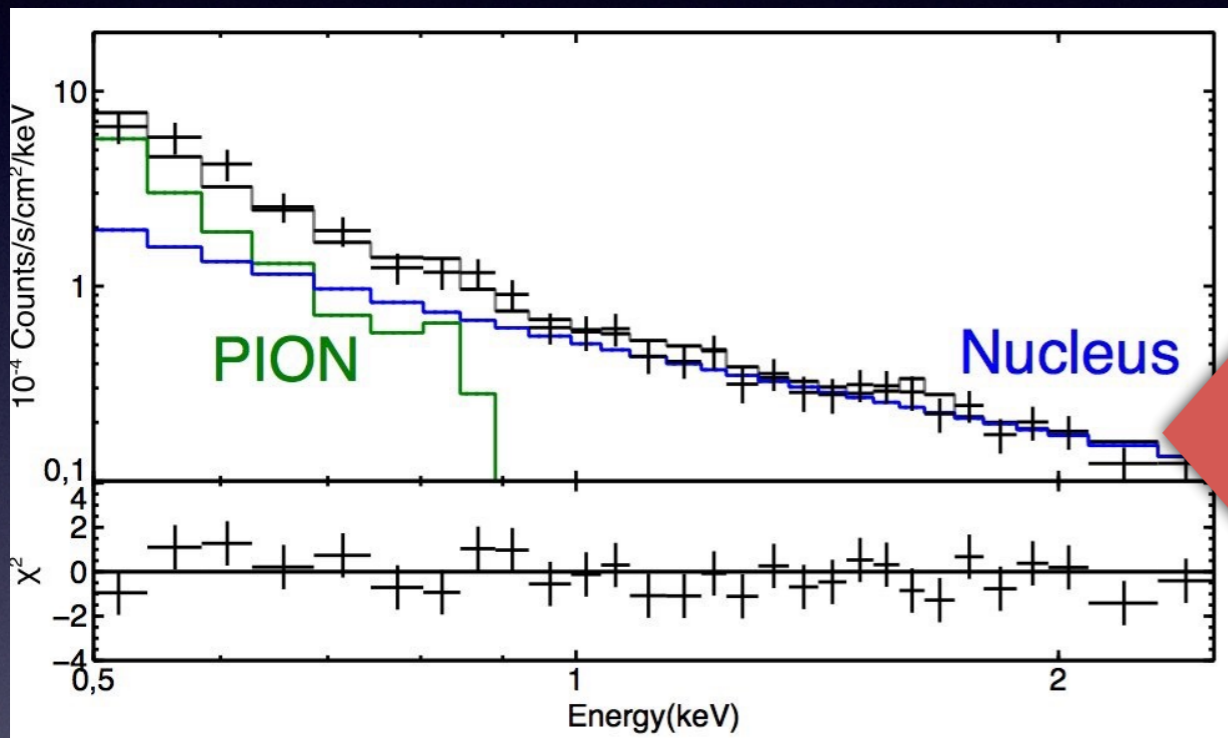
log ξ ~0.03
log N_H~19.9 cm^{-2}

Shocked gas

T ~0.22 keV
$n_H \sim 10^{-3} cm^{-3}$
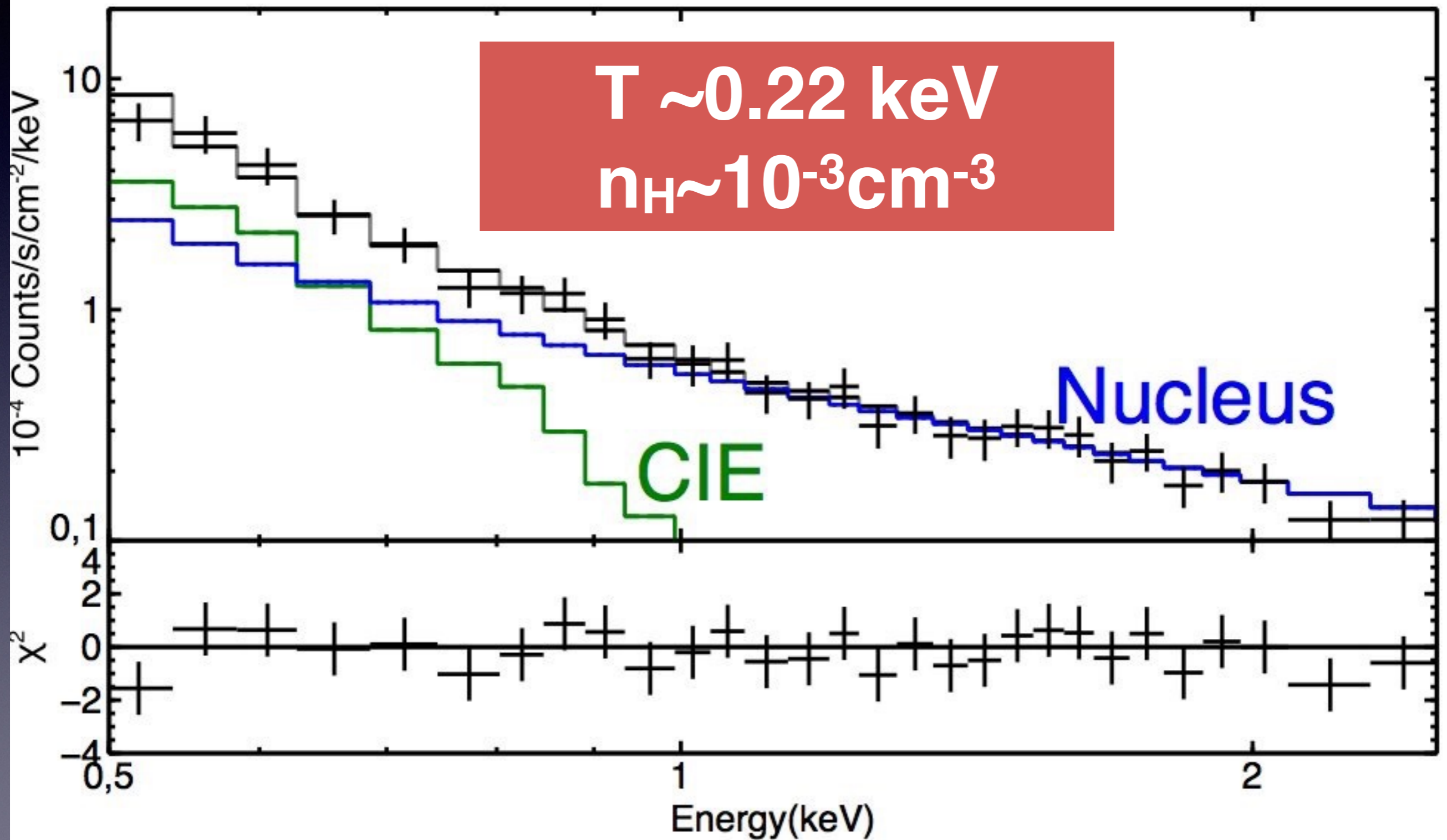
Cooling of a shocked wind bubble

outer shock

molecular gas clumps
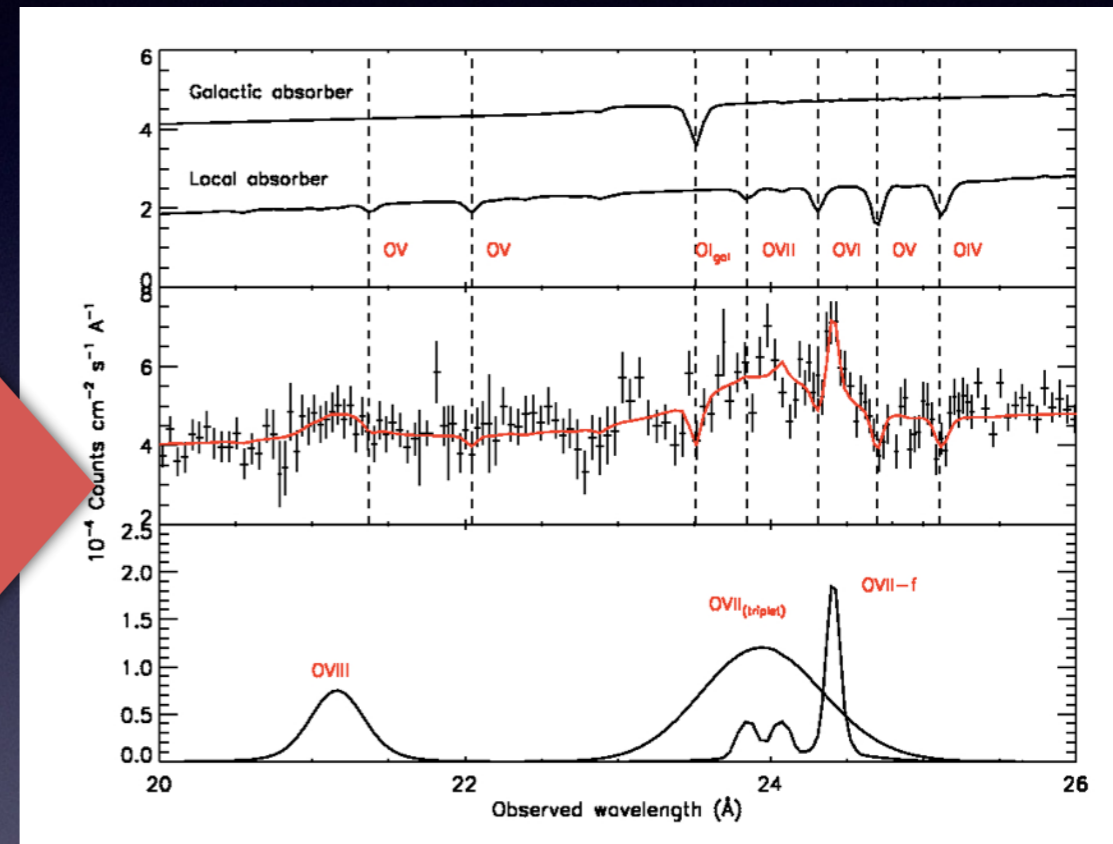
ISM

shocked ISM

contact discontinuity

wind shock

AGN

wind

shocked wind

Rayleigh-Taylor instabilities
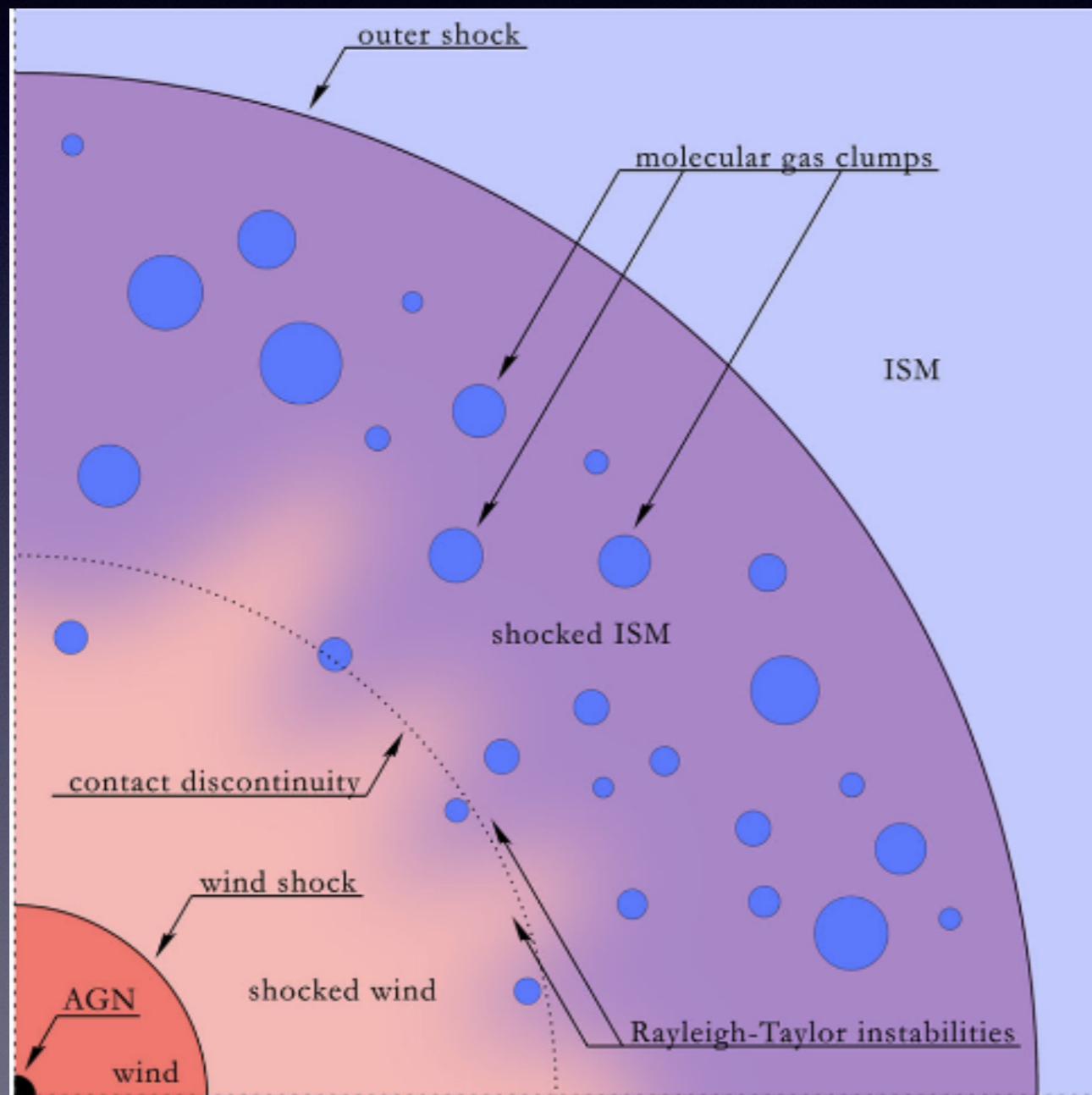
Zubovas&King 2014

…but see also e.g.
Costa+15
Liu+13

Conclusion

Conclusion

Photoionized Nebula

log ξ ~1.3
log N_H~21.1 cm^{-2}

PION

Nucleus

10^{-4} Counts/s/cm^2/keV

χ^2

Energy(keV)
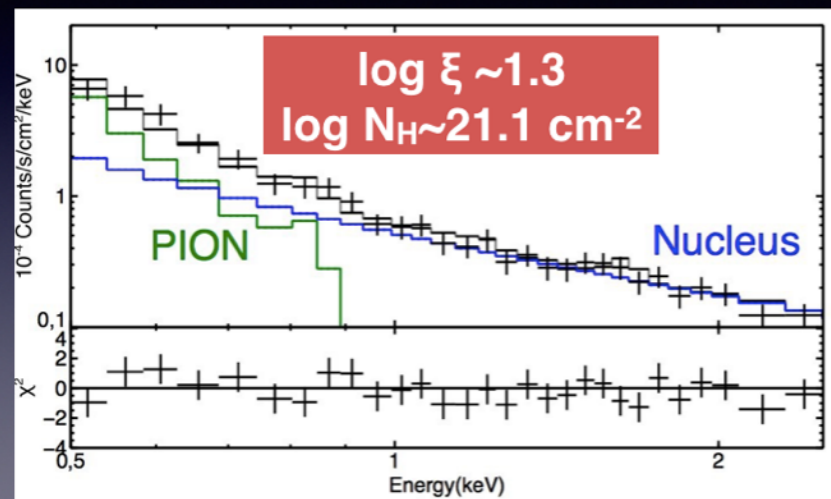
different from
otoionized absorber

Conclusion

Photoionized Nebula

log ξ ~1.3
log N_H~21.1 cm^{-2}

PION

Nucleus

10^{-4} Counts/s/cm^2/keV

X^2

Energy(keV)

Shocked gas

T ~0.22 keV
n_H~$10^{-3}cm^{-3}$

CIE

Nucleus

10^{-4} Counts/s/cm^2/keV

X^2

Energy(keV)
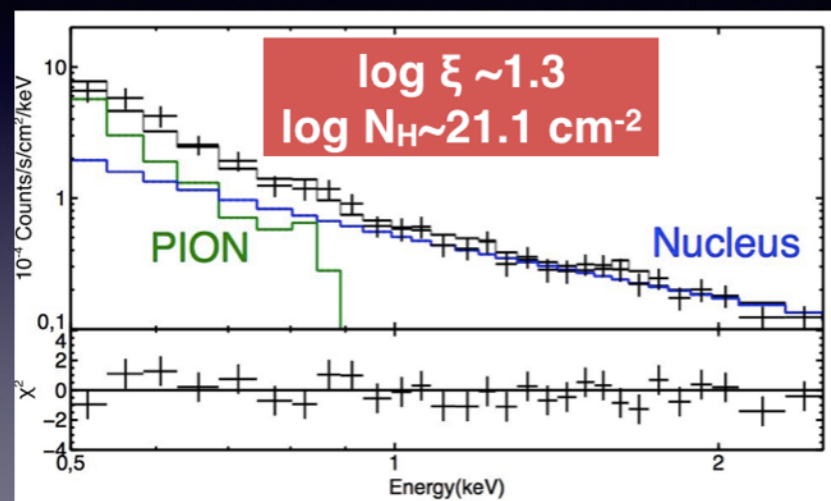
different from
photoionized absorber
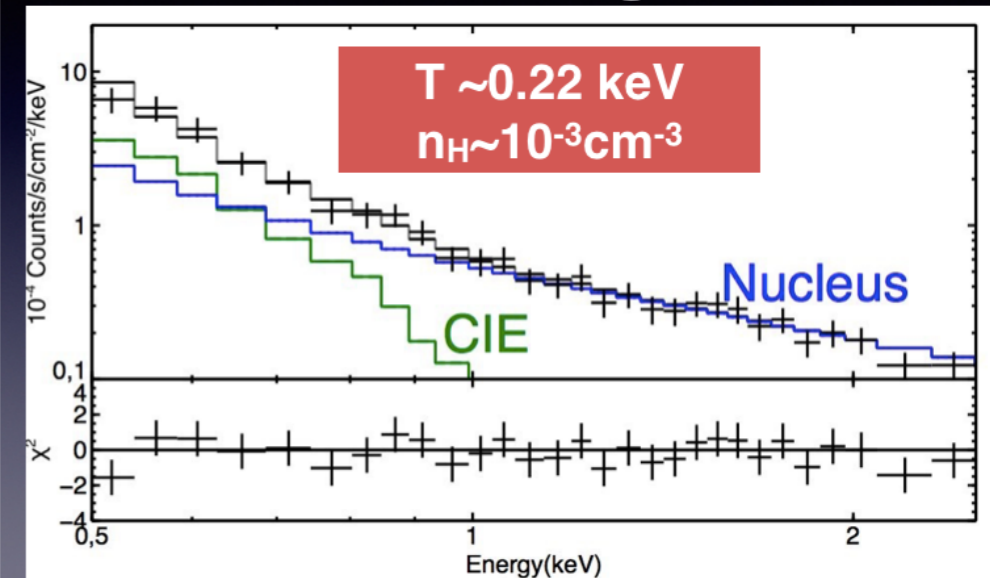
associated w
wind bubb

Conclusion

Photoionized Nebula

$\log \xi \sim 1.3$
$\log N_H \sim 21.1$ cm^{-2}

PION

Nucleus

Shocked gas

$T \sim 0.22$ keV
$n_H \sim 10^{-3}$cm^{-3}

CIE

Nucleus

different from
photoionized absorber

associated w
wind bubb

.........THANKS FOR YOUR ATTEN