Spectral study of a changing-state Seyfert 1 galaxy called H0557-385

2002
2006

Figure 1. EPIC pn spectra of H0557−385 in 2002 and 2006.
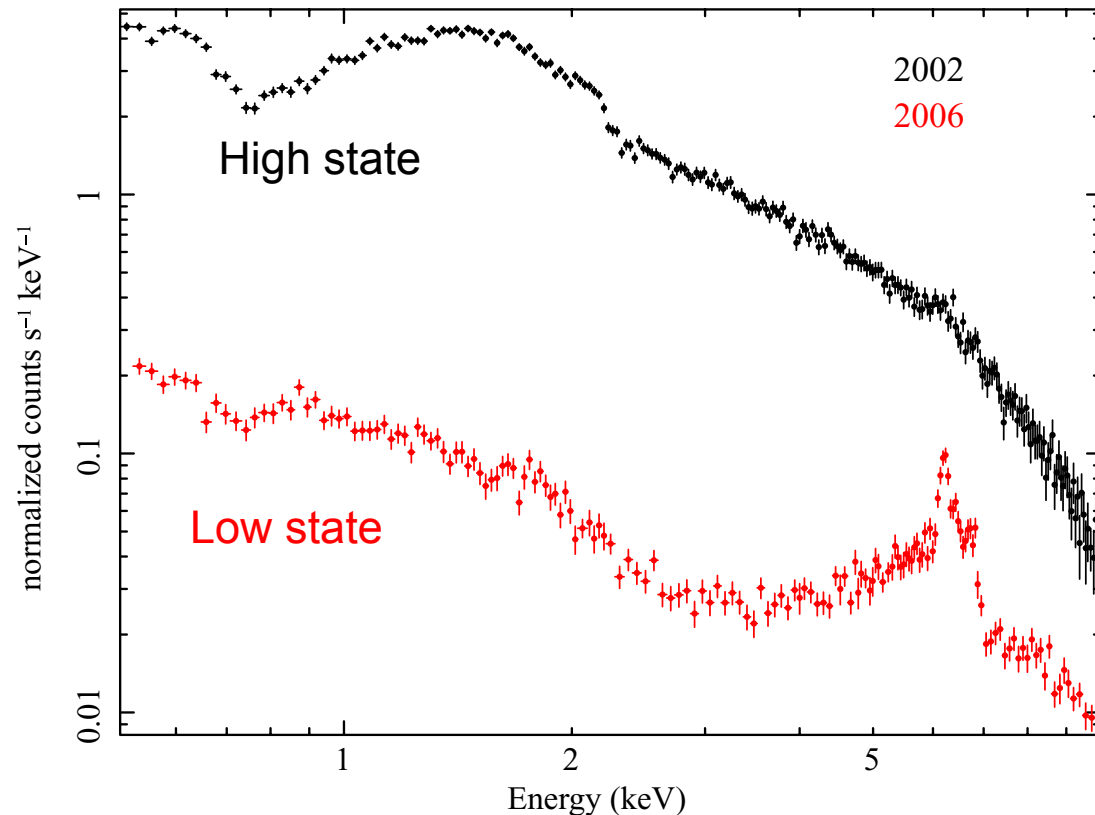
AIM OF THIS LAB

(A two state spectrum…)

→ Understand (if possible) whether (intrinsic) X-ray source emission has shut-off, and is now reflection dominated or whether it has experienced strong absorption along the l.o.s.

PLAN – Spectral study

Goals:

Obtain a best-fit model for the low state spectrum (2-10 keV) in case of:
    i) reflection-dominated scenario
    ii) absorption-dominated scenario

Optional:

2a) Expand best-fit down to 0.4 keV
2b) Obtain a best-fit model for the high state spectrum
2c) Or try <u>one</u> of the physical models for either the relativistic FeK line, or the relativistic reflection (tbc) or the absorption/wind model (tbc)

Low state

1) Extract image, light-curve and spectrum of the source, and fit the "hard" X-ray (E=2-10 keV) continuum of pn (only)

1a) Using a power-law (PL) model plus one Gaussian emission line

1b) Using a PL model plus a reflection continuum plus (one or two) Gaussian FeK emission lines.

1c) Using a PL model plus 1 partially covering models, either neutral or ionized, plus (one or two) Gaussian FeK emission lines.

Optional

2a) Expand best-fit down to 0.4 keV

2b) Obtain a best-fit model (2-10 keV) for the high state spectrum, to compare to the low state spectrum

2c) Or try <u>one</u> of the physical models for either the relativistic FeK line, or the relativistic reflection or the absorption/wind model

H0557-385

References:

Longinotti et al. 2009 (http://arxiv.org/abs/0810.0918)
Coffey et al. 2014 (http://arxiv.org/abs/1406.7129)

Source INFOs:

Classification: Seyfert 1.2

Z=0.03387 (10154 km/s)

M=5×10^7 $M_\odot$

Nhgal=3.7×10^{20} cm^{-2} (Kalberla et al. 2005)