

S. Chandrasekhar

NEWTON'S Principia

for the
Common
Reader



A progress report

Chandra and Newton
Common Low-Energy Grating Observations

Chandra Calibration Workshop

Oct 25-27, 2004

Vinay Kashyap

Jeremy Drake

Sun Mi Chung

Li Wei Lin

Deron Pease

Andy Pollock

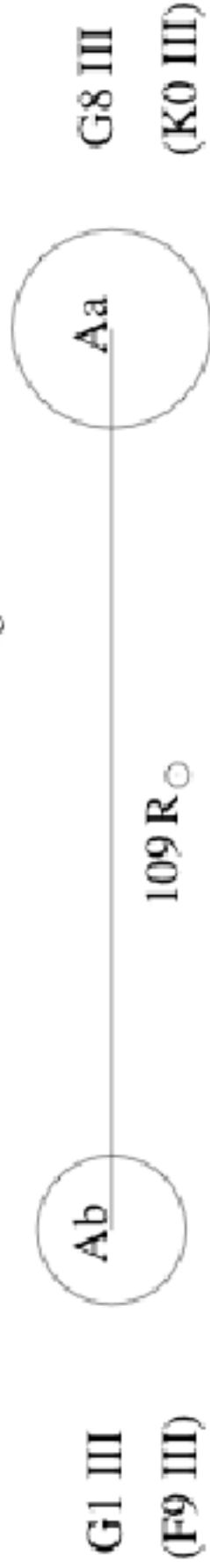
CAPELLA

α Aur / HD 34029 / HR 1708 / SAO 40186 / 13 Aur

distance = 13.4 pc

period = 104 days

inclination = 41 deg



Mass = 2.56 M_{\odot}

radius = 9.2 R_{\odot}

Teff = 5700 K

B-V = 0.74

Mv = 0.14

rotation = 36 km/s

Mass = 2.69 M_{\odot}

radius = 12.2 R_{\odot}

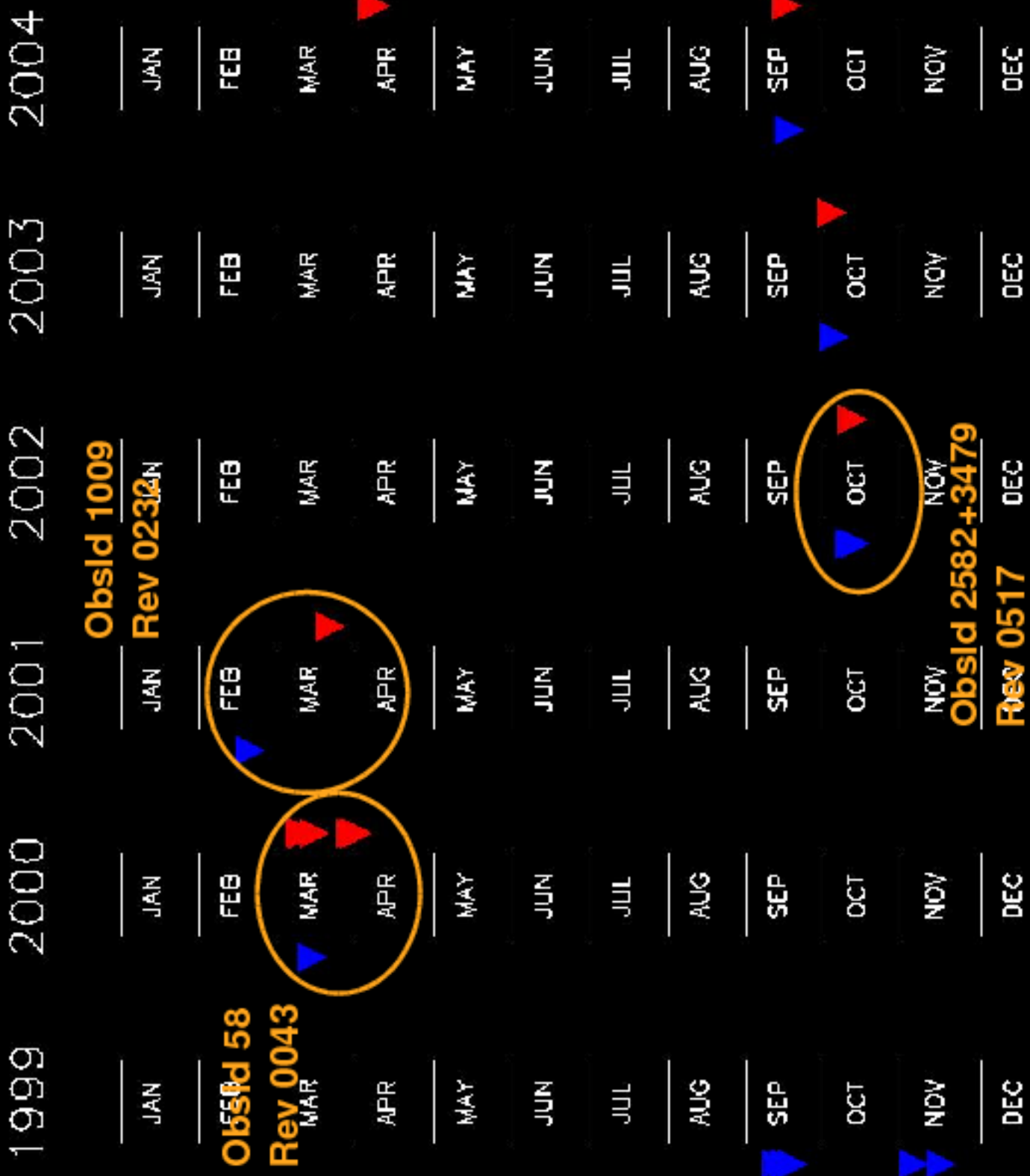
Teff = 4940 K

B-V = 0.87

Mv = 0.25

rotation = 3 km/s

$$L_x \sim 4 \times 10^{30} \text{ ergs/s}$$

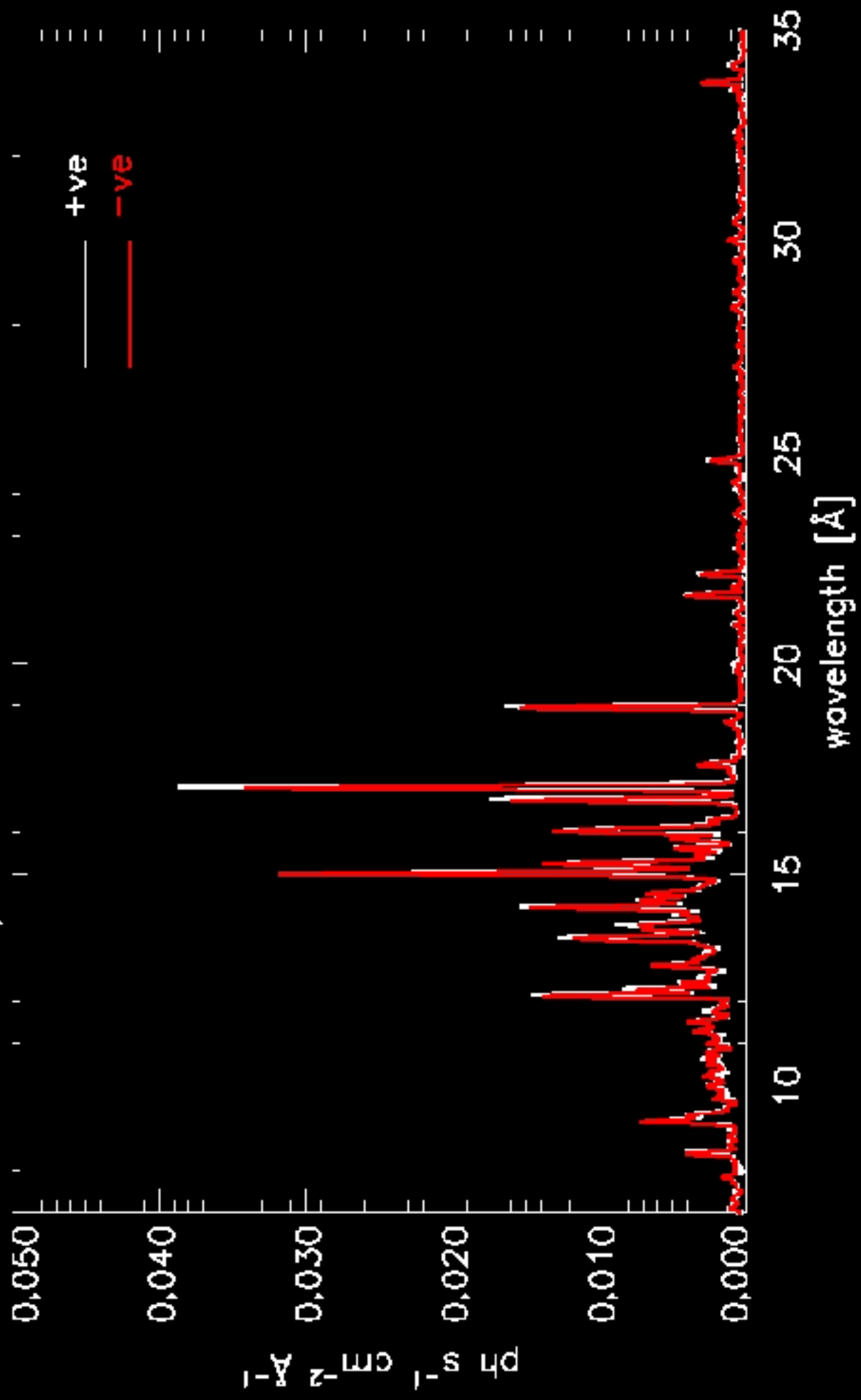


Chandra and XMM-Newton

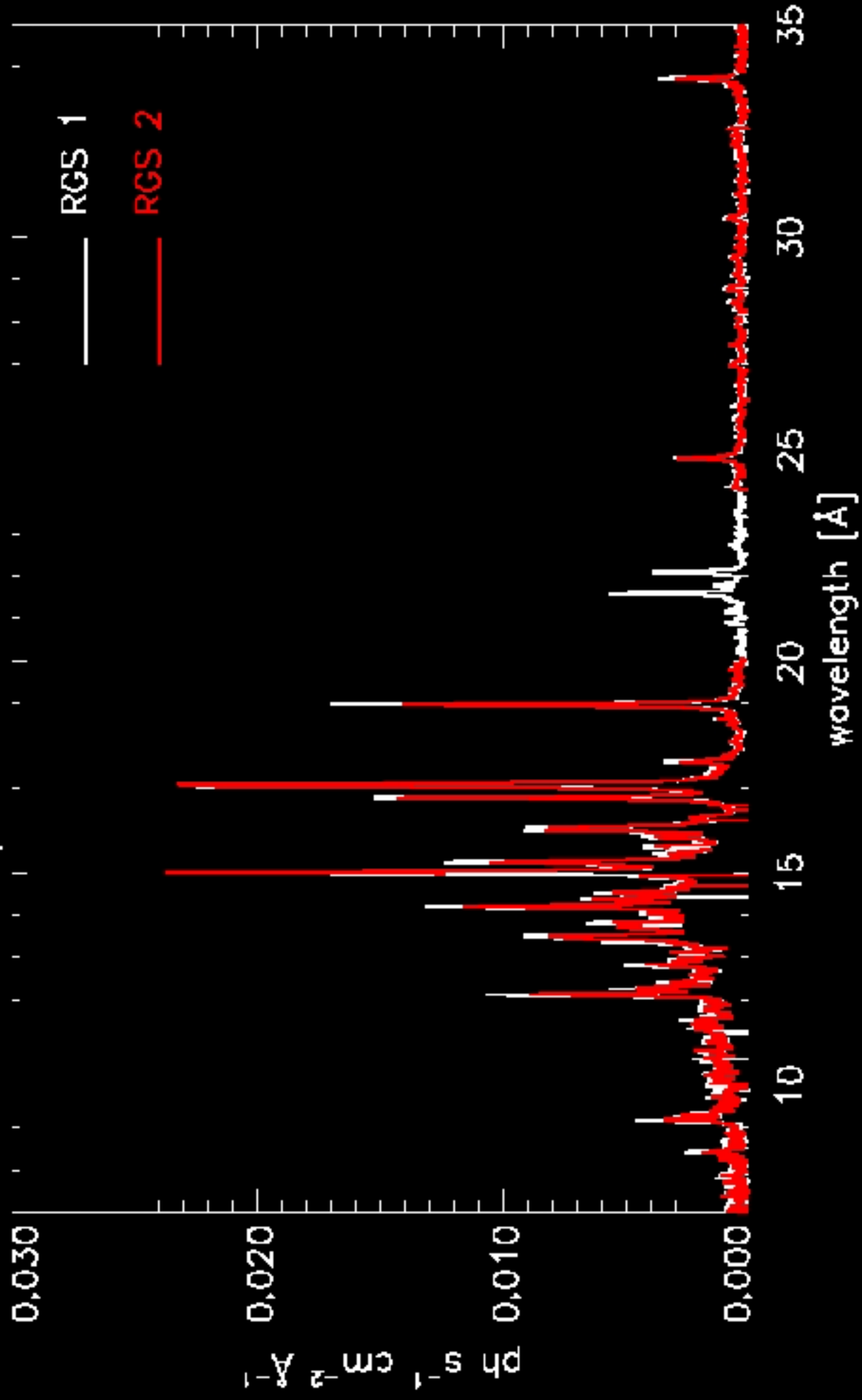
Datasets

ObsID 58	8 Mar 2000	34 ksec	Rev 0043	4 Mar 2000	60 ksec
ObsID 1009	14 Feb 2001	27 ksec	Rev 0232	15 Mar 2001	30 ksec
ObsID 2582 + 3479	4-6 Oct 2002	29 ksec + 30 ksec	Rev 0517	5 Oct 2002	18 ksec

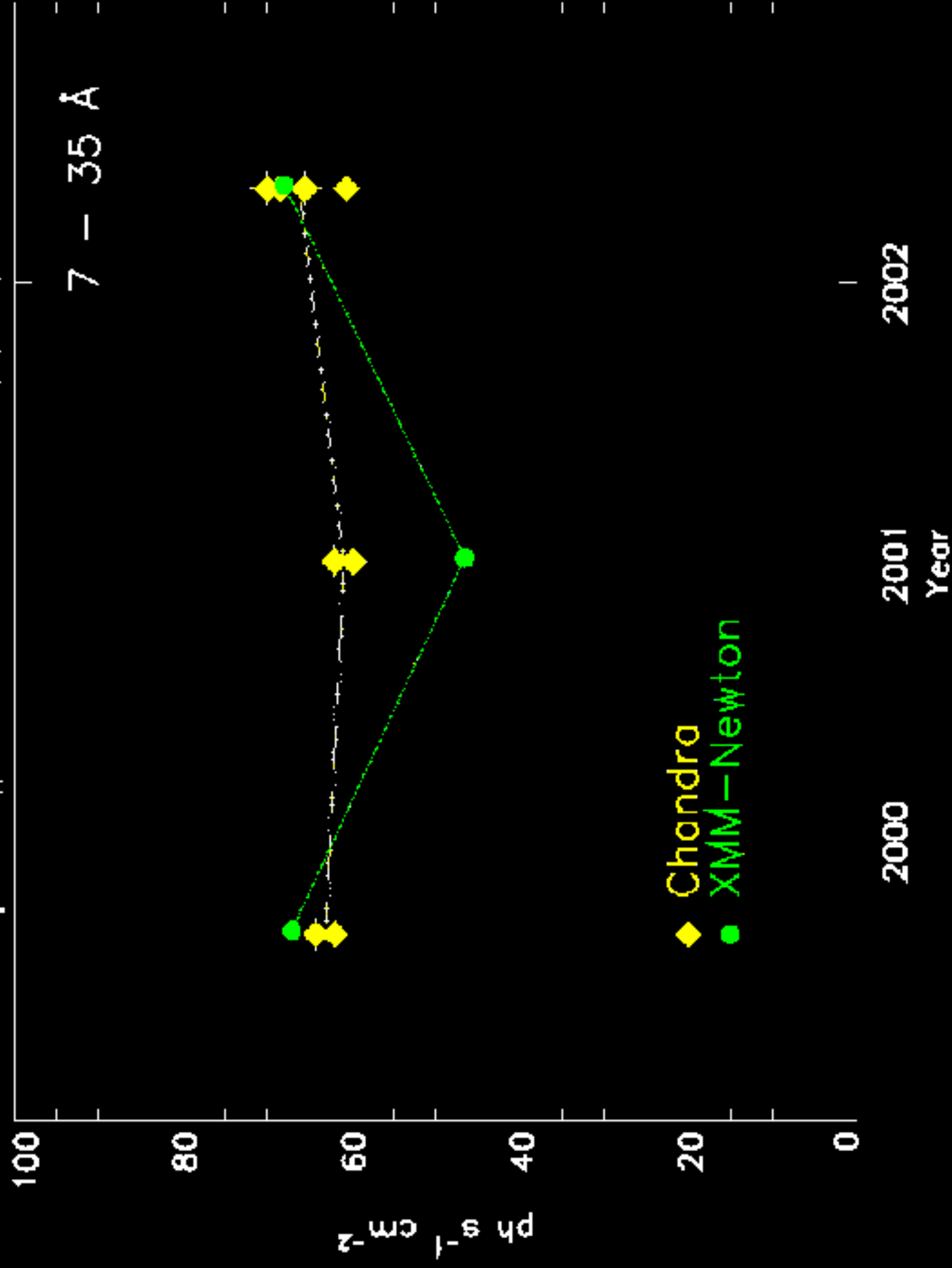
Chandra/LETGS+HRC-S 2000-03-08 34ks



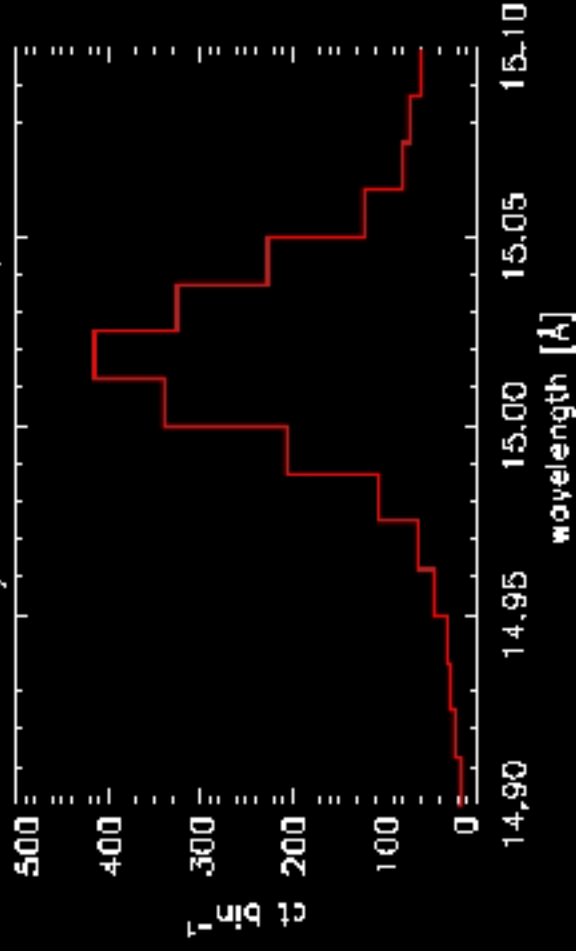
XMM/RGS 2000-03-04 60ks



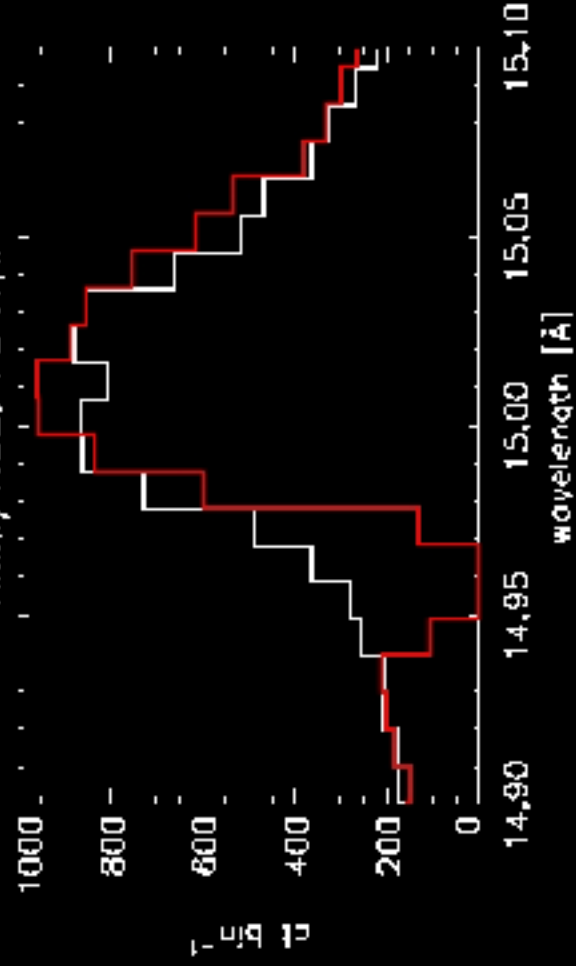
Capella with Chandra and XMM-Newton



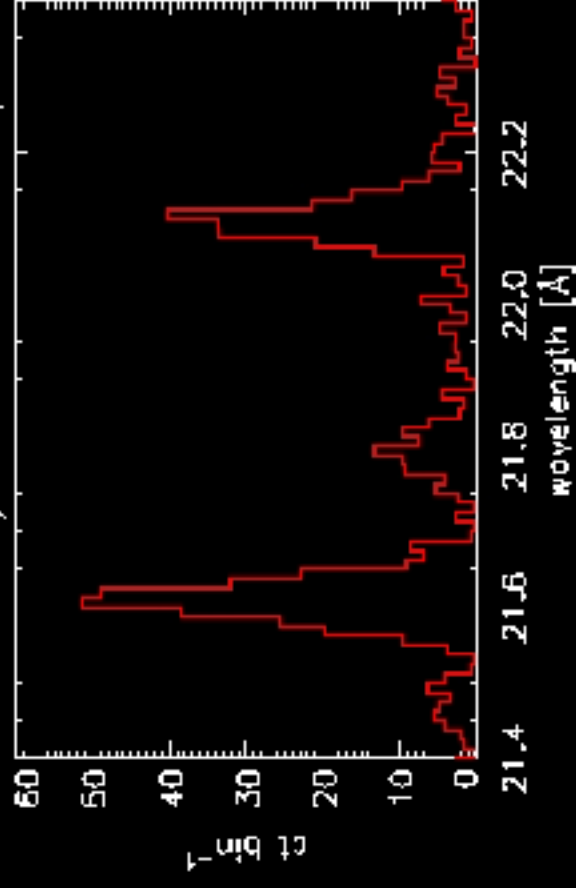
Chandra/LETGS+HRC-S; Fe XVII



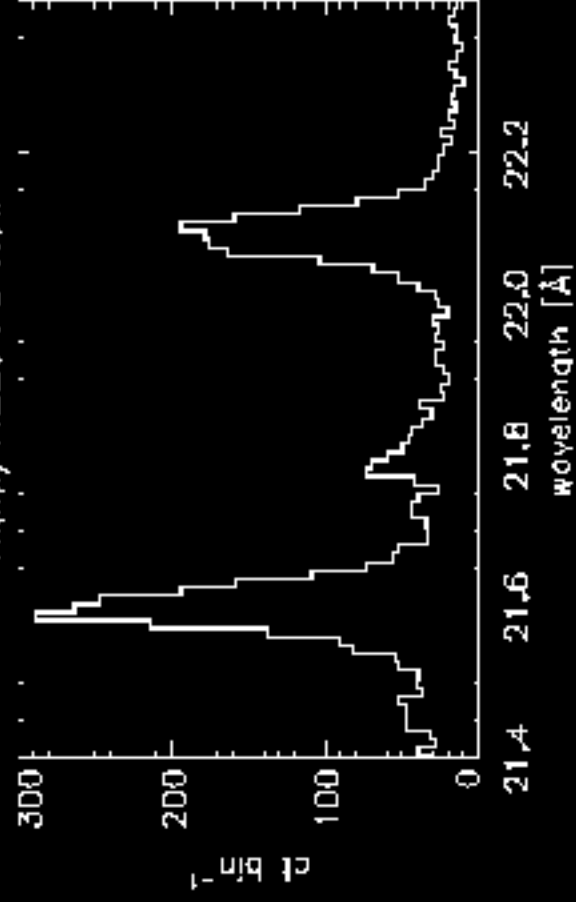
XMM/RGS: Fe XVII



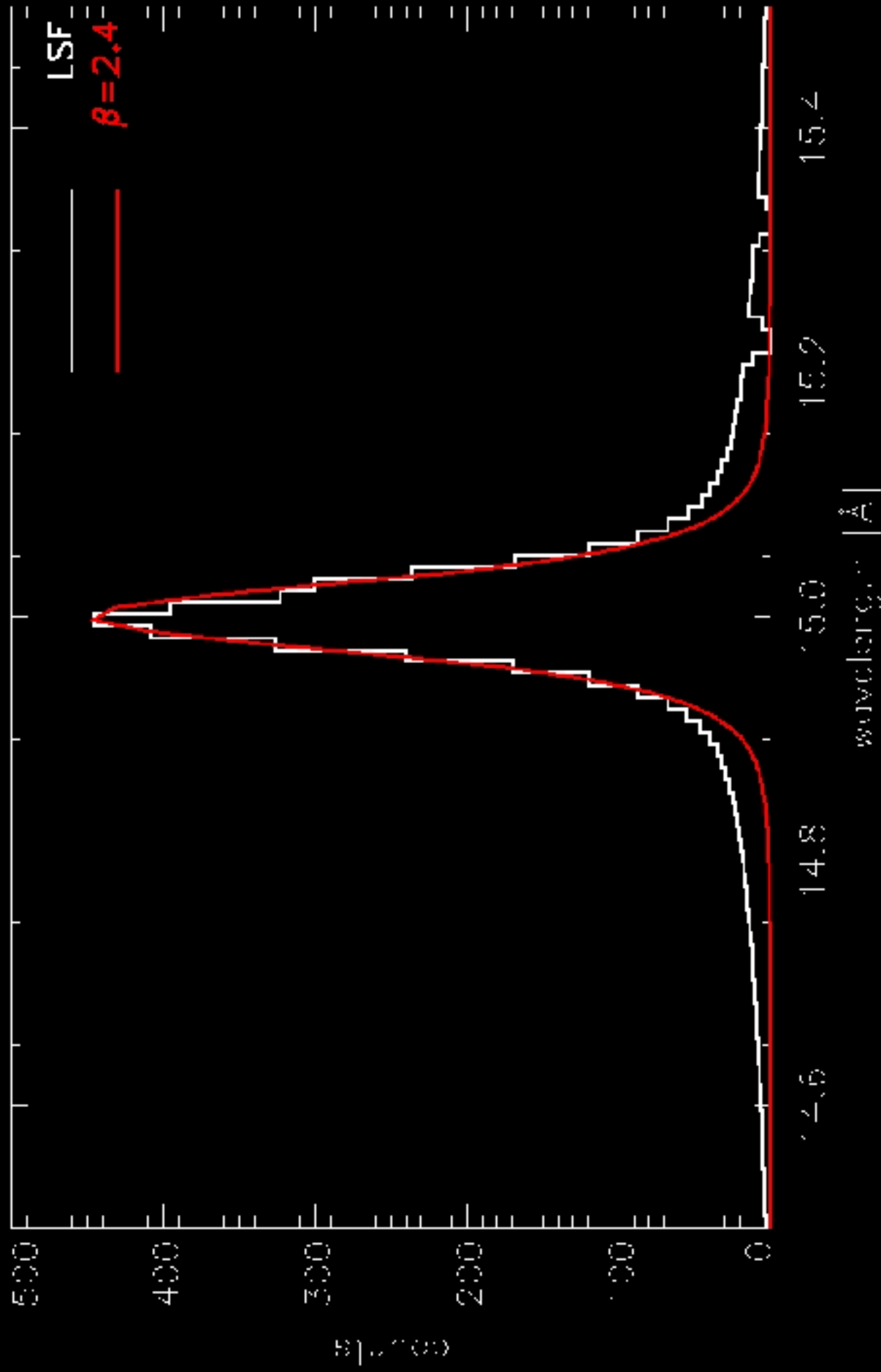
Chandra/LETGS+HRC-S; O VII



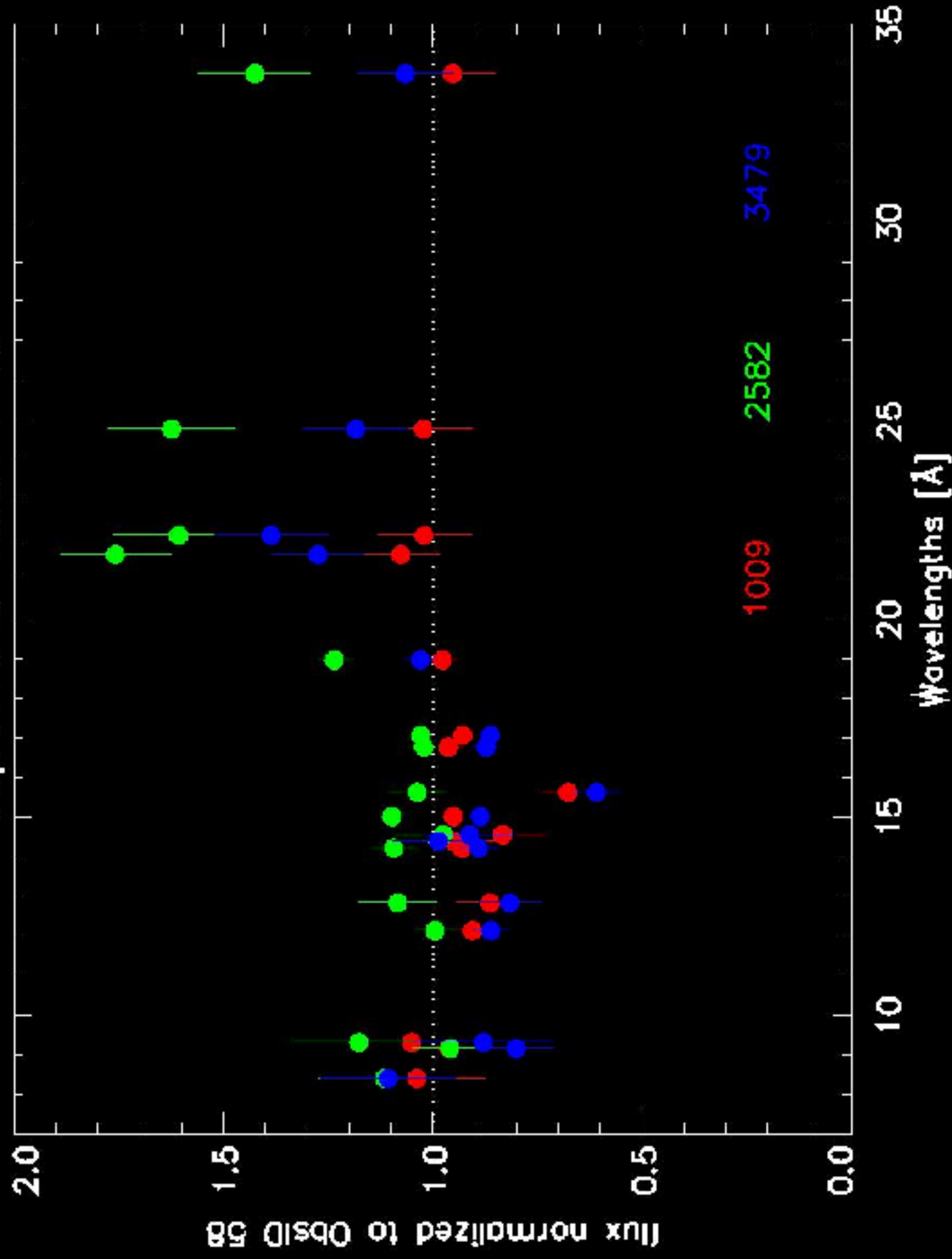
XMM/RGS: Fe XVII



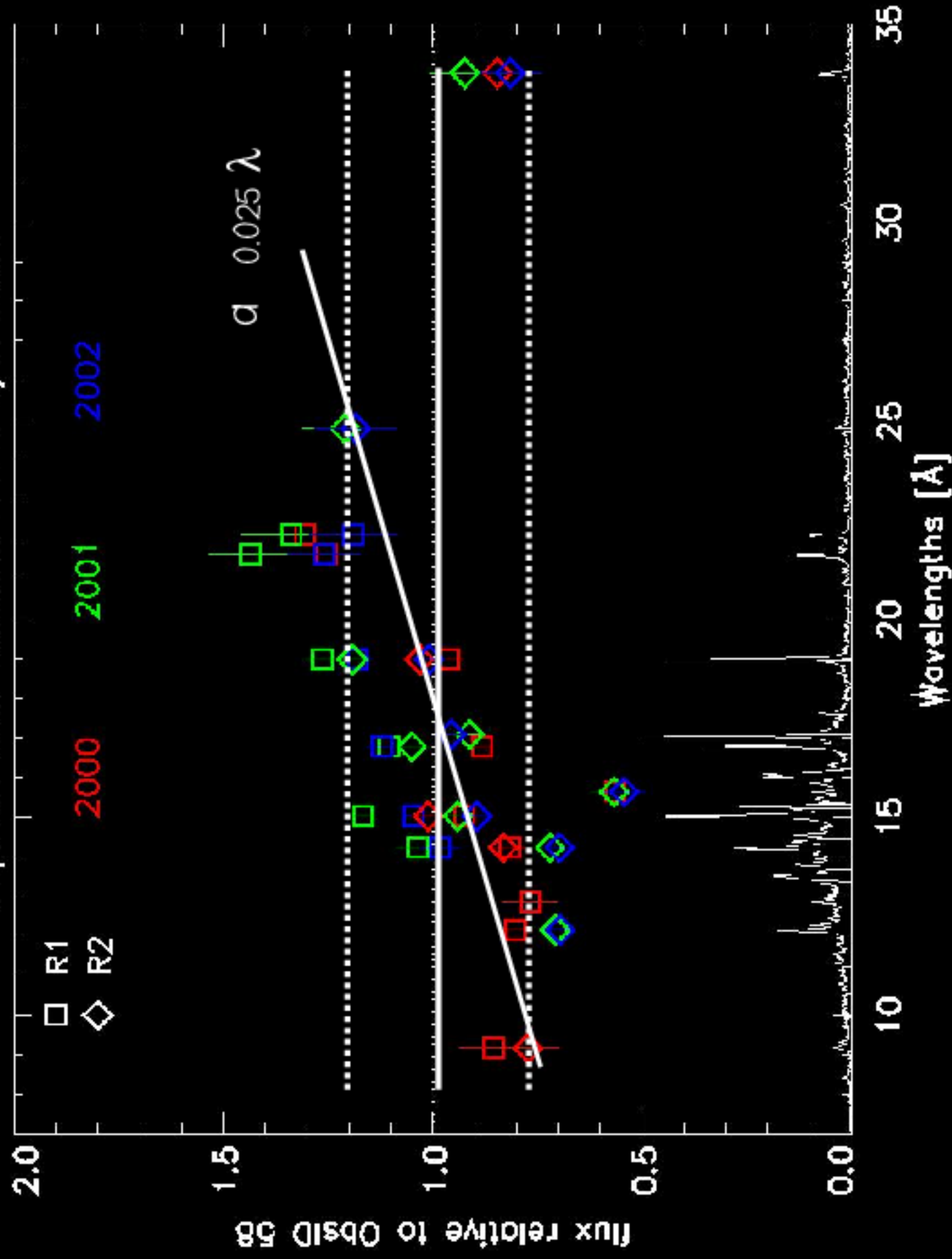
XMM RCS LSF



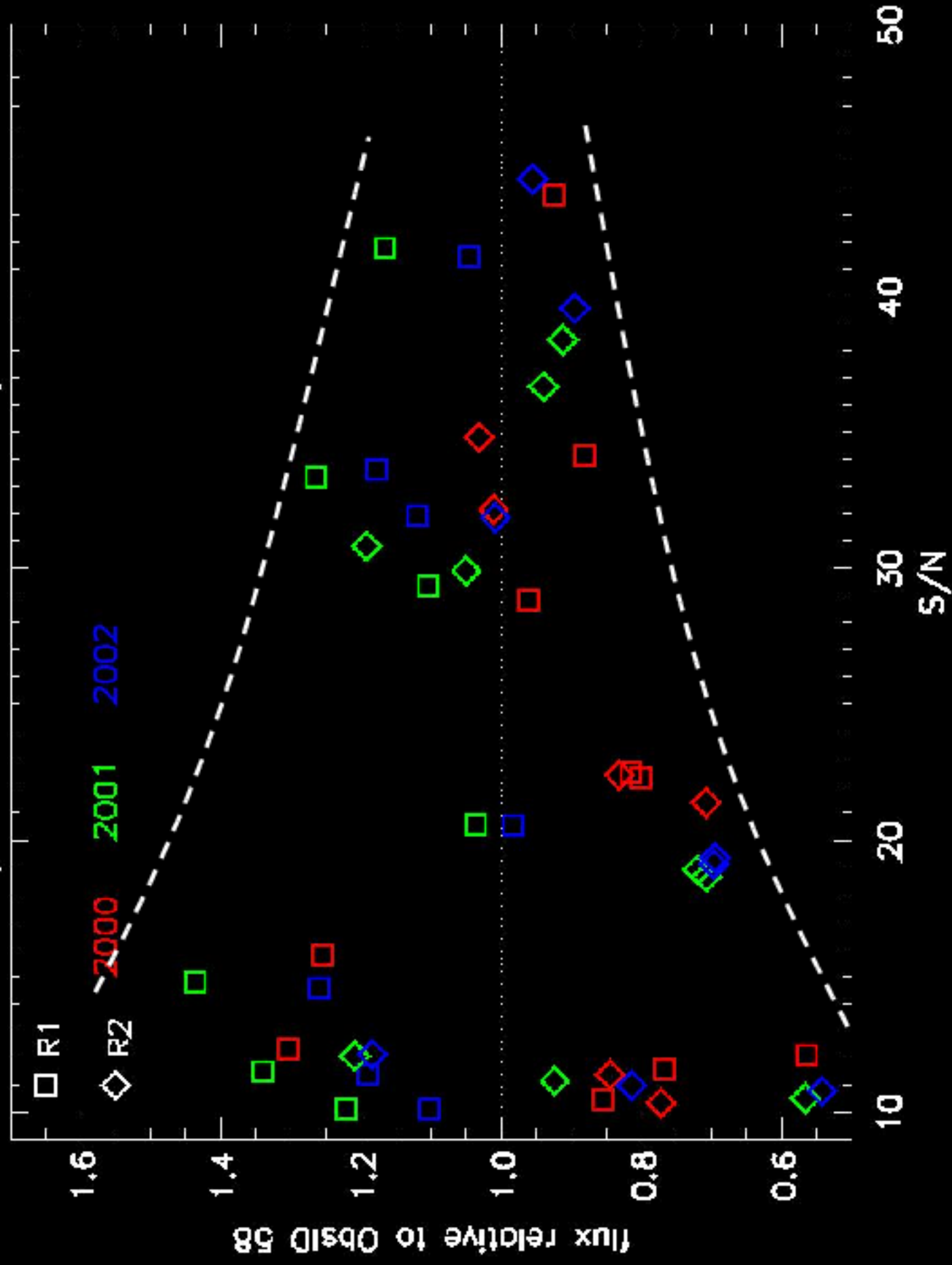
Capella line fluxes: LETG



Capella line fluxes: LETG v/s RGS



Capella line fluxes: LETG v/s RGS



SUMMARY

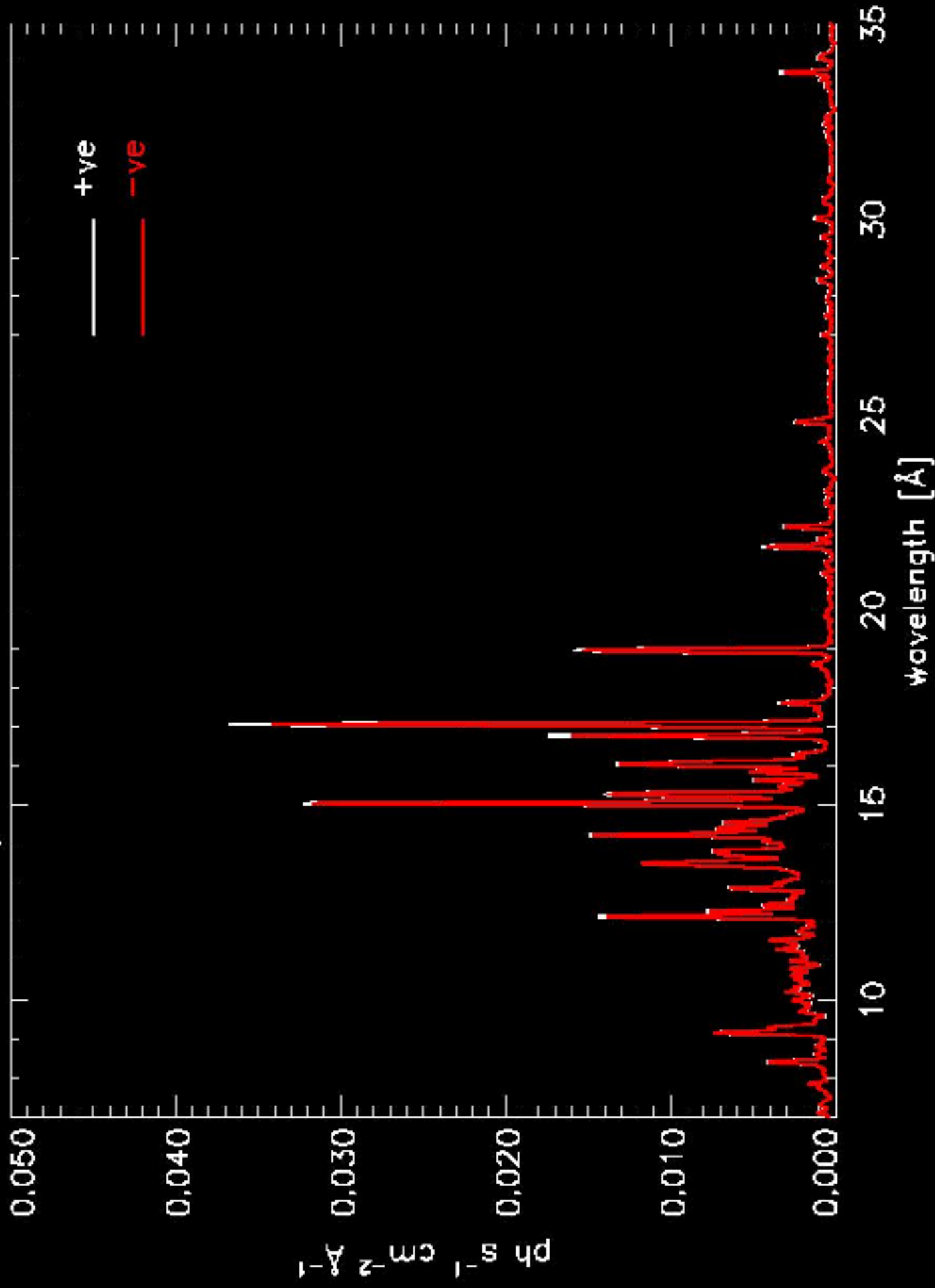
Compare Chandra/LETGS+HRC-S and XMM/RGS using contemporaneously obtained observations of Capella.

Capella more variable than suspected?

Relative flux wavelength dependent?

Individually measured line fluxes match to approx 20%

Chandra/LETGS+HRC-S 2000-03-08 34ks



XMM/RGS 2000-03-04 60ks

