

GX 301–2



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(IAAT/ISDC)

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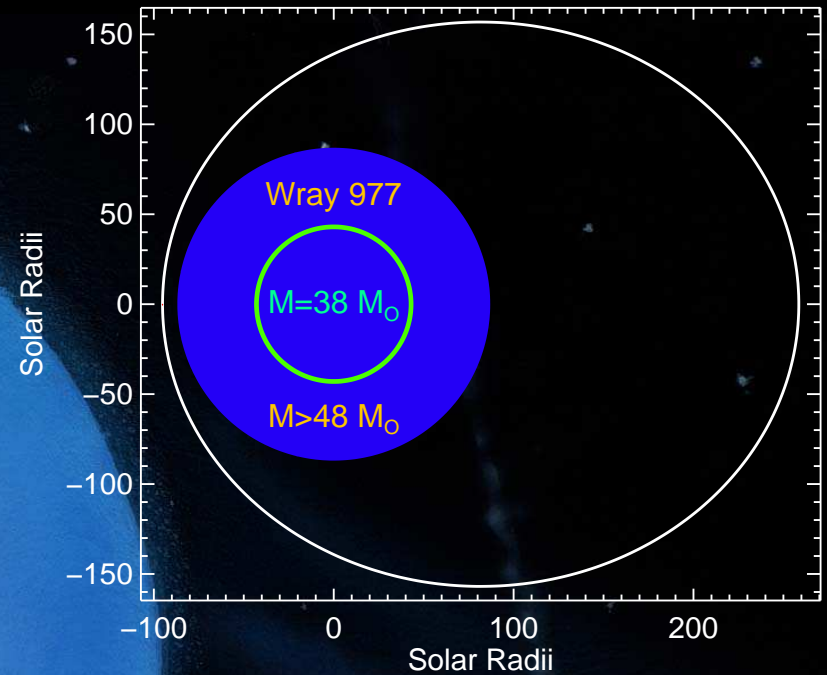
A. La Barbera, A. Segreto (IASF Palermo)

M. Kuster (MPE/HLL)

W. Coburn (SSL/UCB)

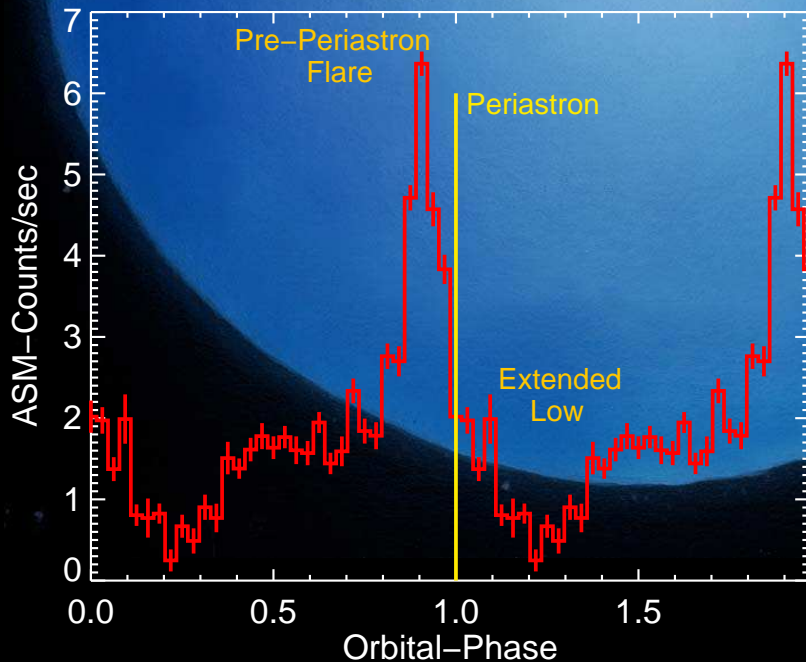
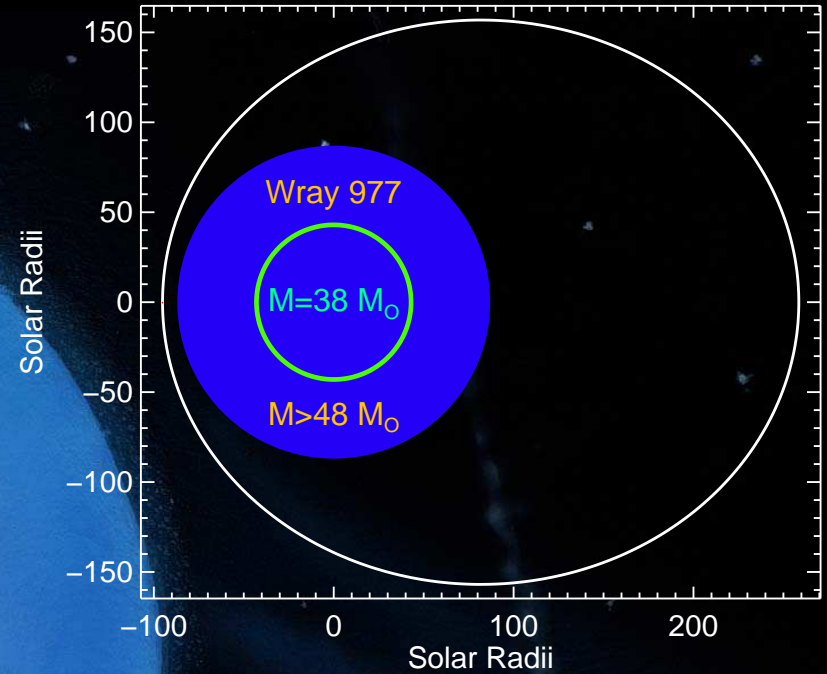
R. Rothschild (CASS/UCSD)

- Wray 977 is a super massive B1 Ia+ hyper-giant
- distance: 5.3 kpc
- Mass of at least $48 M_{\odot}$
- Radius $R = 50 R_{\odot}$
- Luminosity $L = 1\,300\,000 L_{\odot}$
- wind: $\sim 10^{-5} M_{\odot}/\text{yr}$
- eccentric orbit: $e = 0.42$ and $P_{\text{orb}} = 41.5 \text{ d}$
- Periastron: NS passes in $\sim 0.1 R_{*}$



c Pounds 01

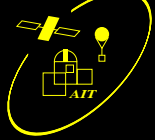
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Furthermore:
Spirally formed gas stream follows the Neutron star.

Flare prior to periastron

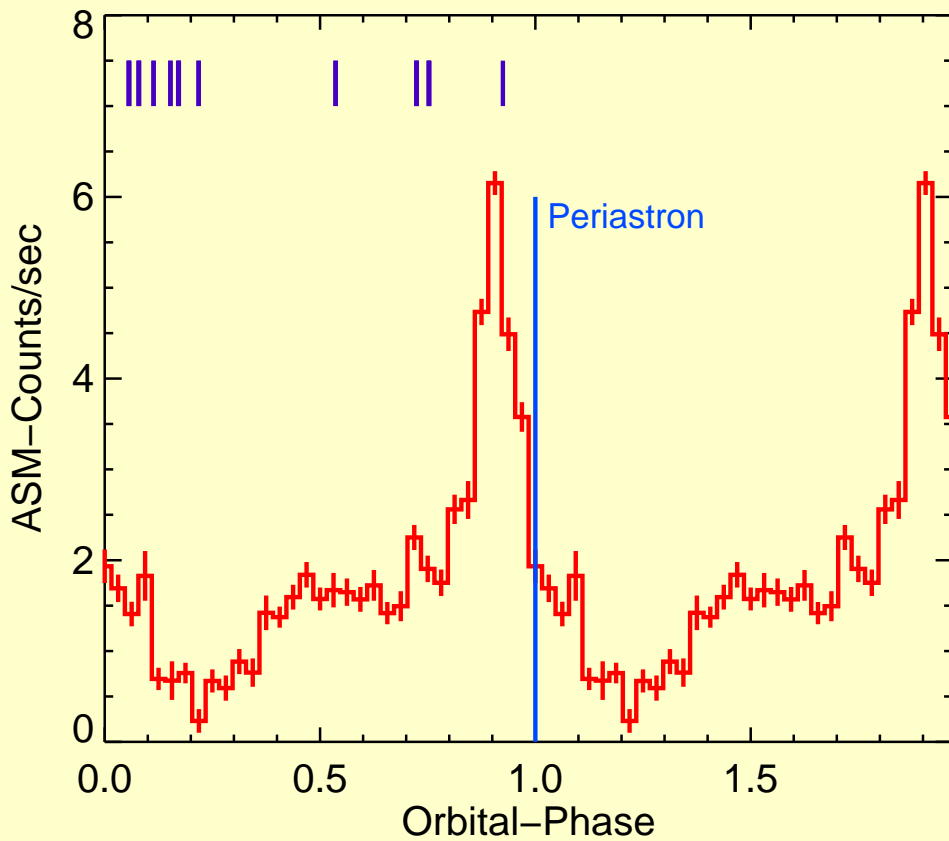
L_X up by ~ 25



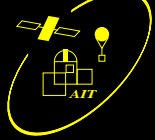
Observations, I

Galactic Plane Scan:

- in ~ 80 Science Windows for ISGRI
- in ~ 10 Science Windows for JEM-X



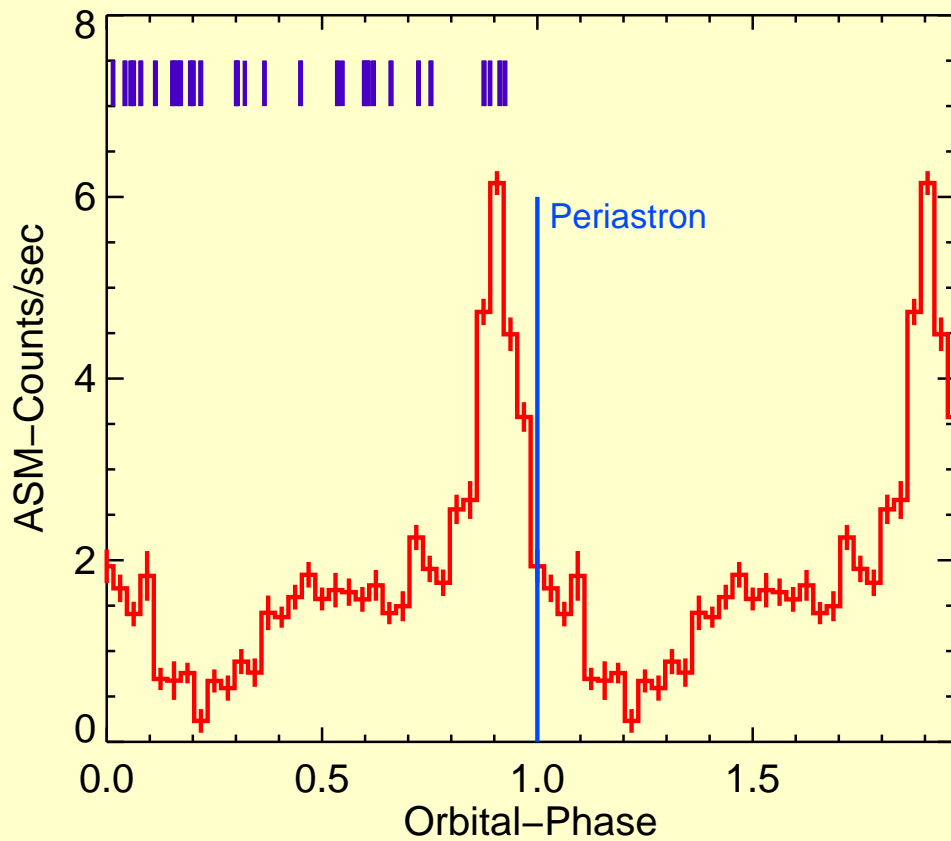
ISDC



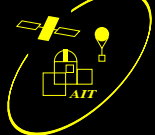
Observations, II

Galactic Plane Scan:

- in ~ 80 Science Windows for ISGRI
- in ~ 10 Science Windows for JEM-X



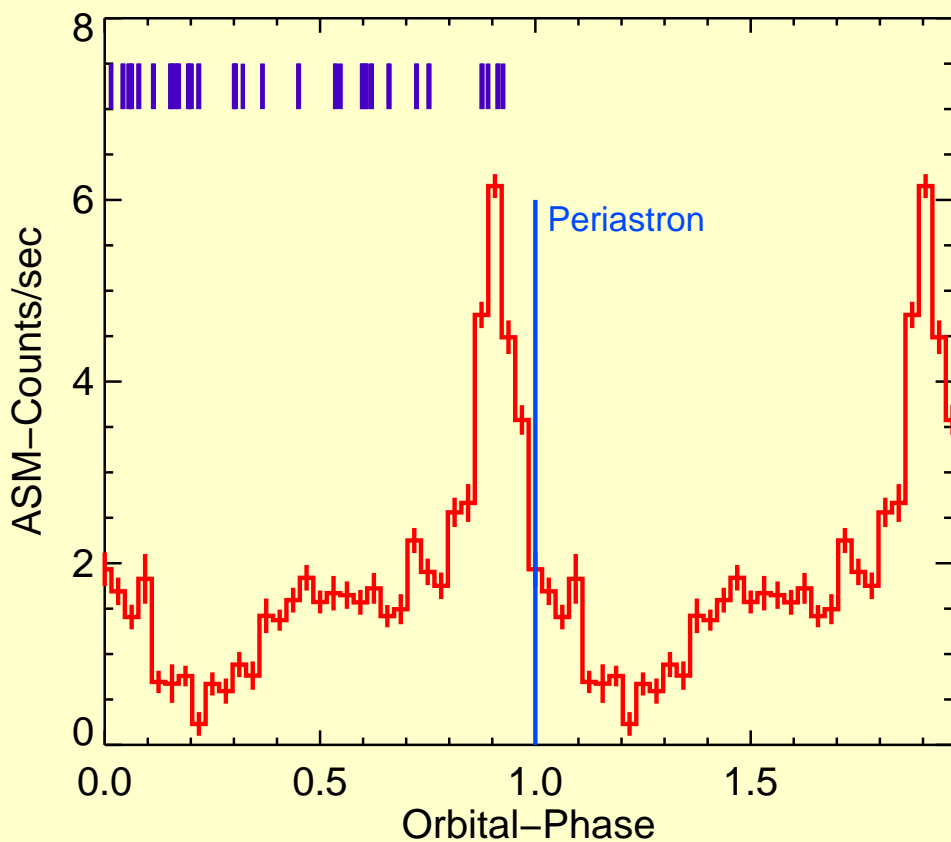
ISDC



Observations, III

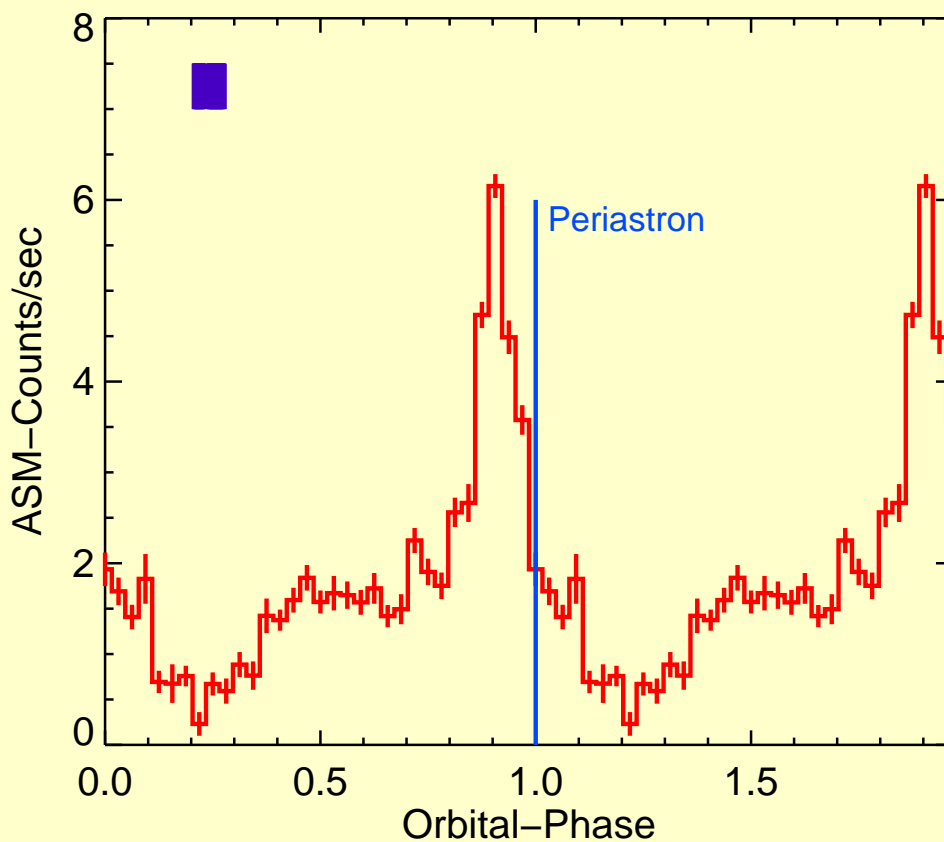
Galactic Plane Scan:

- in ~ 80 Science Windows for ISGRI
- in ~ 10 Science Windows for JEM-X

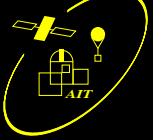


PSR B 1259–63:

- in ~ 110 Science Windows for ISGRI
- in ~ 14 Science Windows for JEM-X

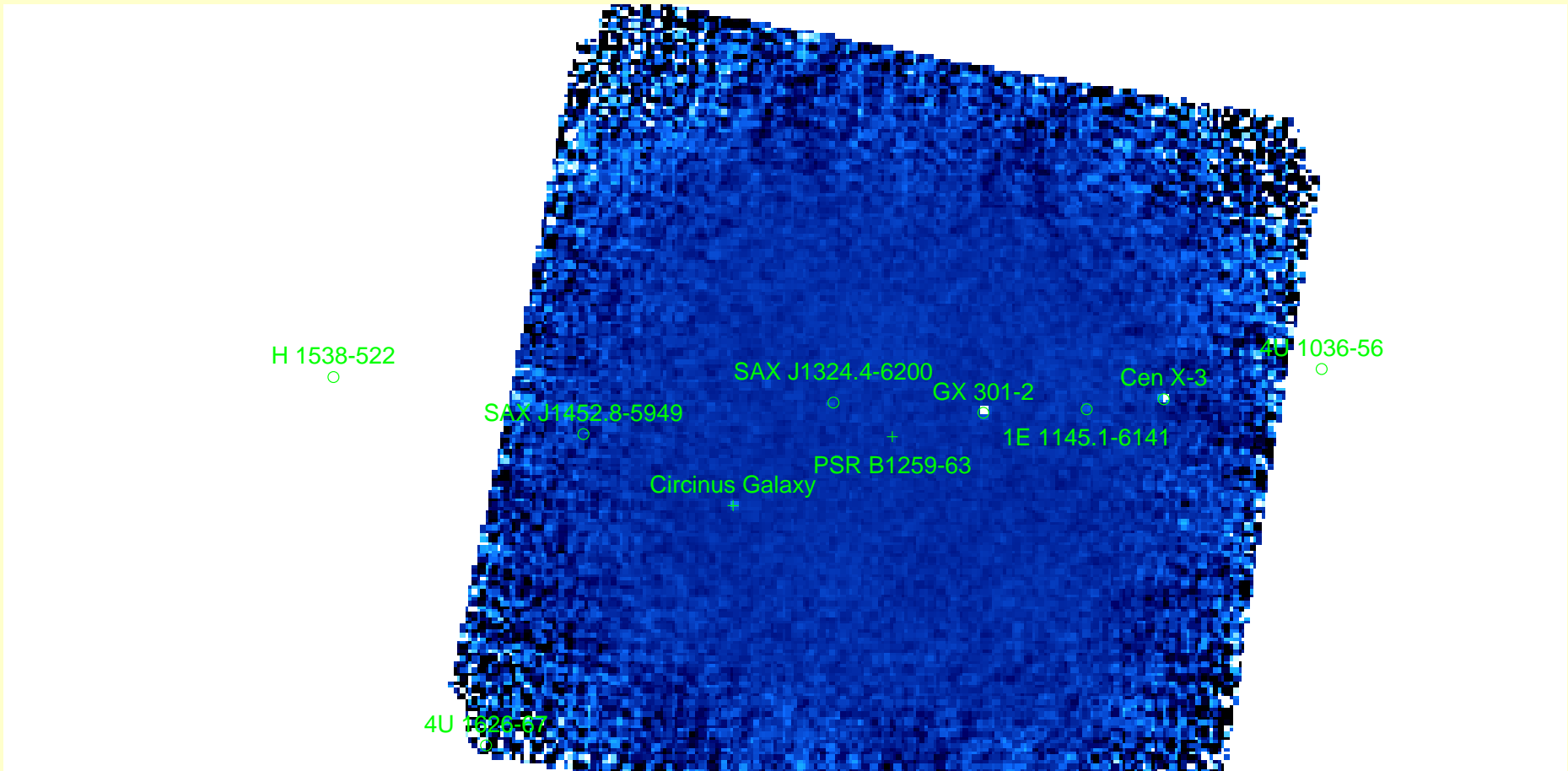


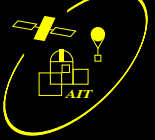
ASDC



Images

GX 301–2 and Cen X-3 are clearly detected





Lightcurve

March 2004: TOO observation of **PSR B 1259–63**.

GX 301–2: 20–40keV
2004 March

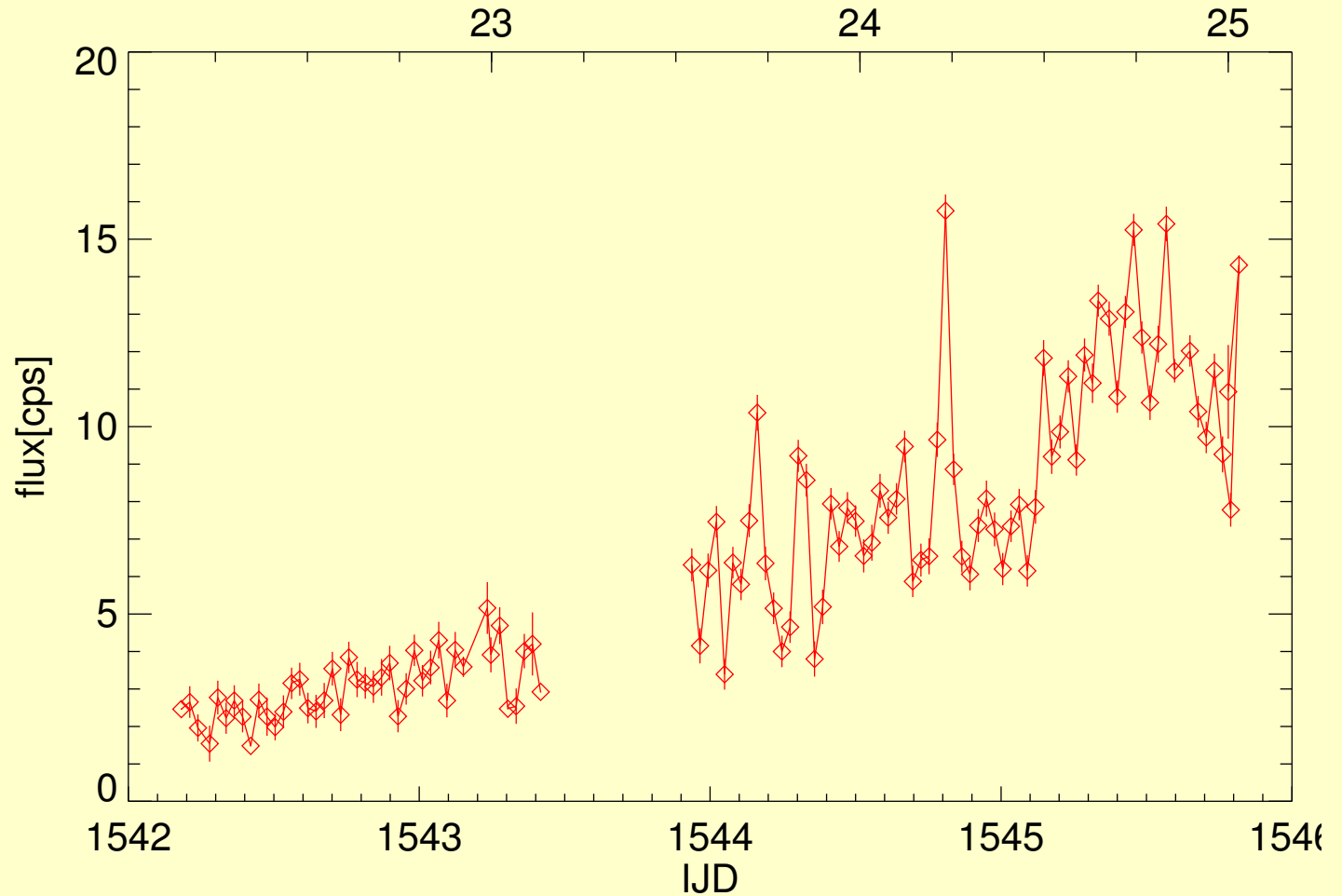
Total data:

~1 Revolution

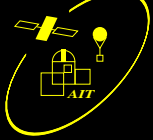
Orbital phase:

~0.25

just coming out of
the extended low



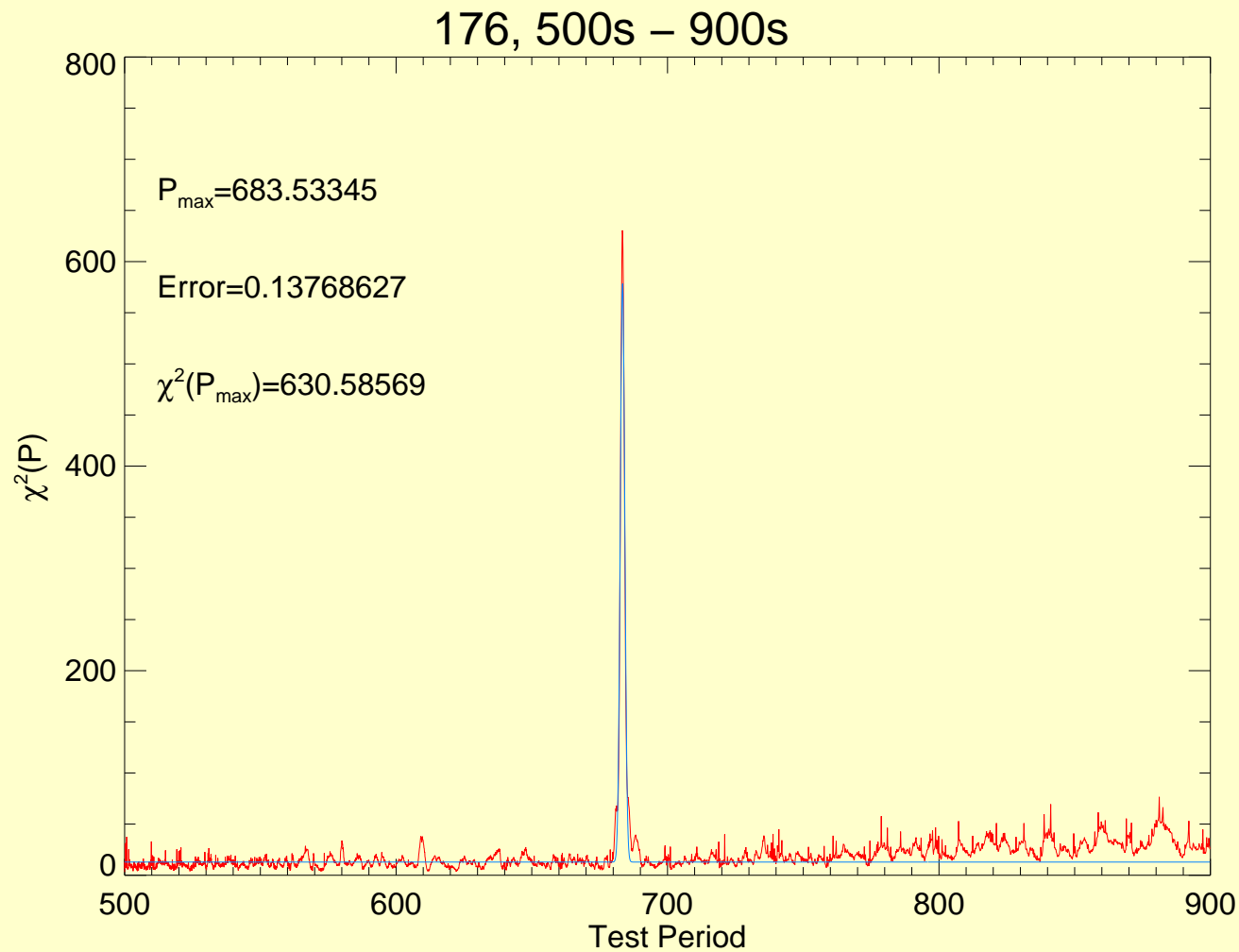
ISDC

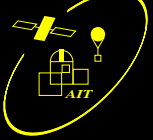


Pulse Period

Determination of the pulse period:

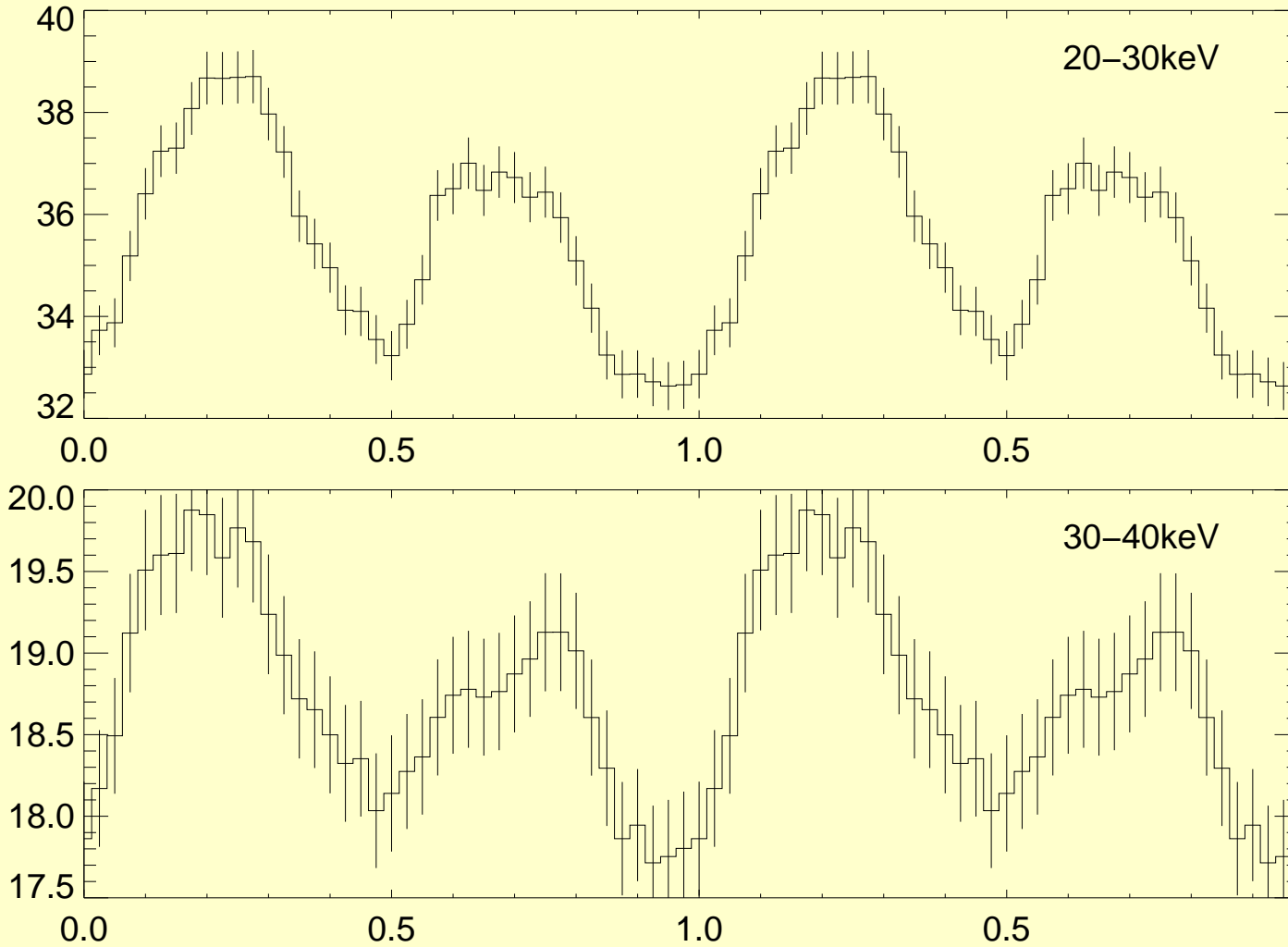
⇒ barely possible for GPS, need longer observation!

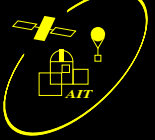




Energy resolved Pulse Profiles, I

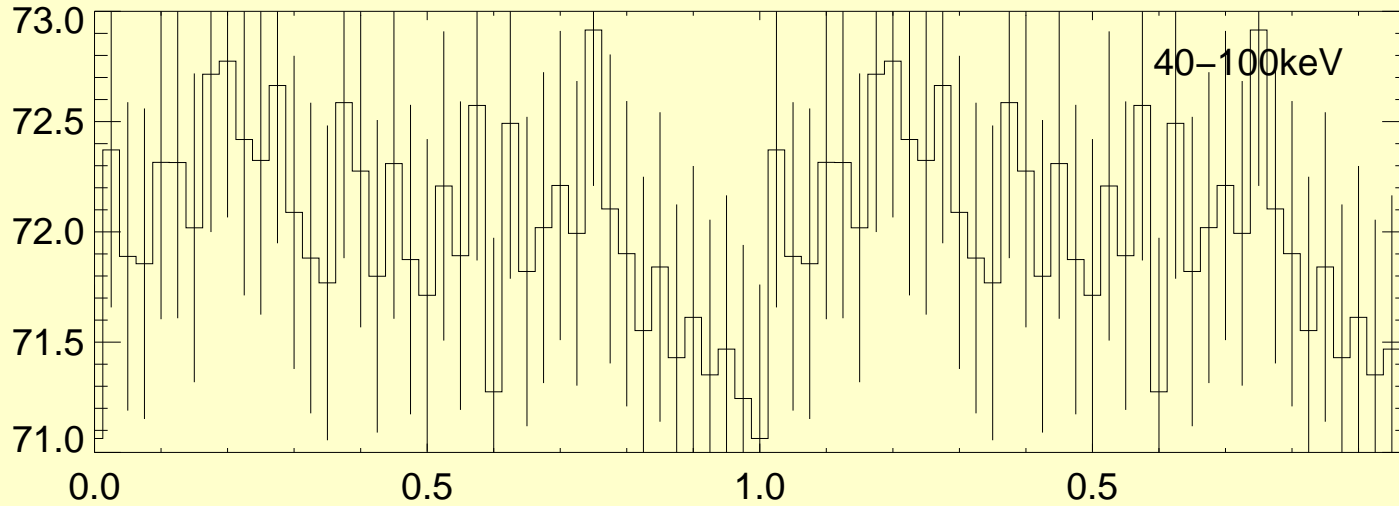
Usually done at lower energies, but also interesting **above 20 keV**:

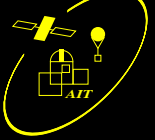




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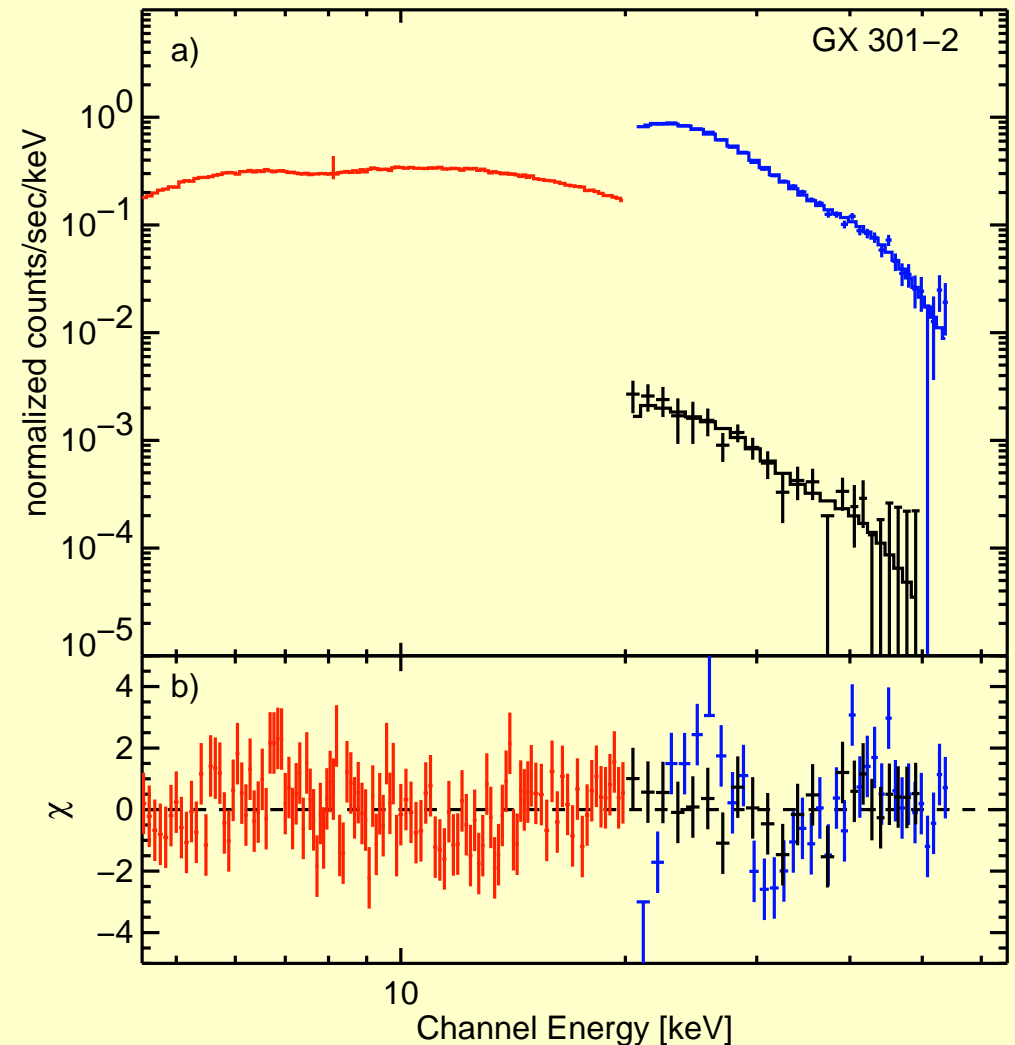
Spectra, I

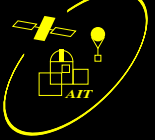
Joint spectrum of JEM-X, ISGRI, and SPI

Model:

$N_H \times \text{Fermi-Dirac cutoff} \times \text{Powerlaw}$

- $E_{\text{Cut}} = 23.0^{+1.2}_{-1.3}$ keV
- $E_F = 6.1^{+0.3}_{-0.3}$ keV
- $\Gamma = 0.5^{+0.3}_{-0.3}$
- $N_H = 13^{+9}_{-5}$





Spectra, II

Joint spectrum of JEM-X, ISGRI, and SPI

Model:

$N_H \times \text{Fermi-Dirac cutoff} \times \text{Powerlaw} + \text{CRSF}$

- $E_{\text{Cut}} = 34.4 \text{ keV}$
- $E_F = 4.2 \text{ keV}$
- $\Gamma = 0.9$
- $N_H = 20$
- $E_C = 34 \text{ keV}$
- $\sigma_{\text{Cyc}} = 4 \text{ keV}$
- $\tau_{\text{Cyc}} = 0.7$

