

A Holistic View of Accreting Compact Objects

Aru Beri
IISER Mohali

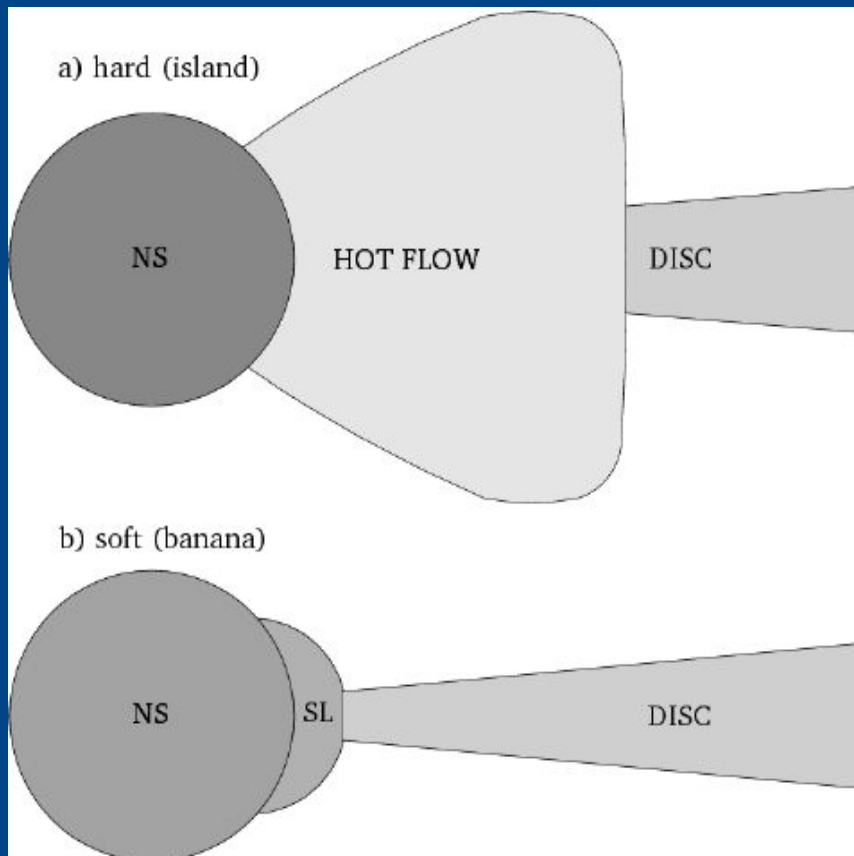


Fast Timing and Multiwavelength Look at Accreting Objects

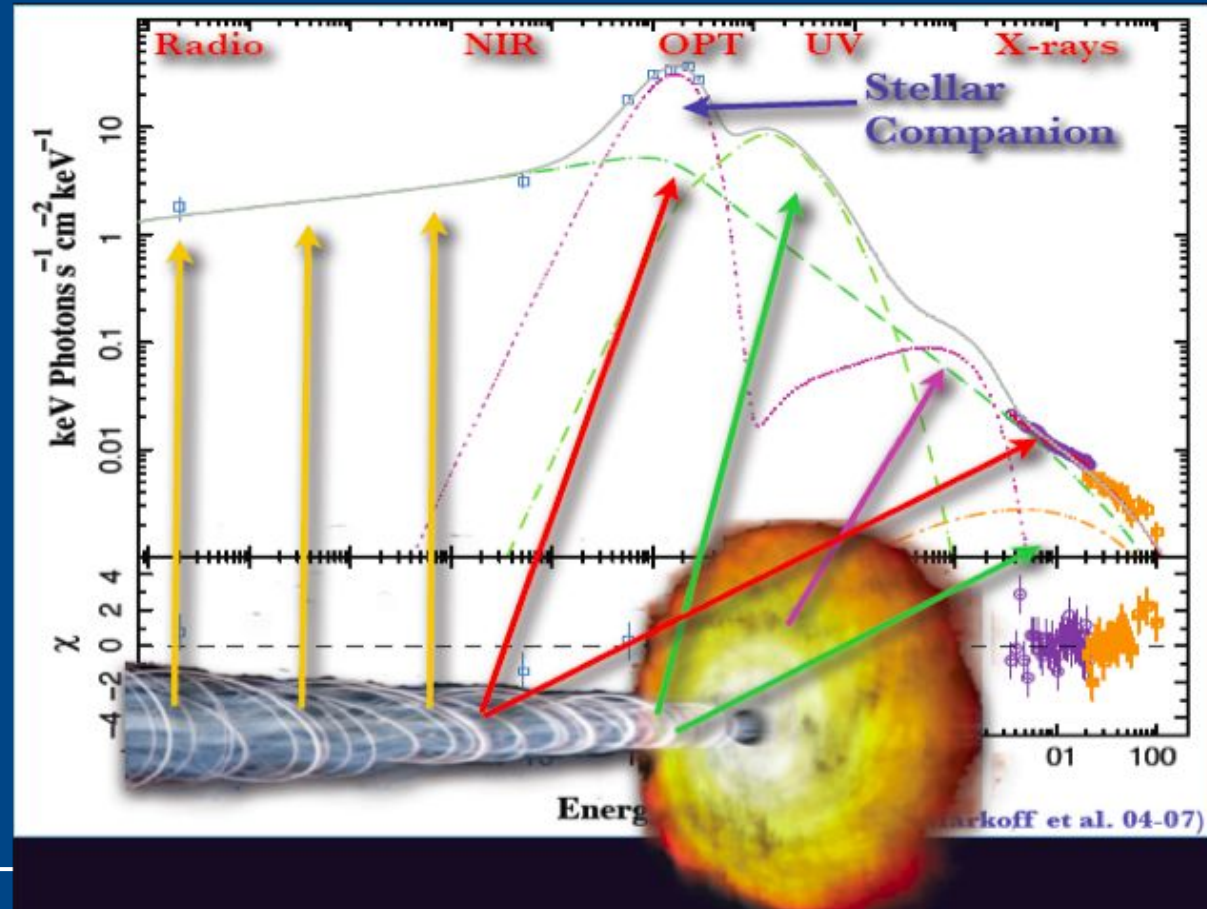
SmartNet

Coordinated efforts to respond quickly to changes in X-ray signals.

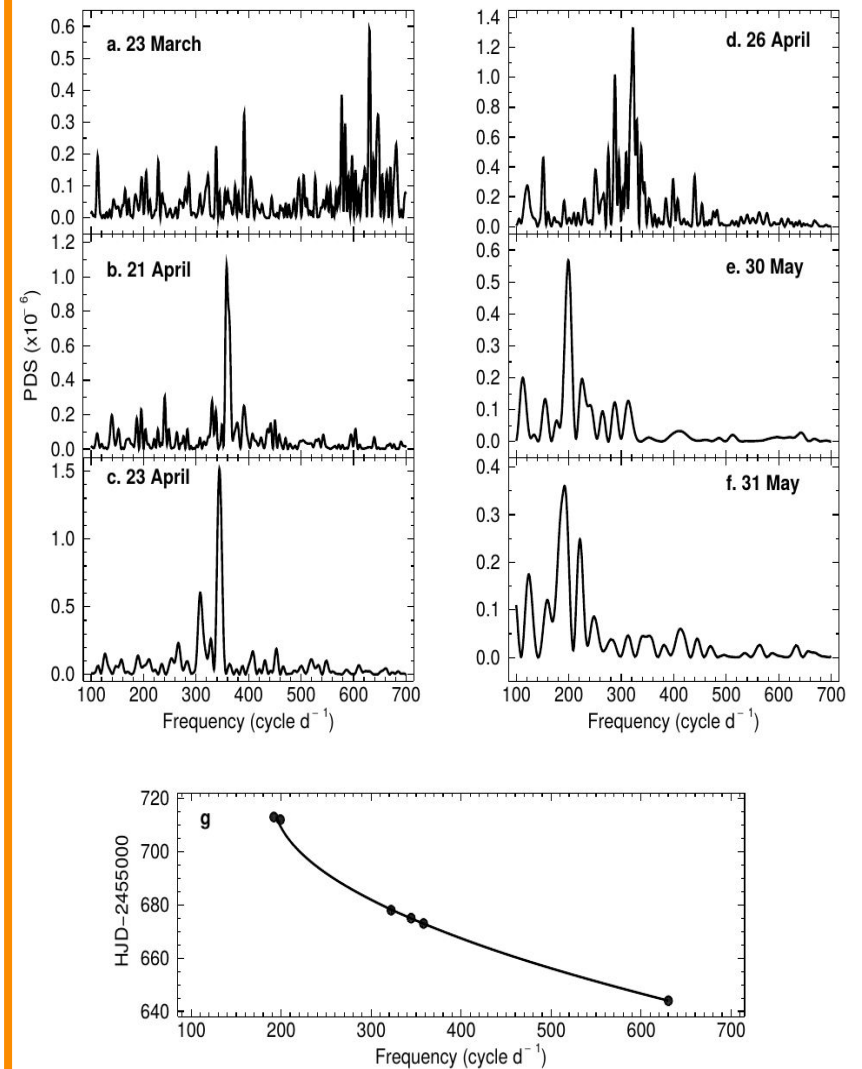
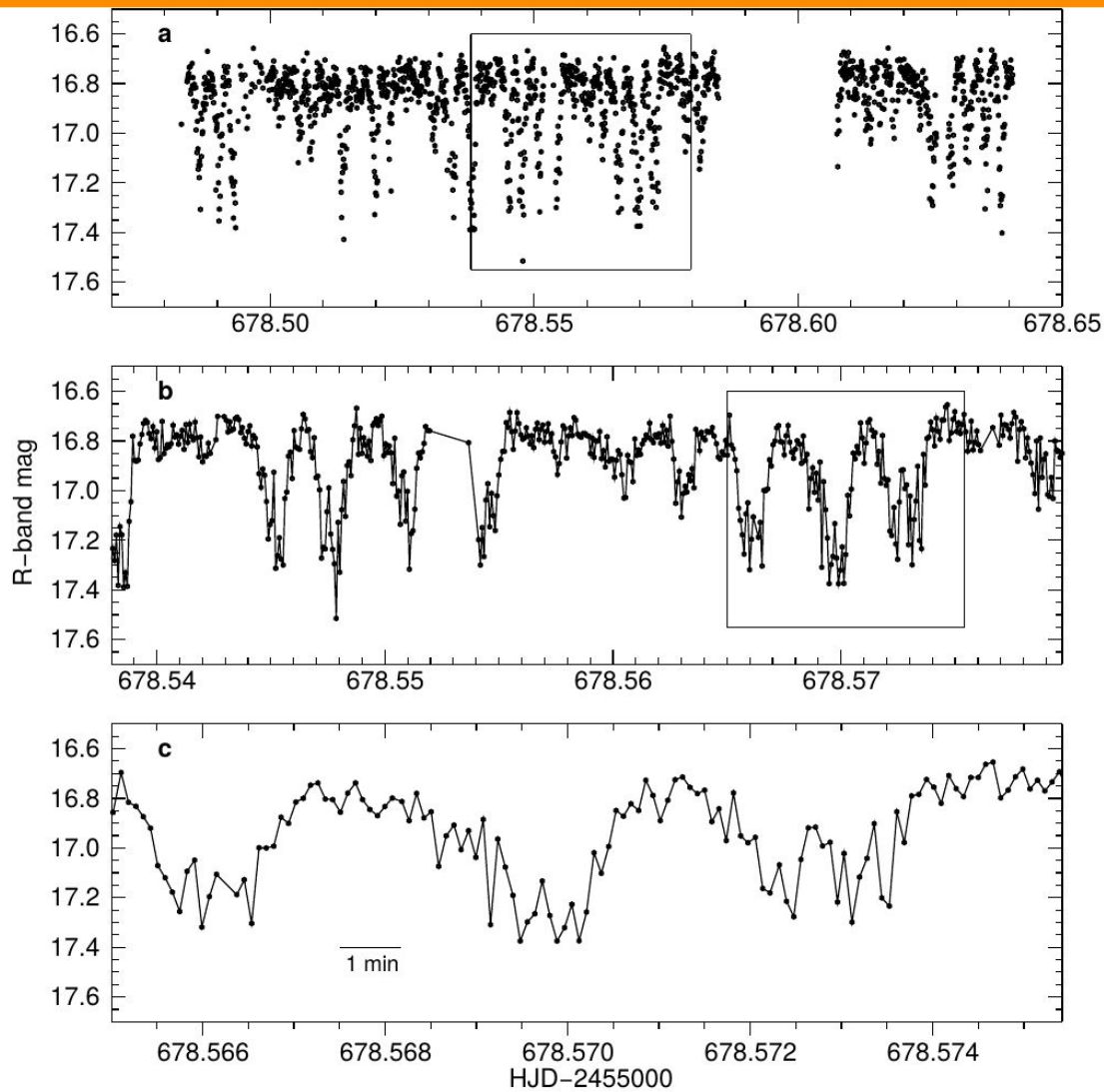
<https://www.isdc.unige.ch/smartnet/>



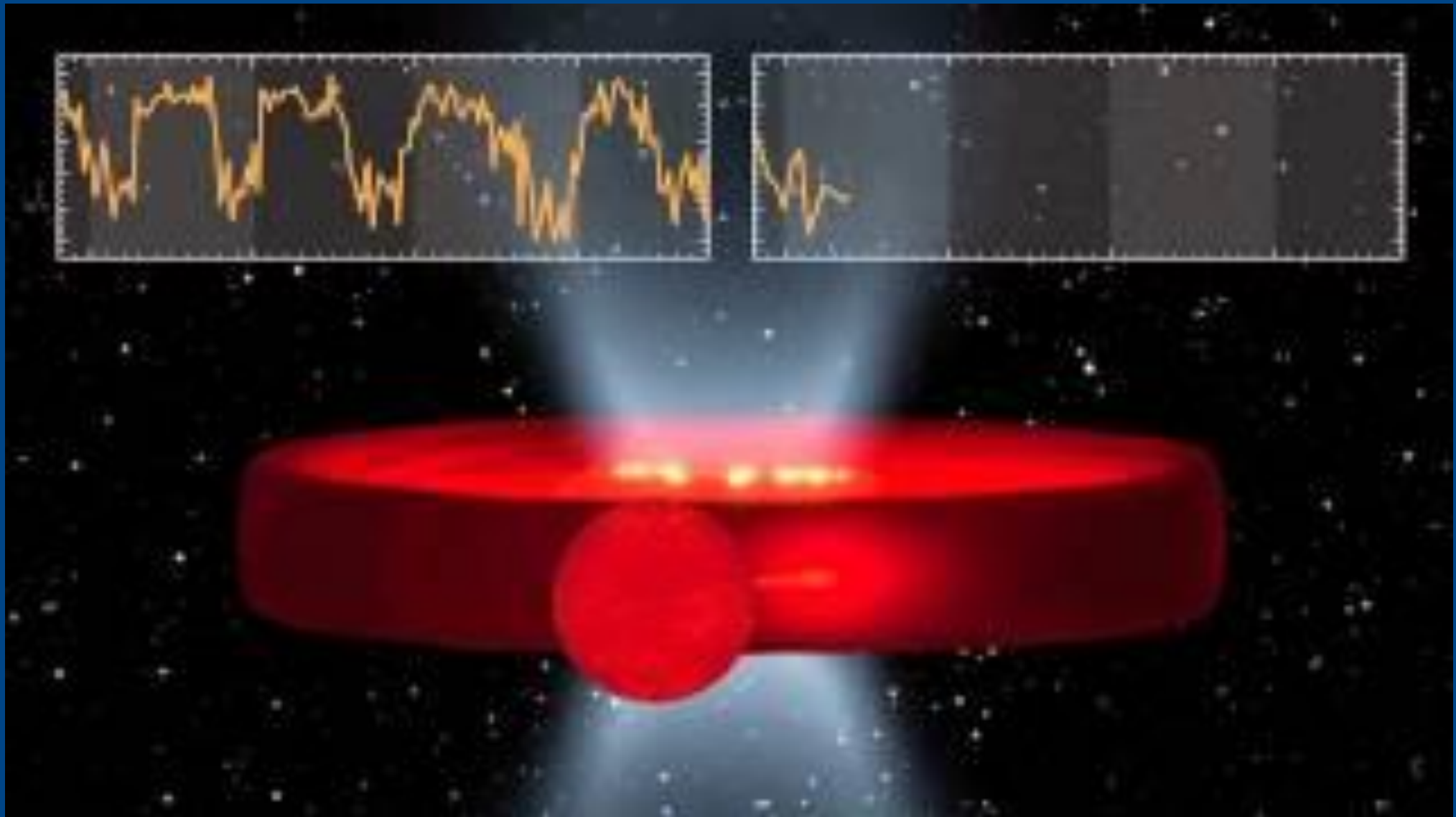
Kajava et al. 2014



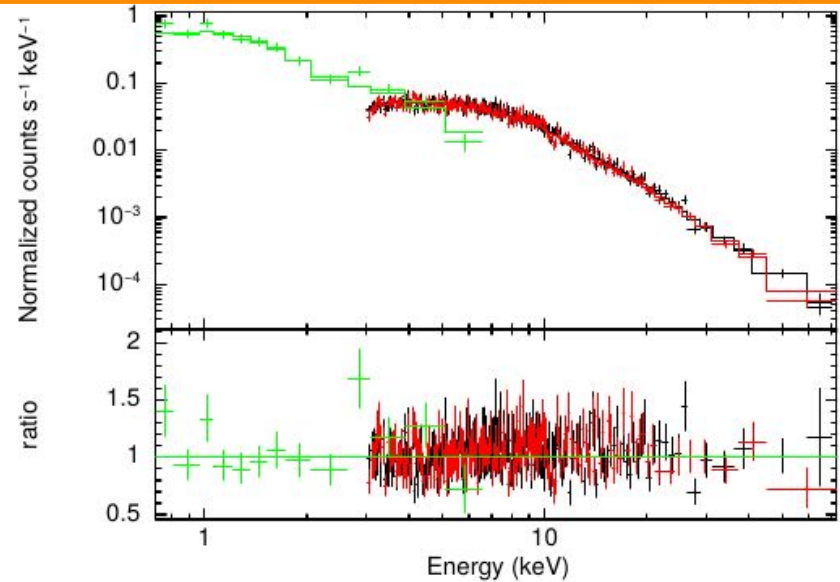
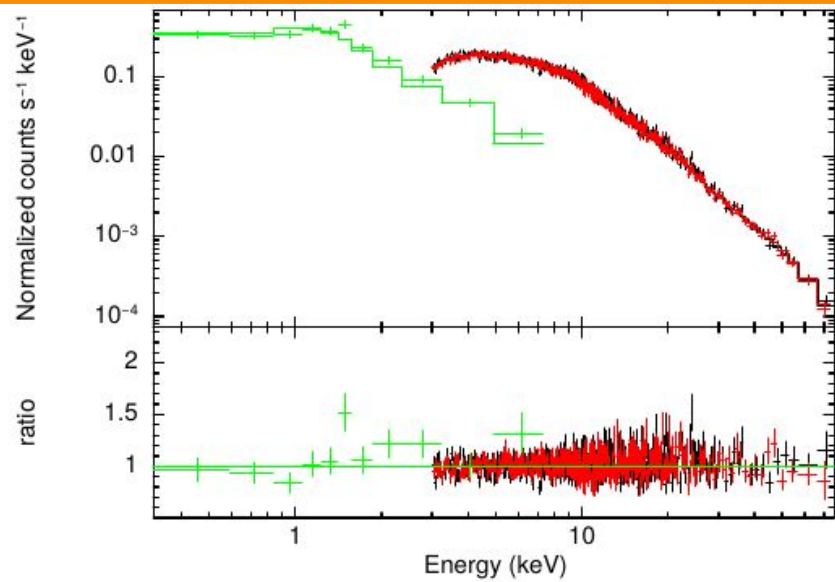
Multiwavelength Coordination to obtain deeper insights!



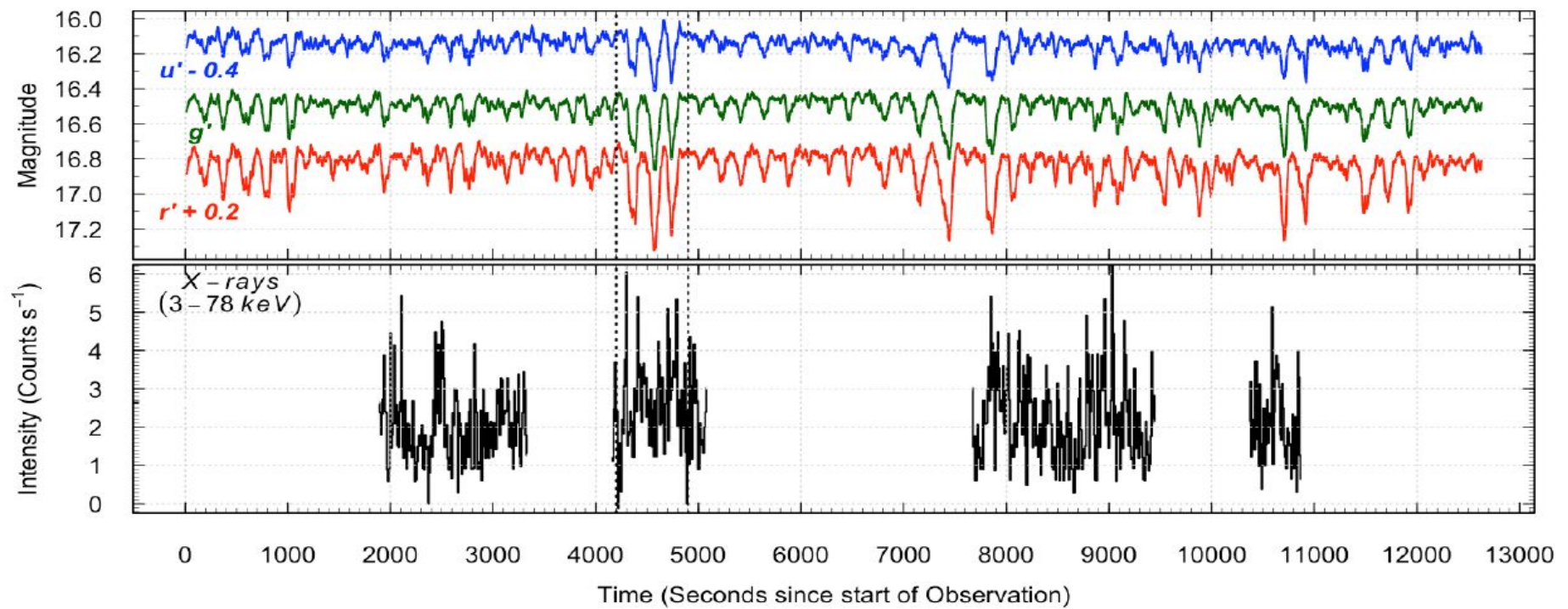
Corral-Santana et al. (2013)



Corral-Santana et al. (2023) Science

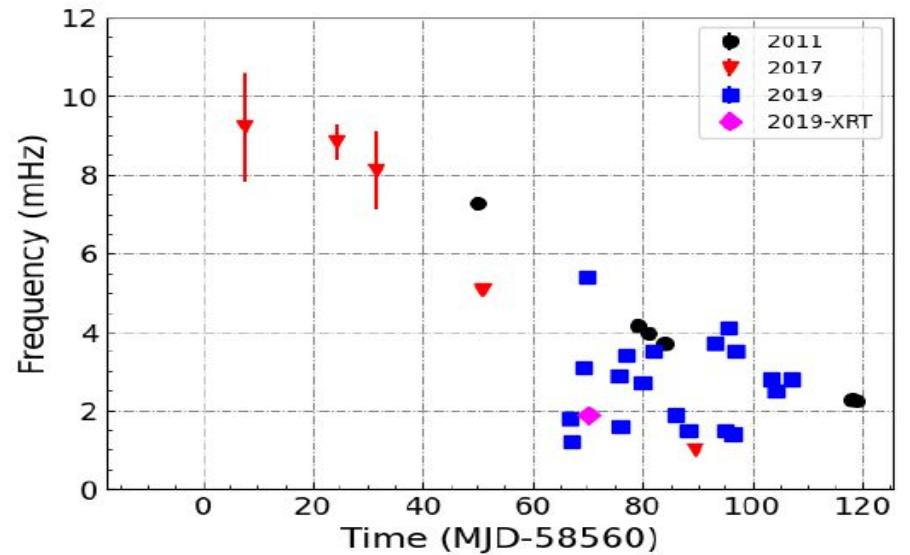
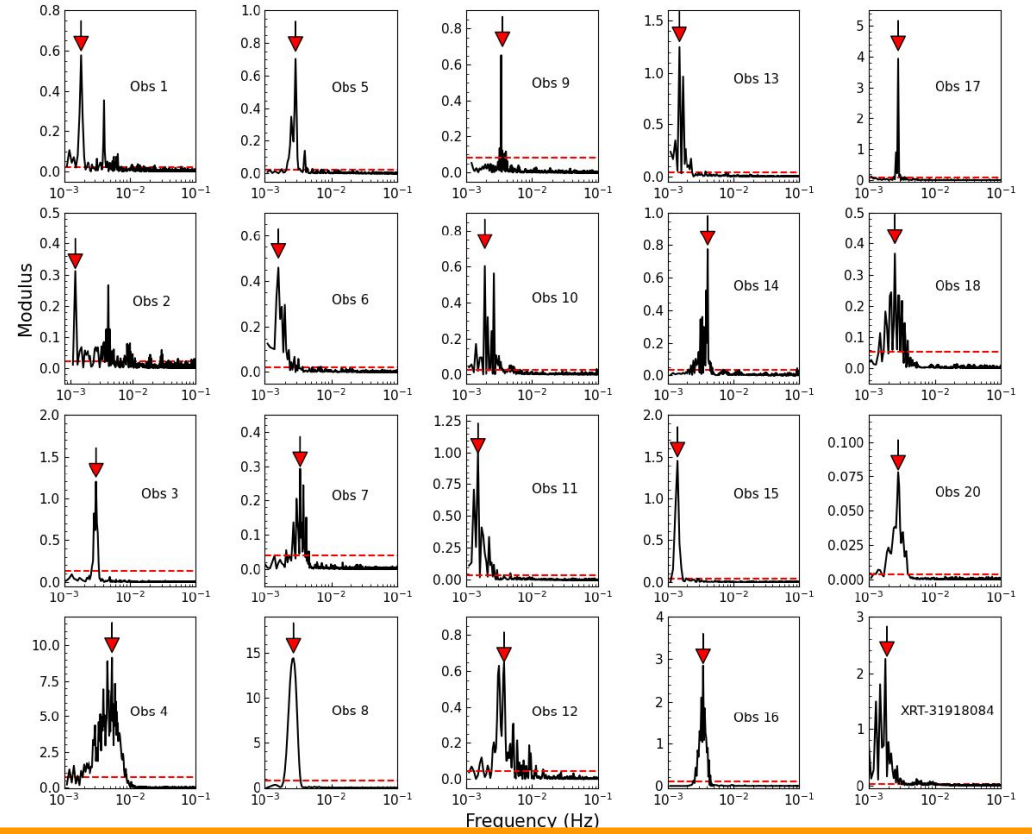
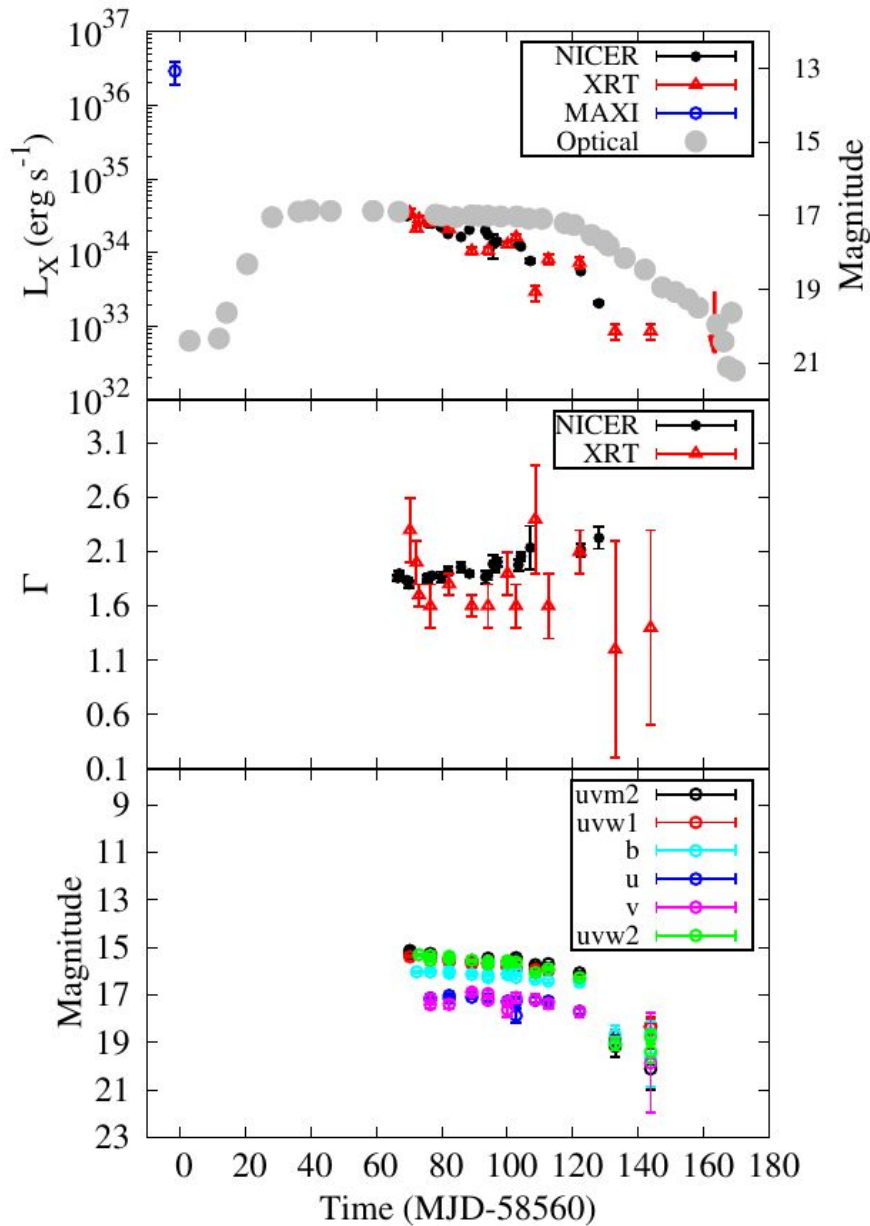


Beri et al. 2019

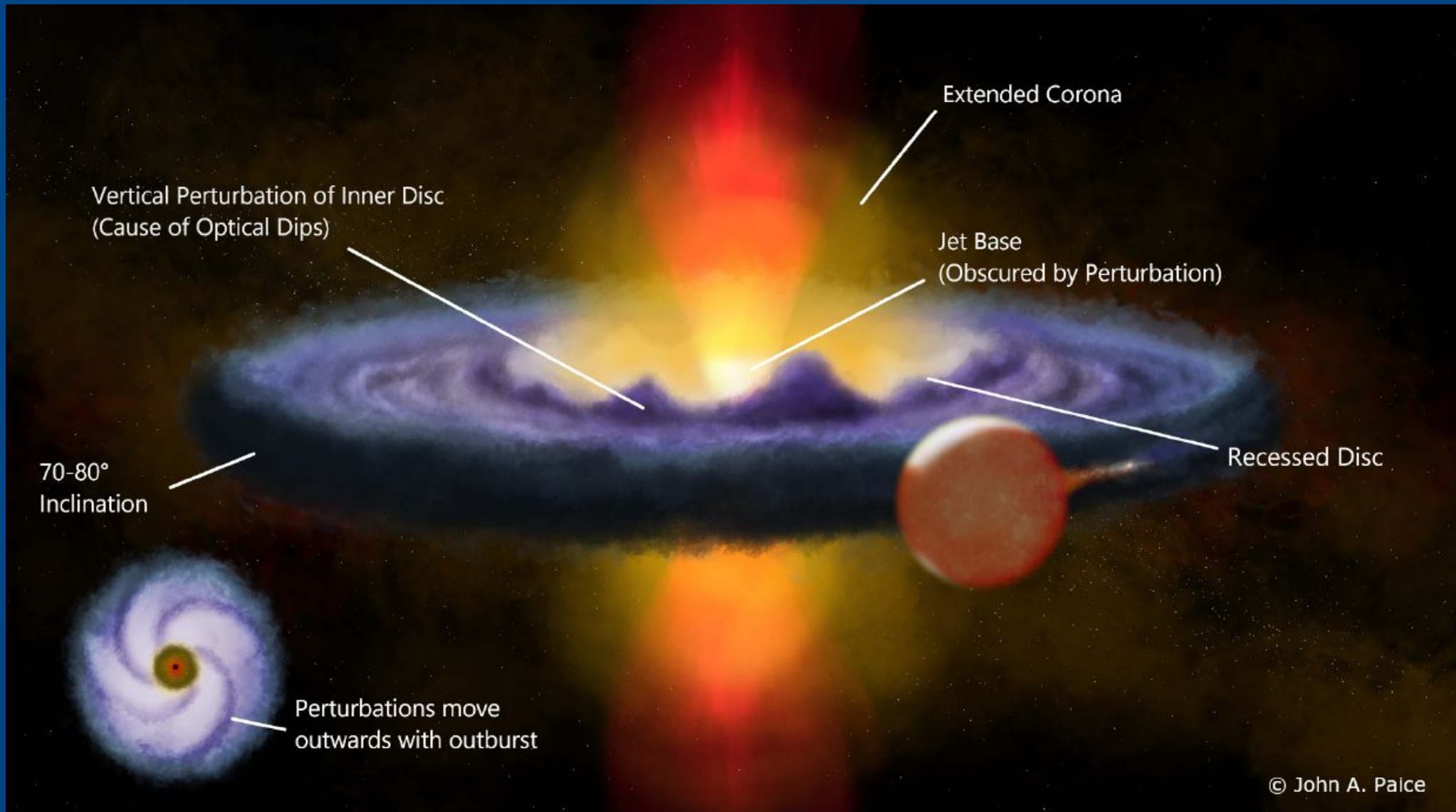


Paice et al. 2019

NICER Discovery of X-ray QPOs

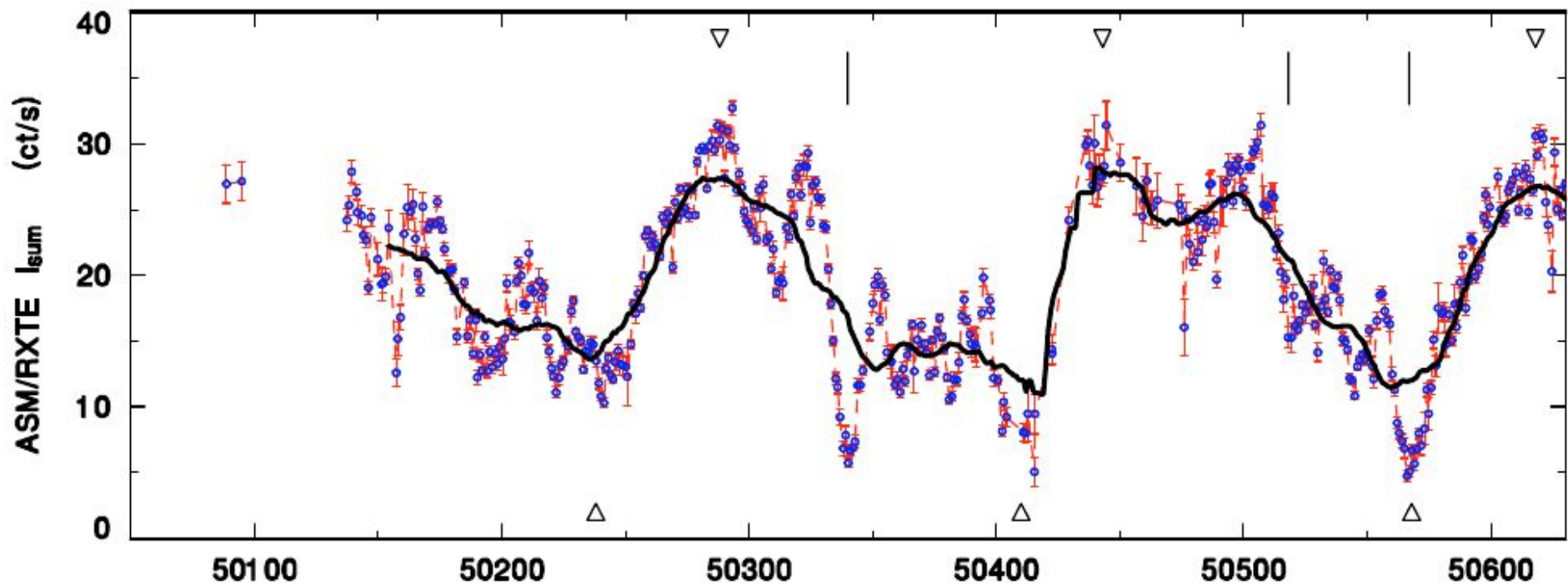


Comprehensive View of Swift J1357.2-0933



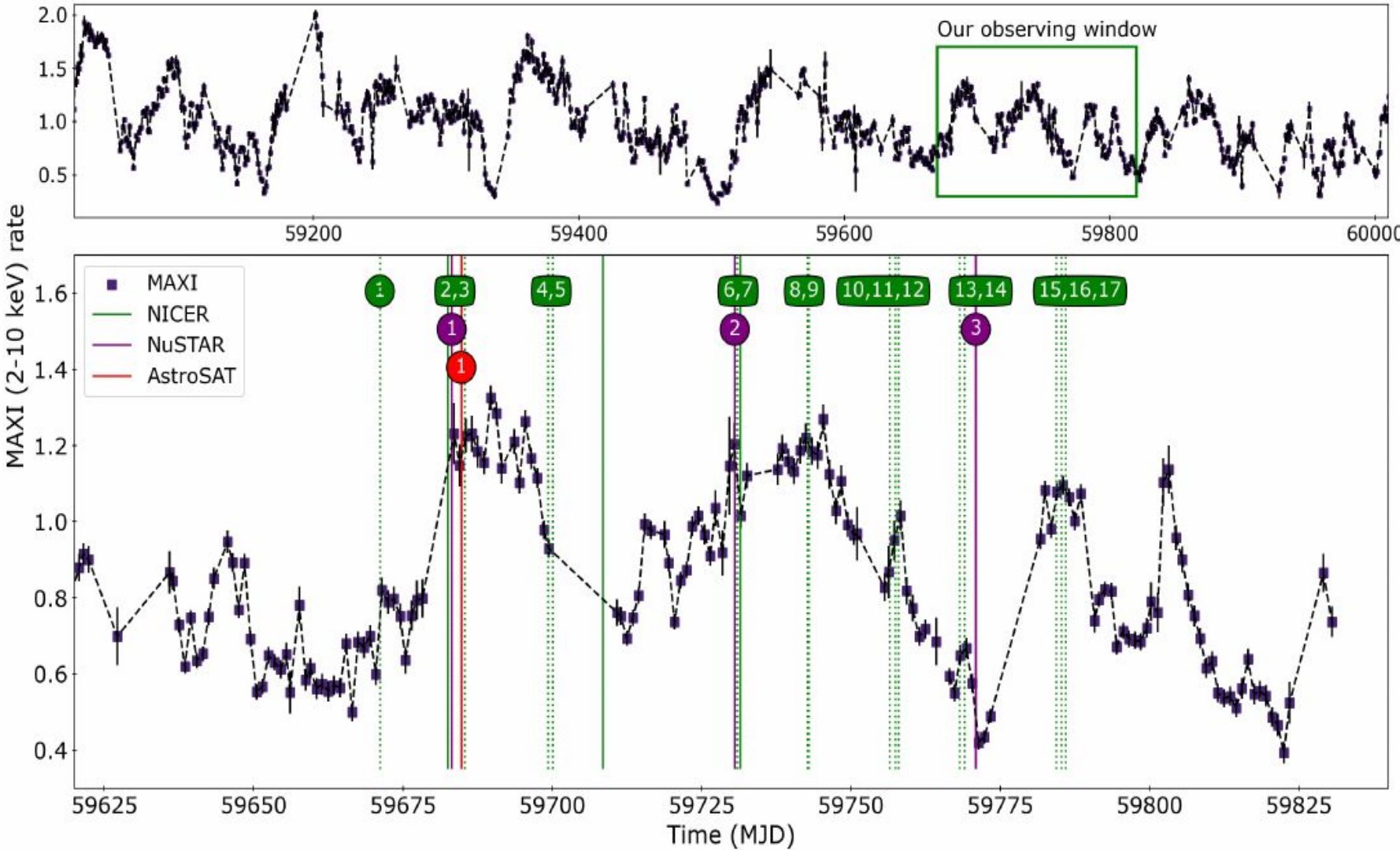
4U 1820-30 - An Ultra-Compact X-ray binary

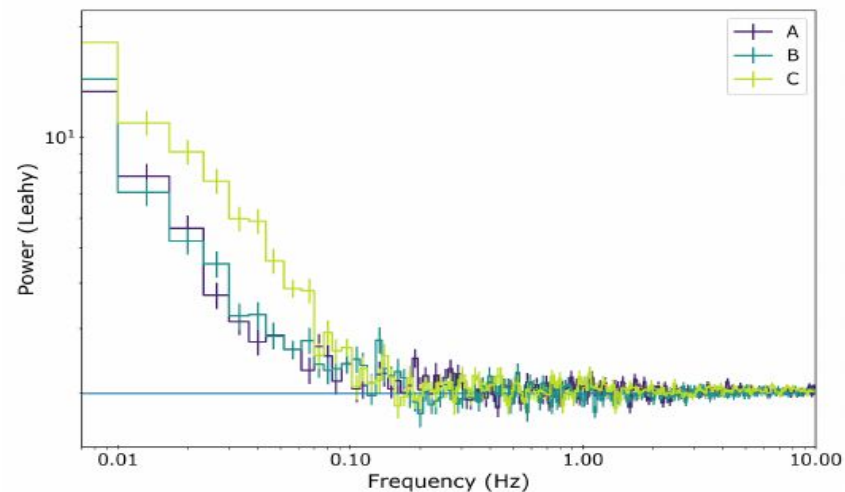
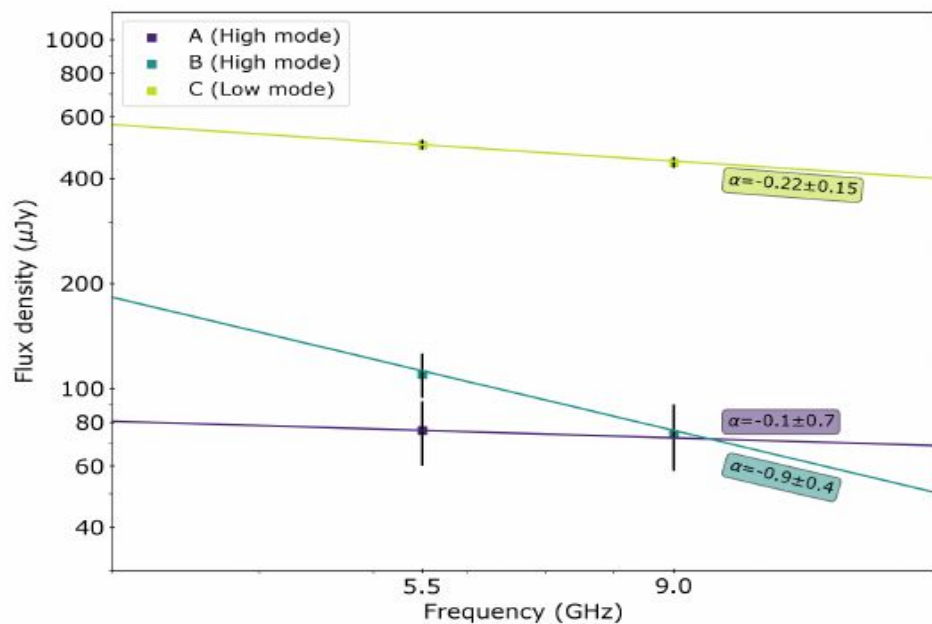
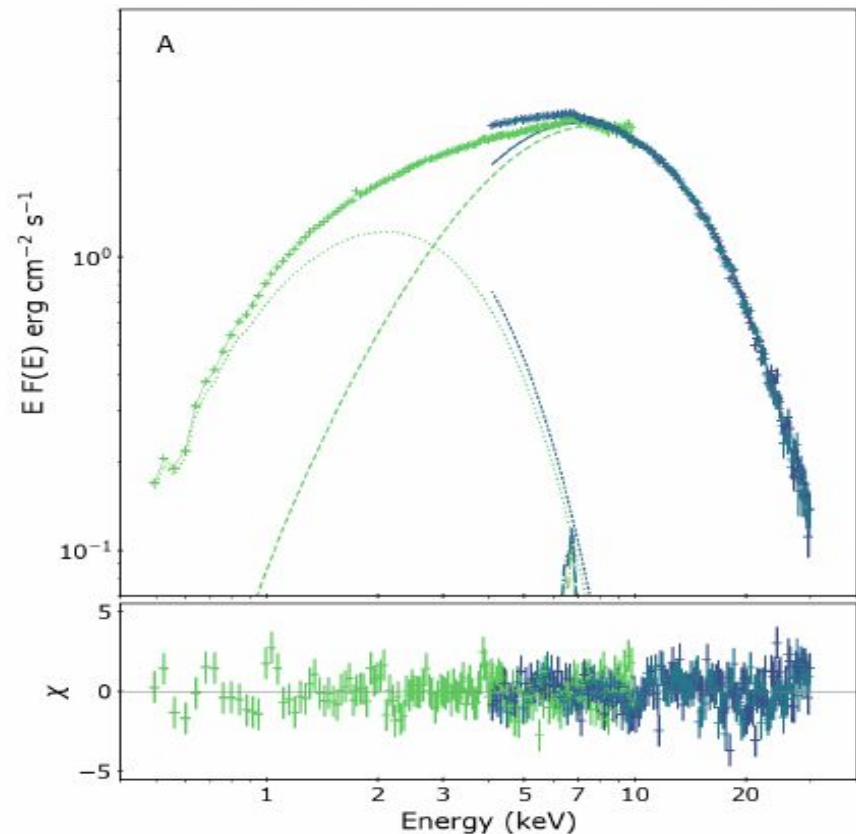
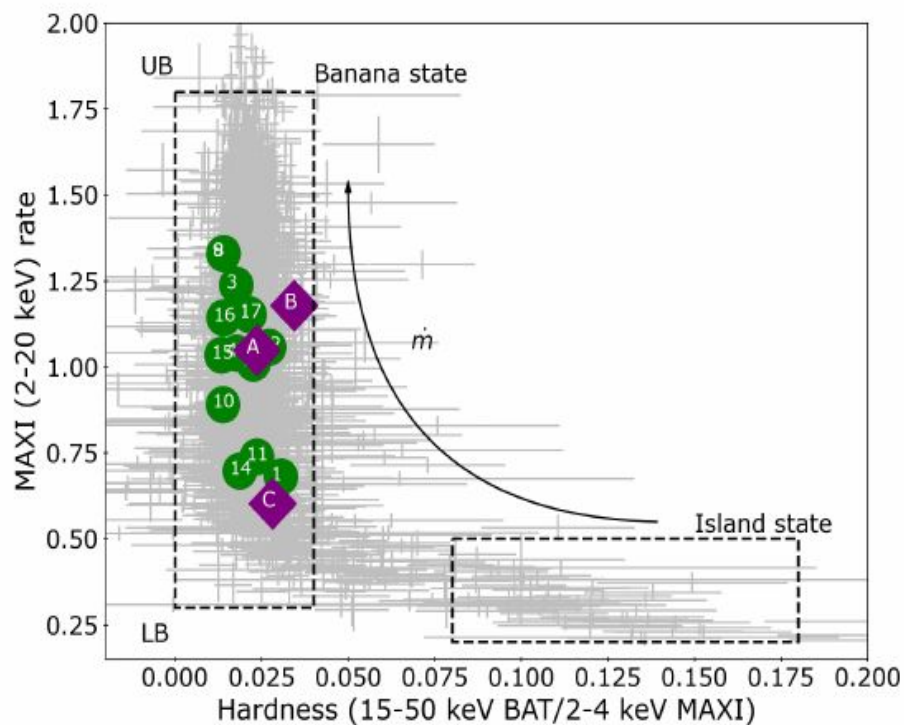
1. Orbital period- 11.4 minutes
2. Displays 170d superorbital accretion cycle, oscillates between low ($8e36$ erg/s) and high ($6e37$ erg/s) modes.



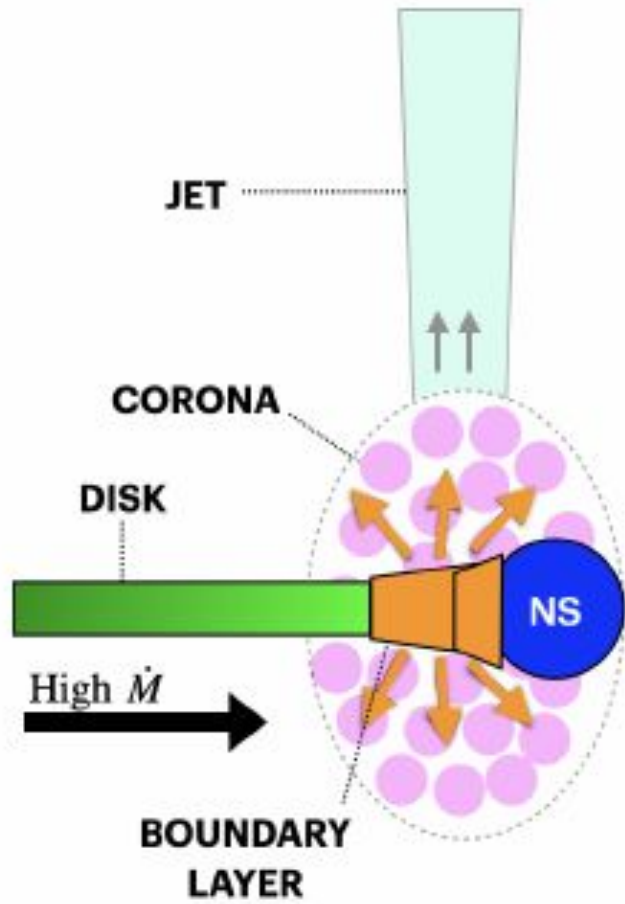
Simon 2003

4U 1820-30: Dense multiwavelength monitoring campaign in 2022.

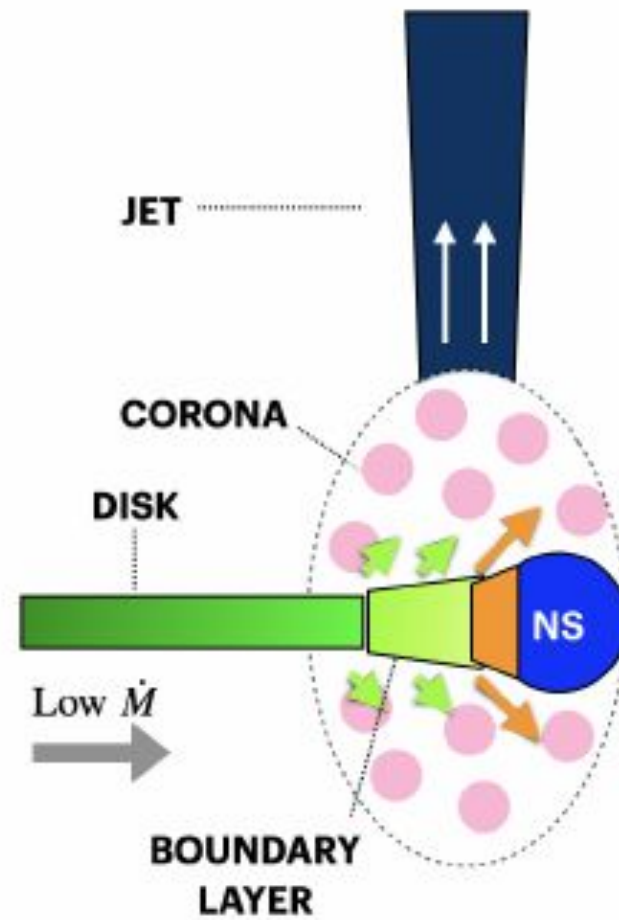




HIGH LUMINOSITY STATE
(UPPER BANANA, SPECTRA A AND B)

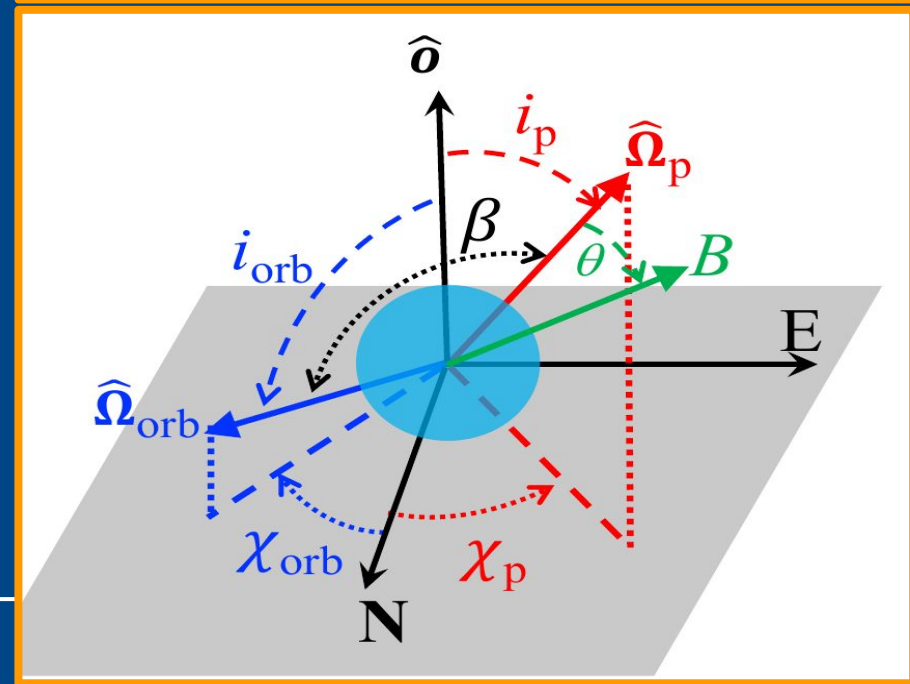
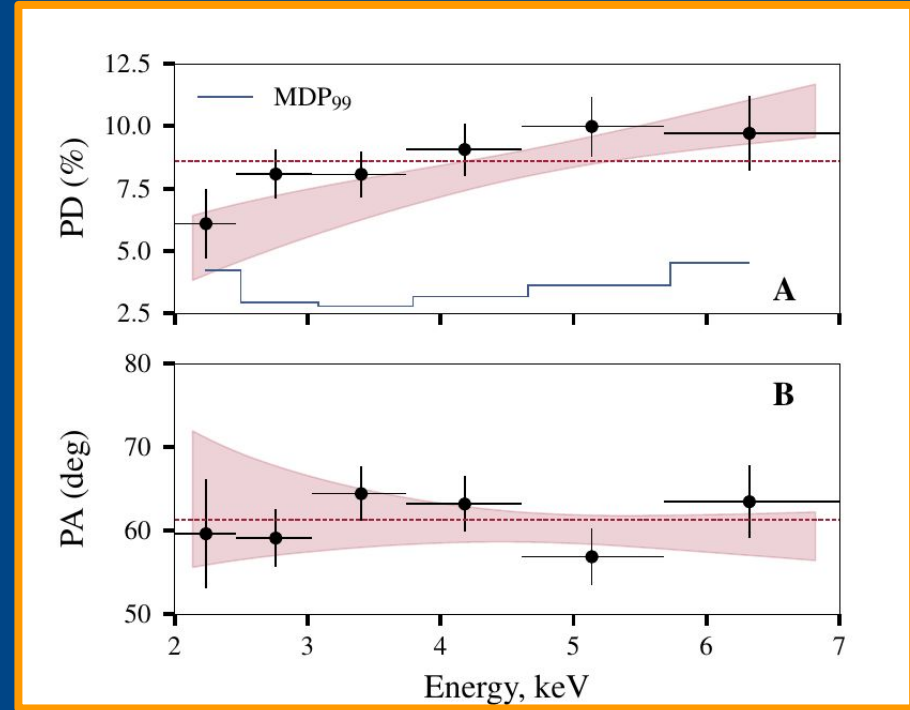
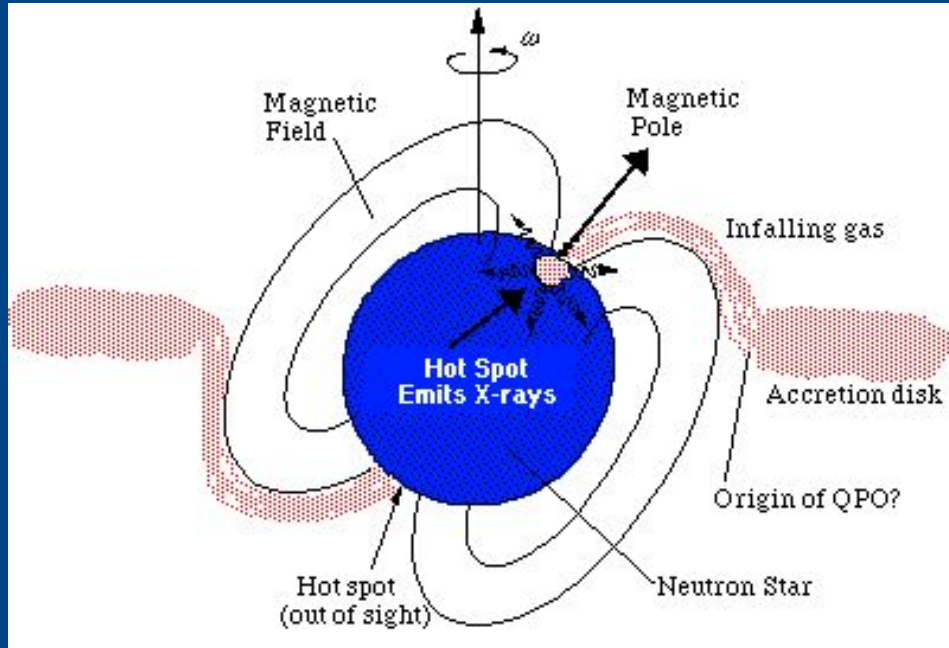


LOW LUMINOSITY STATE
(LOWER BANANA, SPECTRUM C)



X-ray Polarization-> New Light on X-ray Binaries

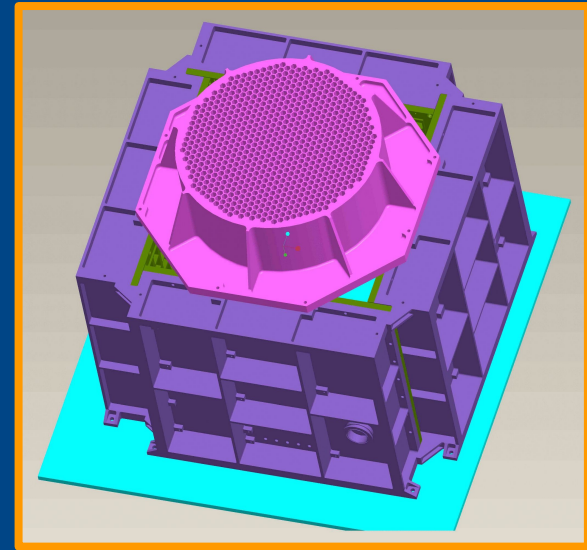
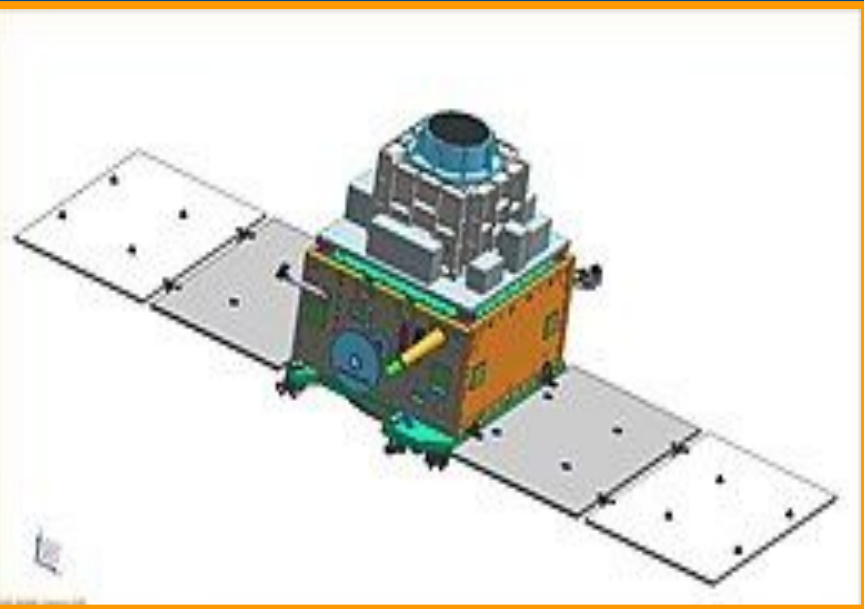
IXPE results



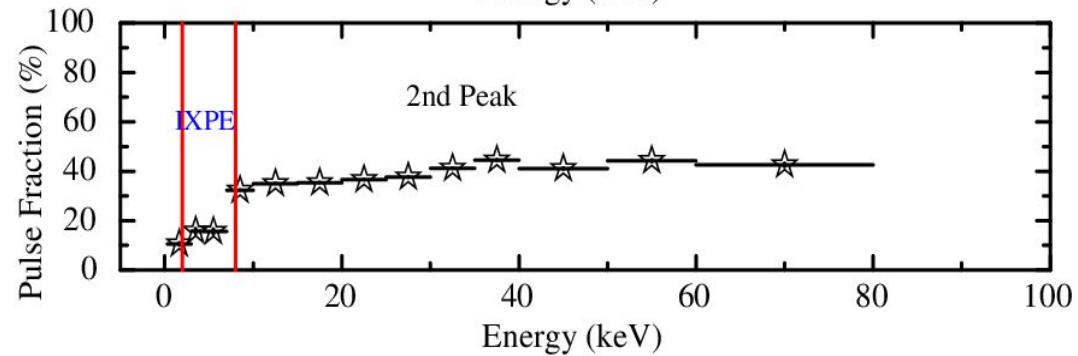
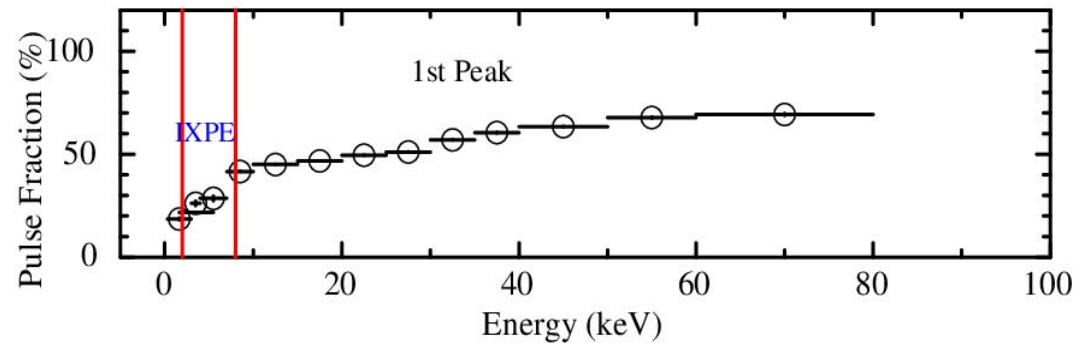
$\chi_{p,*}$ deg	θ deg	i_p deg	$\chi_{orb,*}$ deg	i_{orb} deg
56.9 ± 1.6	12.1 ± 3.7	Eq. (2)	28.9 ± 5.9	100.4 ± 4.9

Doroshenko et al. 2022

XPoSat



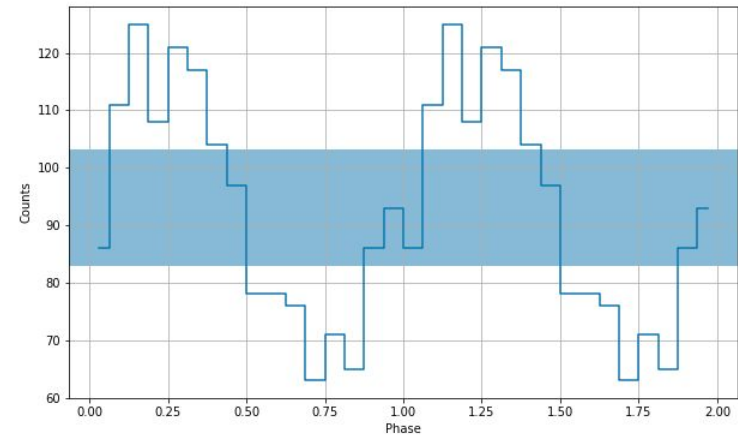
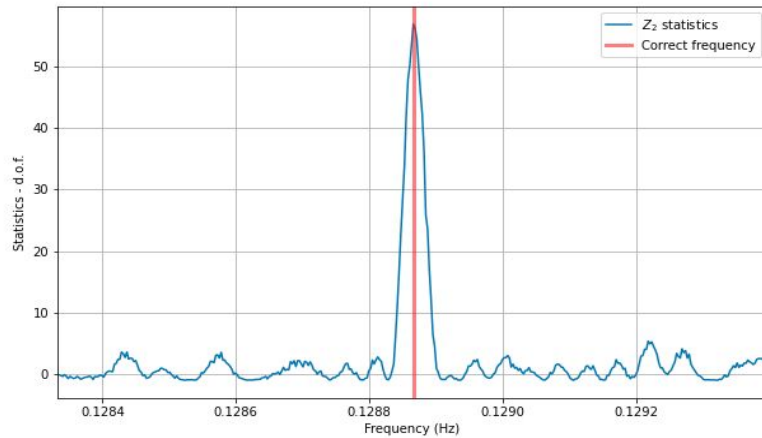
XSPECT



XPoSat

POLIX (8-30 keV)

Fast Timing with XSPECT, Monitoring Observations



period = 7.76 s, mean countrate = 0.06 c/s, pulsed fraction = 44%,
bin time = 0.1s, obs length = 25000s

Thank you!
