HIGH-RESOLUTION X-RAY SPECTROSCOPY WORKSHOP (2023)
CAMBRIDGE, MA USA

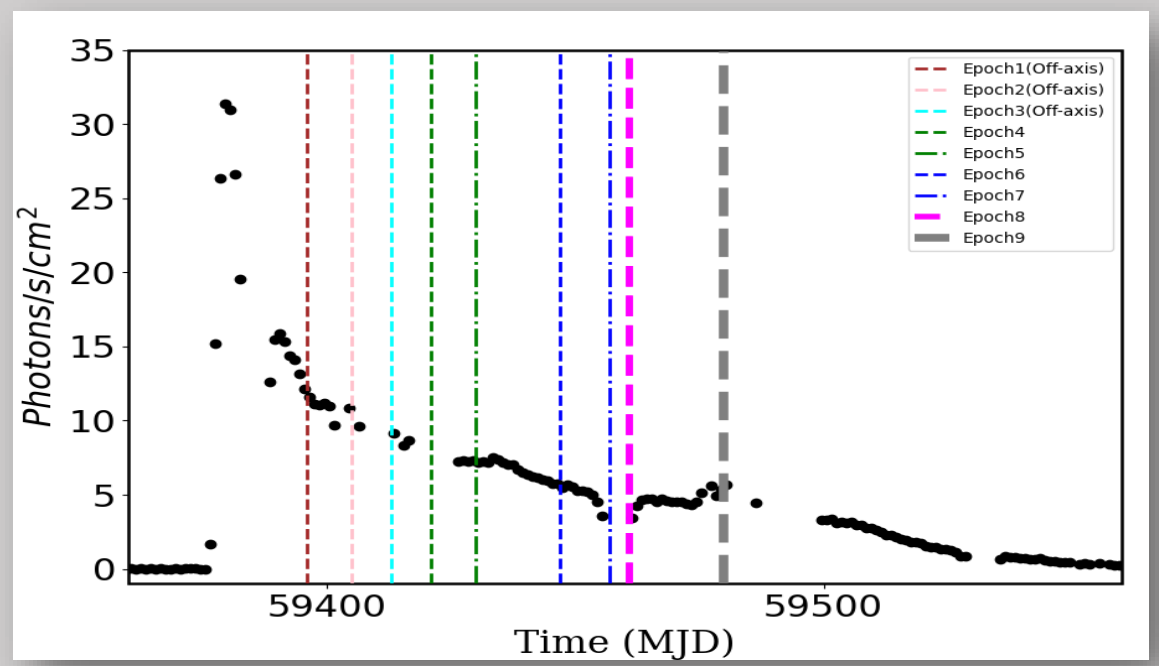
Broadband Spectroscopy of 4U~ 1543-47 in High/Soft State

Nazma Husain
Jamia Millia Islamia University (JMI)

Supervisor: Somasri Sen
Co-supervisor: Ranjeev Misra (IUCAA)

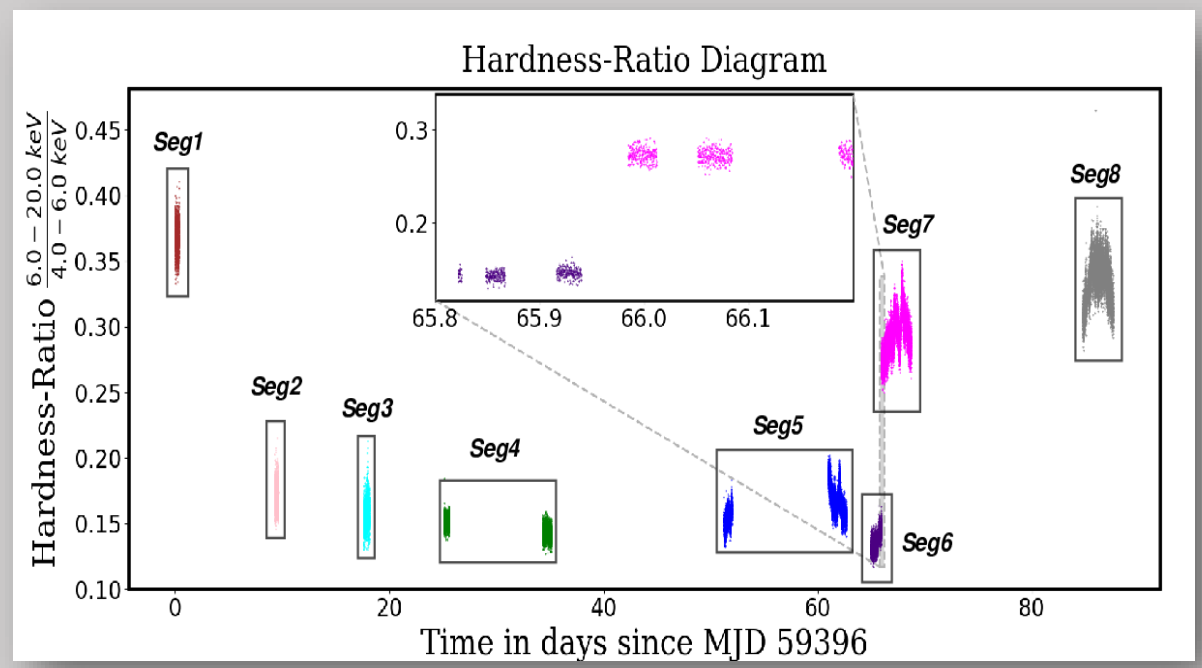
4U 1543-47: A transient Black hole binary system

Light curve profile



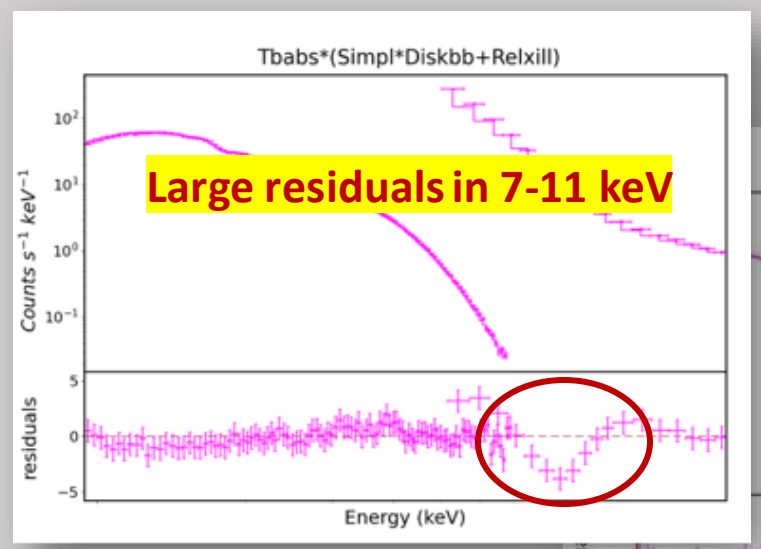
- Source quickly reached its peak flux, making **2021** its **brightest outburst, 12 Crab in 2-4keV**.
- **AstroSat** observed it nine times **during the decay**.
- Source was too bright for on-axis observations, so the first three were conducted **off-axis with a 40' offset**.

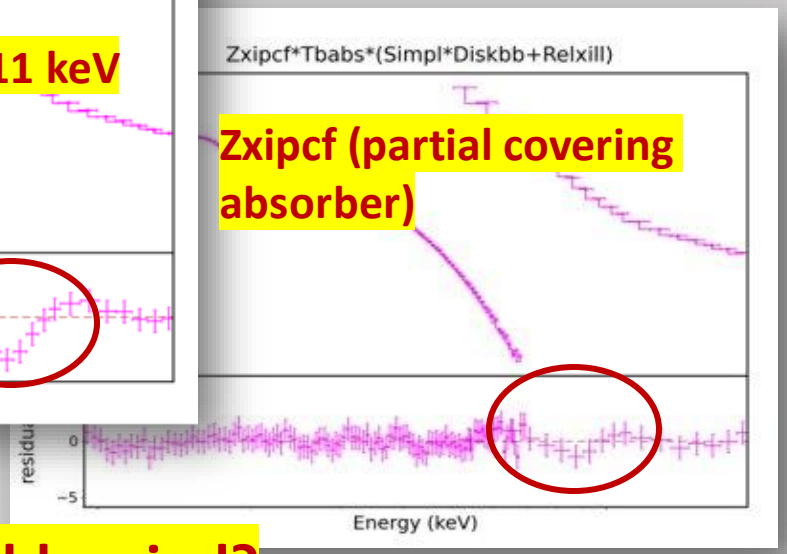
Hardness-Ratio evolution



- Source **showed evolution** throughout observations
- To find out we utilized **hardness ratio**
- Created segments based on the hardness values

Broadband spectroscopy

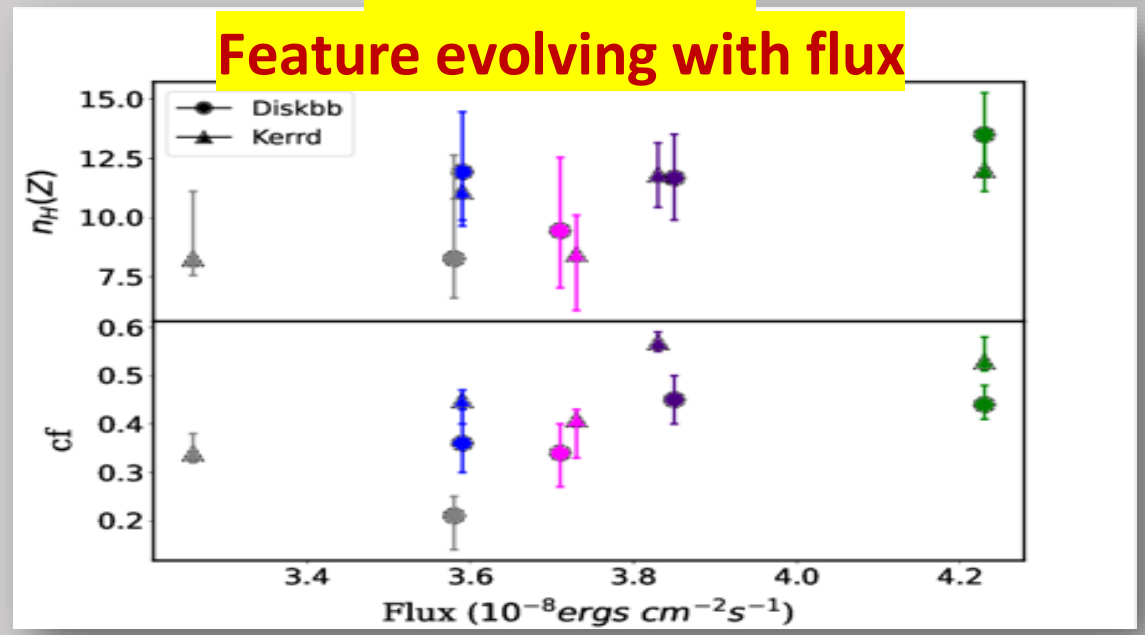


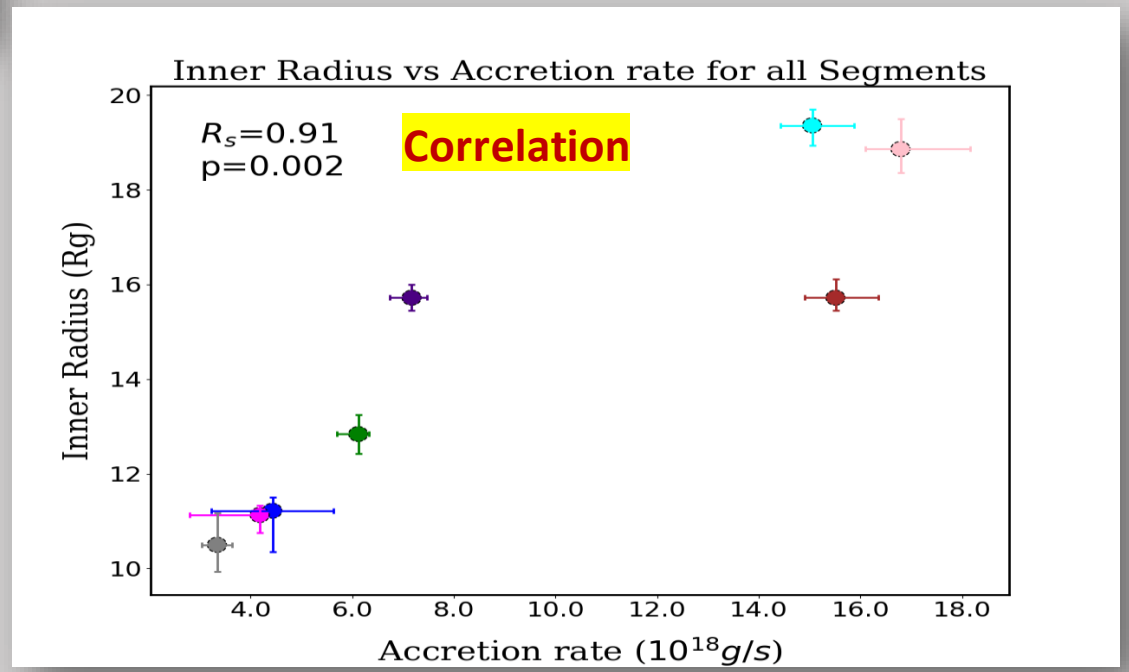


- Different spectral models (relativistic and non-relativistic)
- **Disk flux > 95 %**
- We found **inner radius to be truncated**
- **Correlation** of inner radius with accretion rate
- Alternative to truncation: **Spectral hardening changes 1.6-1.9**

Possible wind?

Feature evolving with flux





The End!