

X-ray spectral properties of NLS1s in the 6dFGS

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Outline

- **Introduction**
- **Sample selection**
- **Conclusion**

Introduction

- Narrow-line Seyfert 1 galaxies (NLS1s)
- X-ray spectrum
- Simple NLS1s (S-NLS1s)
 - 2-10 keV spectra do not strongly deviate from a single power-law continuum
- Complex NLS1s (C-NLS1s)
 - Strong spectral variability
 - Evident features around Fe K-shell at 6-8 keV

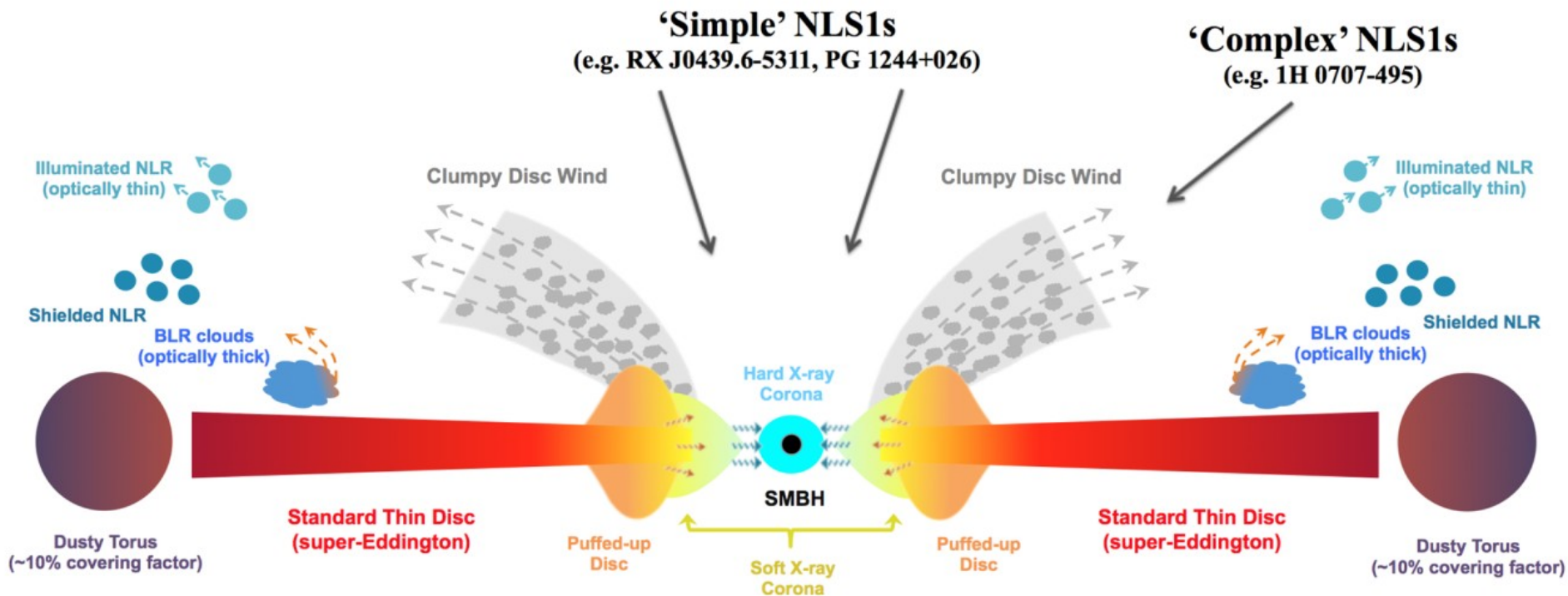
Introduction

- What is the difference between S-NLS1s and C-NLS1s?
- Flux state? (Gallo 2006)
- S-NLS1s are in a normal X-ray flux state.
- C-NLS1s are in a low X-ray flux state.

Introduction

- What is the difference between S-NLS1s and C-NLS1s?
- Inclination? (Jin et al. 2017)

Super-Eddington Narrow-Line Seyfert 1s

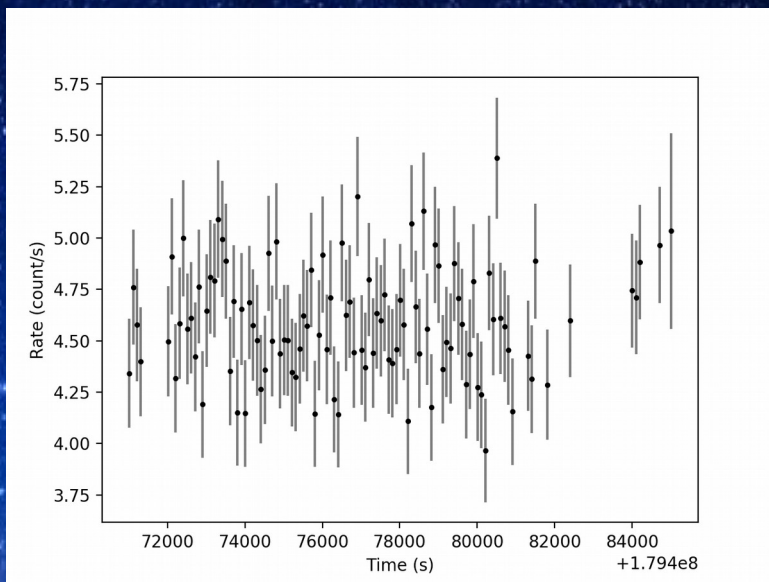


Sample selection

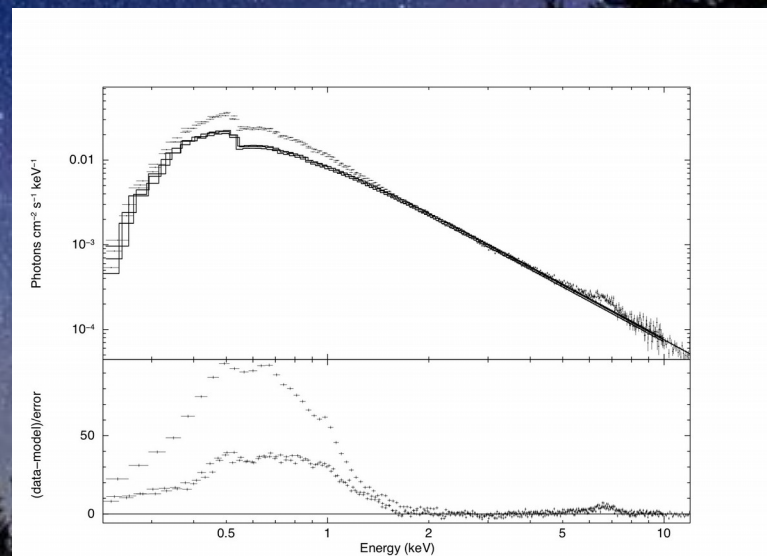
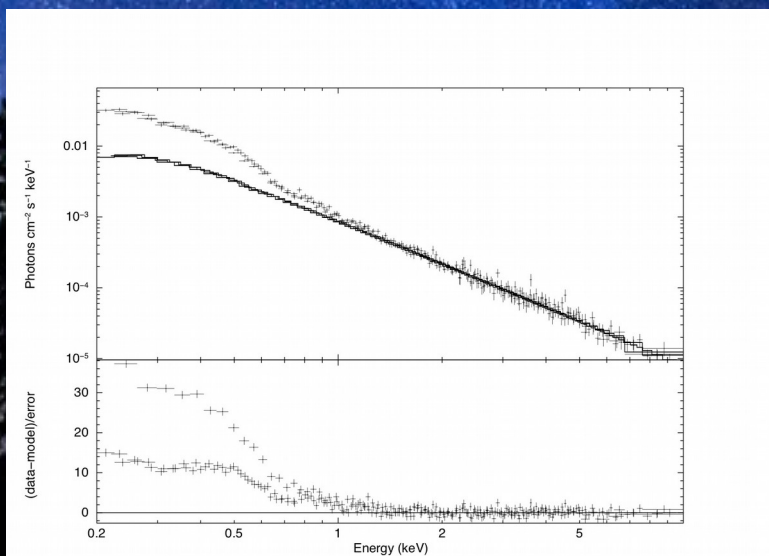
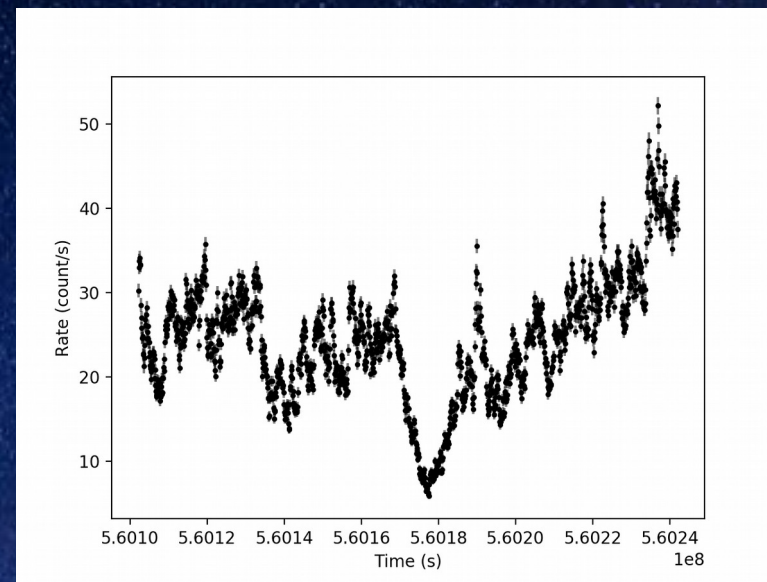
- NLS1s in the southern hemisphere (Chen et al. 2018)
- Cross-matching with XMM-Newton within 10 arcmins
- Flux (0.2-12.0 keV) $> 10^{-12}$ erg s⁻¹ cm⁻²
- 11 NLS1s
- 5 S-NLS1s + 6 C-NLS1s

Sample selection

S-NLS1

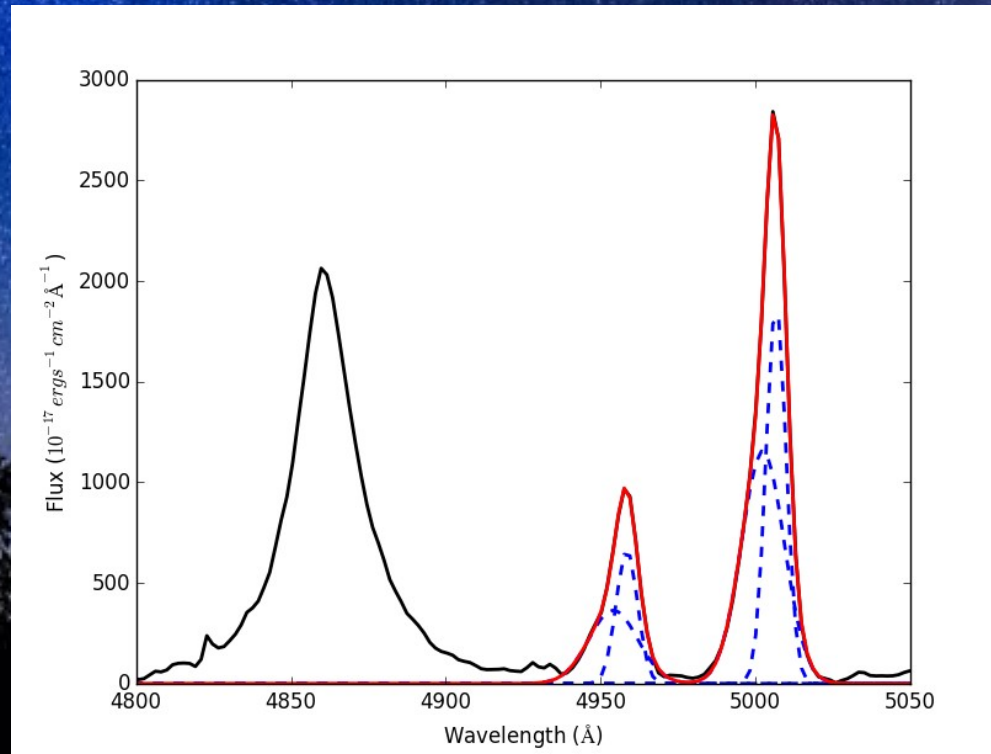


C-NLS1



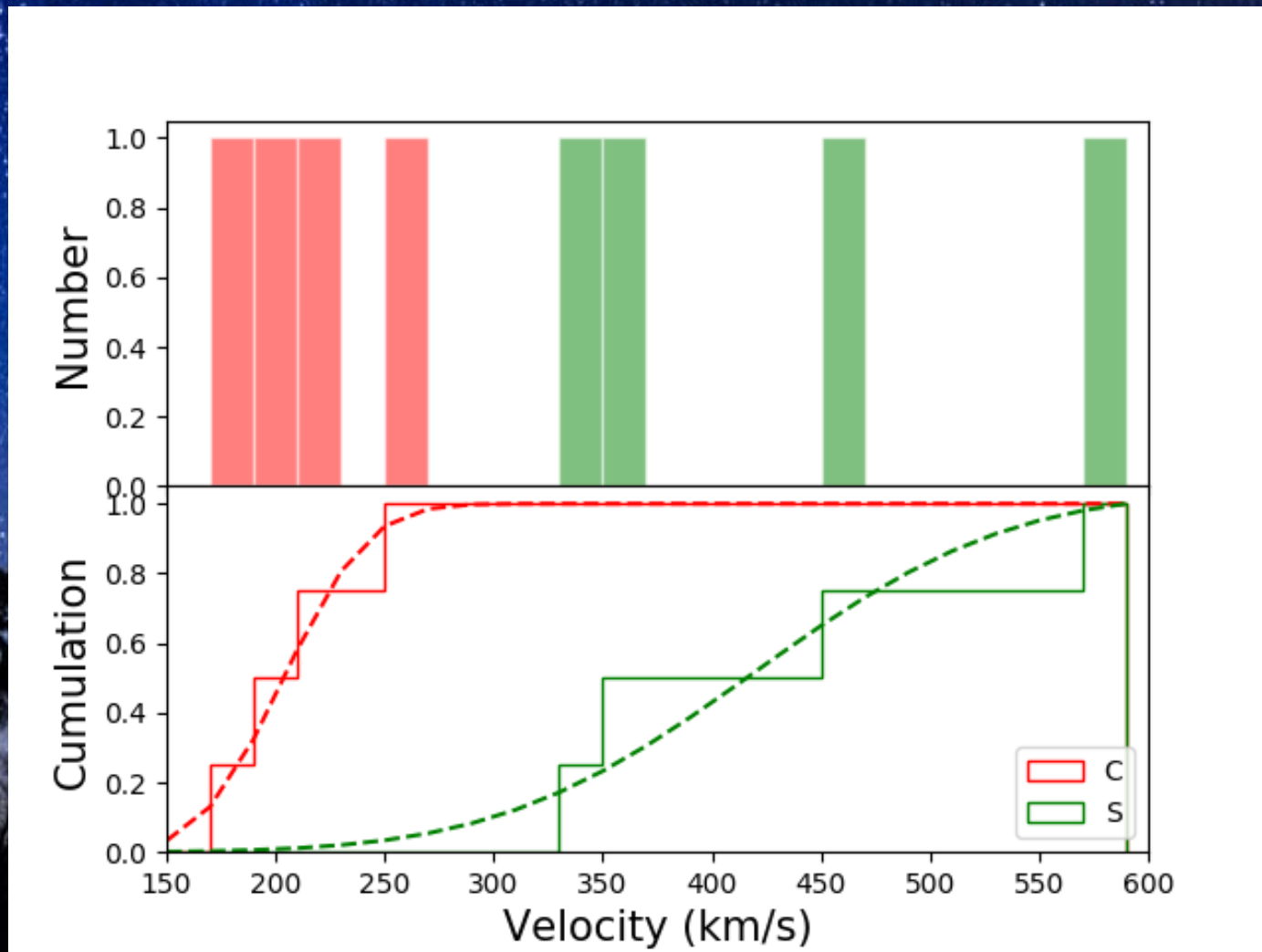
Sample selection

- Optical spectroscopic observation
- Fit [O III] lines with 2 Gaussians
- The broad components are blueshifted compared to the narrow components



Conclusion

- The distribution of relatively blueshift velocity



Conclusion

- The wind is commonly launched from the accretion disk in NLS1s.
- The difference between S-NLS1s and C-NLS1s might be due to different inclination.
- C-NLS1s are viewed at a large angle where the wind is weak. The X-ray spectral complexity and variability might be due to the ionization material and cool clumps in the wind.
- S-NLS1s are viewed at a small angle where the wind is strong. The ionization material and cool clumps might be blown away by the wind, thus resulting in the X-ray spectral simplicity.

A night sky filled with stars, with the silhouettes of trees visible at the bottom.

**Thank you for
your attention!**