

Self-consistent accretion column modeling

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in collaboration with

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three-part, modular model

Continuum

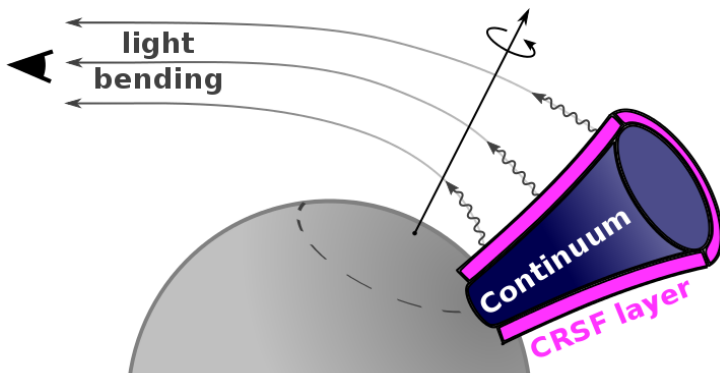
produced in the dense and optical thick inner column (e.g., Talk by M. Wolff; Becker & Wolff, 2007; Postnov et al., 2015)

CRSF layer

imprints CRSF onto the continuum in a thin outer layer (e.g., Talk by G. Schönherr; Schwarm et al., 2012)

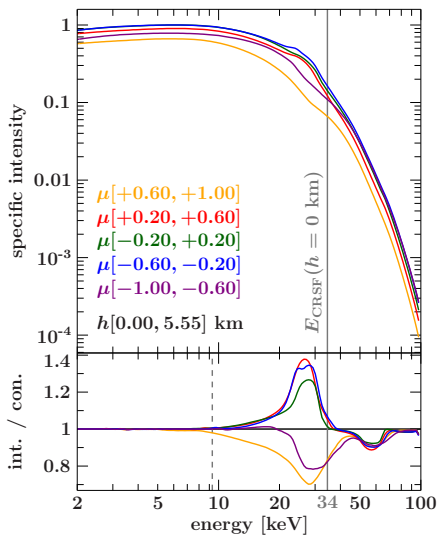
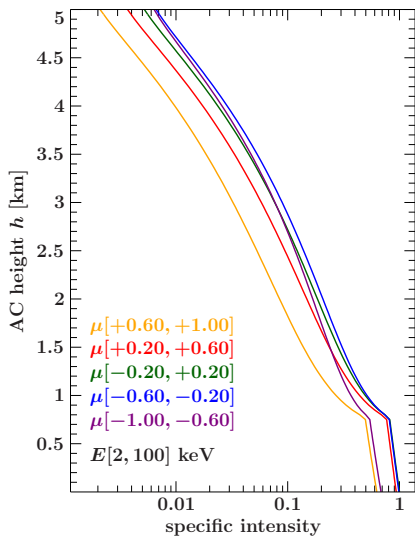
light bending

accounts for geometrical effects (including relativistic effects) (Falkner et al., in prep.)



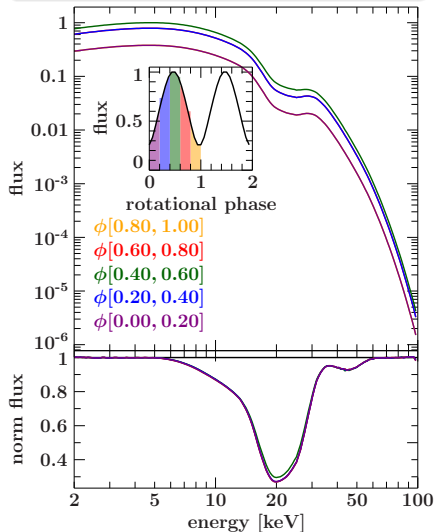
Height dependent emission

Postnov et al. (2015) continuum & Schwarm et al. (2012) CRSF

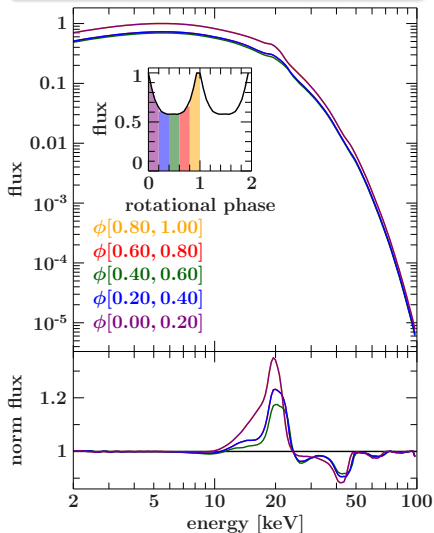


Observed phase resolved spectra

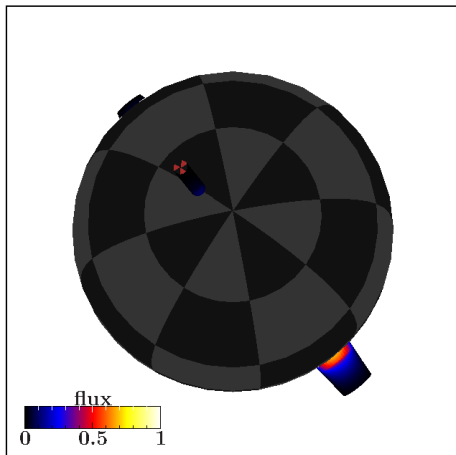
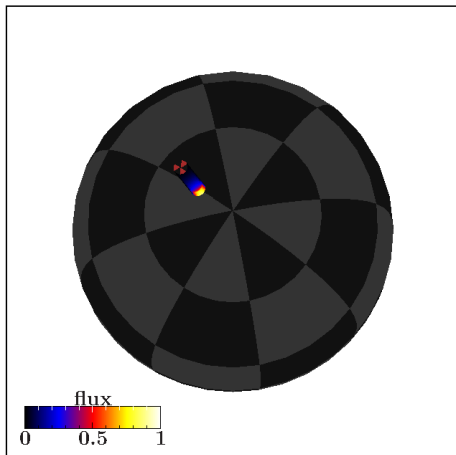
One accretion column



Two antipodal accretion columns

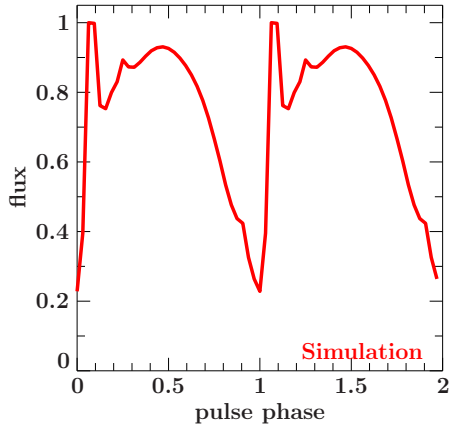
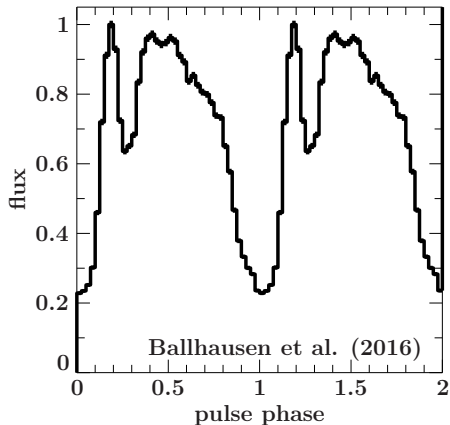


Observed spatially resolved flux



2nd accretion column only visible due to light bending, which is emitting most of the observed flux

Pulse profile of KS 1947+300



The narrow peak can be explained with strong light bending

Conclusions & Outlook

- three-part accretion column model with exchangeable modules (Continuum, CRSF, light bending)
 - simultaneous investigation of (phase resolved) spectra and (energy dependent) pulse profiles
 - drawing conclusions about the geometry of the system, where CRSFs are especially useful
- Quantitative analysis based on large, simulated datasets
- Also interfacing to other continuum models, e.g., Becker & Wolff (2007)

References

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