NGC 4593

Untertitel (falls nötig)

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June 17, 2025

Abstract

Hier kommt die Zusammenfassung deiner Arbeit.

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  - He I λ5875
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  - Cont4440 (4435 - 4450 Å)

  - Cont4765 (4762 - 4774 Å)
  - Cont5100 (5085 - 5112 Å)
  - Cont5600 (5645 - 5653 Å)
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  - Cont6110 (6107 - 6129 Å)
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  - Hα
  - Hβ
  - Hγ
  - He I λ5875
  - He I λ7065
  - He II λ4685
  - O I λ8446
- Gewählte Continua zur Darstellung:
  - Cont1150 (1140 - 1160 Å)
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- Substraktion der pseude conts der intercalibrierten Spektren von Hα und Hβ und Bestimmung des AVG/RMS
- Abzug der narrow line komponenten aus dem AVG (noch nicht fertig)
- Bowen Fluoreszenz überprüfen
- ist wahrscheinlich, aber kann aufgrund der Auflösung nicht nachgewiesen werden
- allerdings korreliert OI deutlich mehr mit LyAlpha bzw. H Beta, als mit dem UV Spektrum
- Bisherige Publikationen nehmen an, das OI nicht variiert und nur durch Photoionisation entsteht. Aber hier variiert OI deutlich

Chapter 2

Campaign and Analysis

The Analysis of this campaign bases of the observation campaign of NGC4593 in 2016 by Edward M. Cackett (Edward M Cackett et al. 2018). The observations took place between the 12th of July and the 6th of August with 26 successful observations and was performed with the Hubble Space Telescope (HST) using the Space Telescope Imaging Spectrograph (STIS). The following section will cover important properties of NGC4593 and the 2016 campaign.

2.1 NGC4593

NGC4593 is an active galactic nuclei (AGN), classified as an Seyfert 1 Galaxy with a Sb D morphology. It is located at RA = 12:39:39.44, DEC = -05:20:39.03 (2000) and has a of $z = 0.0083 \pm 0.0005$ This correspond to a distance of about 35.6 MPc (SIMBAD 2025)based on the ΛCDM-Model.

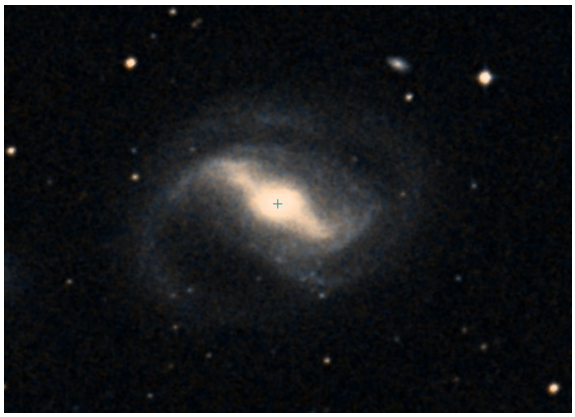

Figure 2.1: A DSS image of NGC4593.

2.2 2016 Campaign by E. M. Cackett

E. M. Cackett's campaign was designed to study wavelength dependent continuum lags. Therefore, the STIS instrument on the Hubble Space Telescope was used with low-resolution gratings to measure a broad range of wavelengths. In each observation, spectra were taken using three different gratings: G140L, G430L, and G750L. These were used together with the $52'' \times 0.2''$ slit.
The characteristics of the STIS gratings used in this analysis are summarized in Table 2.1.

Table 2.1: Overview of STIS Grating Characteristics (Space Telescope Science Institute 2025)

Grating	**Range [Å]**	**Exp. Time [s]**	**Res. Power**	**Dispersion [Å/pixel]**
G140L	1119–1715	1234	~ 1000	0.6
G430L	2888–5697	298	$\sim 500 - 1000$	2.73
G750L	5245–10233	288	$\sim 500 - 1000$	4.92

2.3 Reverberation Mapping

As the main focus of this work was a reverberation analysis of the broad lines of NGC4593. Reverberation Mapping (RM) bases on the strong correlation between a variable continuum emission $C(t)$ and the emission line flux $L(\nu, t)$ (Horne et al. 2021).
This correlation origins from the photoionisation of the gasclouds in the broad line region (BLR) by this variable continuum. Following this correltaion, changes in the flux intensity of the continuum will be resulting in the same changes in the flux intensity of the lines. But because of the geometrics of the broad line region to the central continuum, the changes appeares with a "Time Lag" τ, which corresponds to the time of flight the light takes to reach the BLR (Bradley M Peterson 1997).

Bibliography

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