

dr hab Alex Markowitz

Properties of accretion flows & circumnuclear accreting/outflowing gas
in Active Galactic Nuclei, via variability & spectroscopy

Current pursuit: X-ray-Detected SMBH transients with eROSITA

Work with German eROSITA consortium as an External Collaborator (Ongoing bilateral NCN/DFG grant):

eROSITA's all-sky X-ray surveys → identify SMBH accretion ignition or shutdown events

My focus: Track responses/formation of accretion structures during extreme variations in global or local accretion rate



(image credit: DLR)

Dedicated multi-year, multi- λ followup campaigns for selected individual targets:

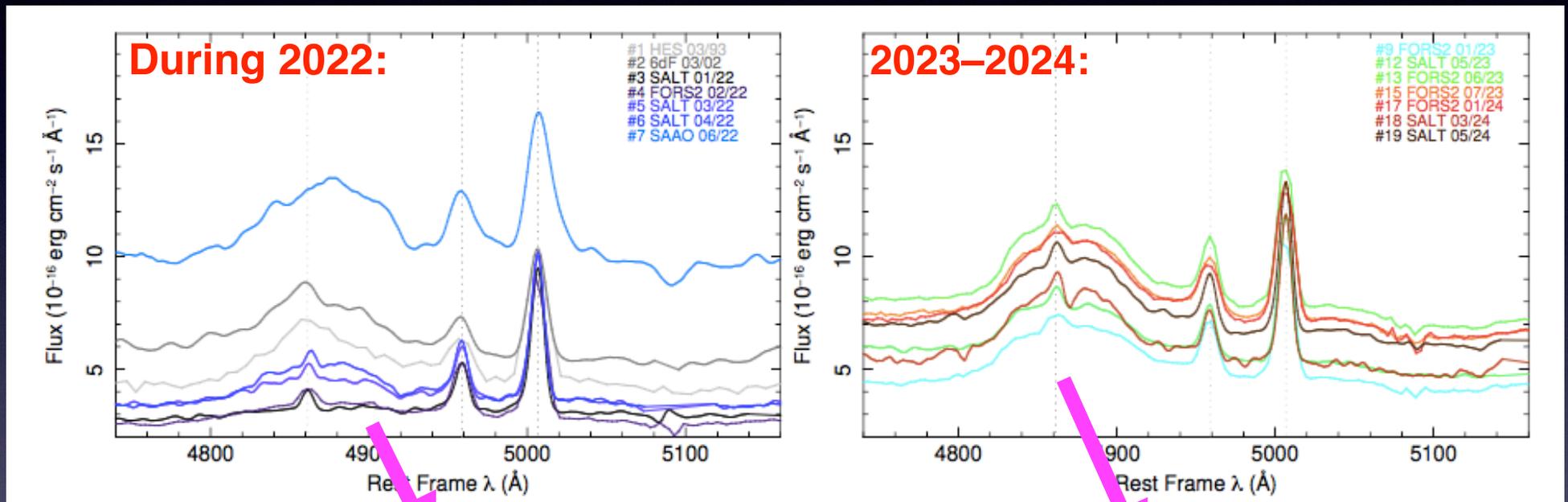
X-ray (eRASS, XMM, Swift, NICER): → corona

Opt./UV photometry (LCO, Swift): → accretion disk

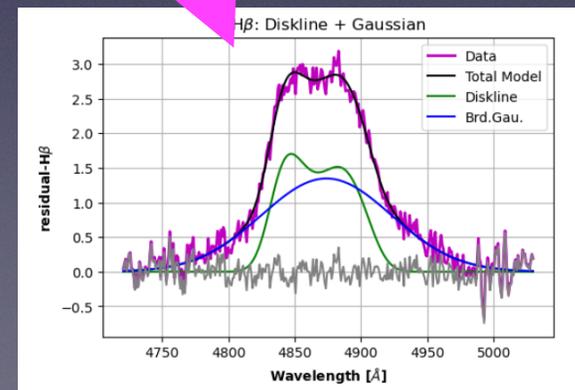
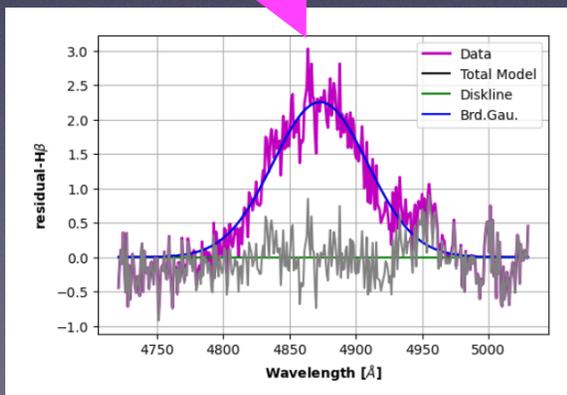
Opt. spectroscopy (SALT, SAAO, VLT): → Broad Line Region

Main focus in 2025: Markowitz et al., (paper submitted Dec. 2025):

Changing-Look Seyfert J1240—2309: optical spectroscopy revealed a two-component Broad Line Region whose illumination evolved with time



Broad H β :



Two-component BLR with an evolving response:

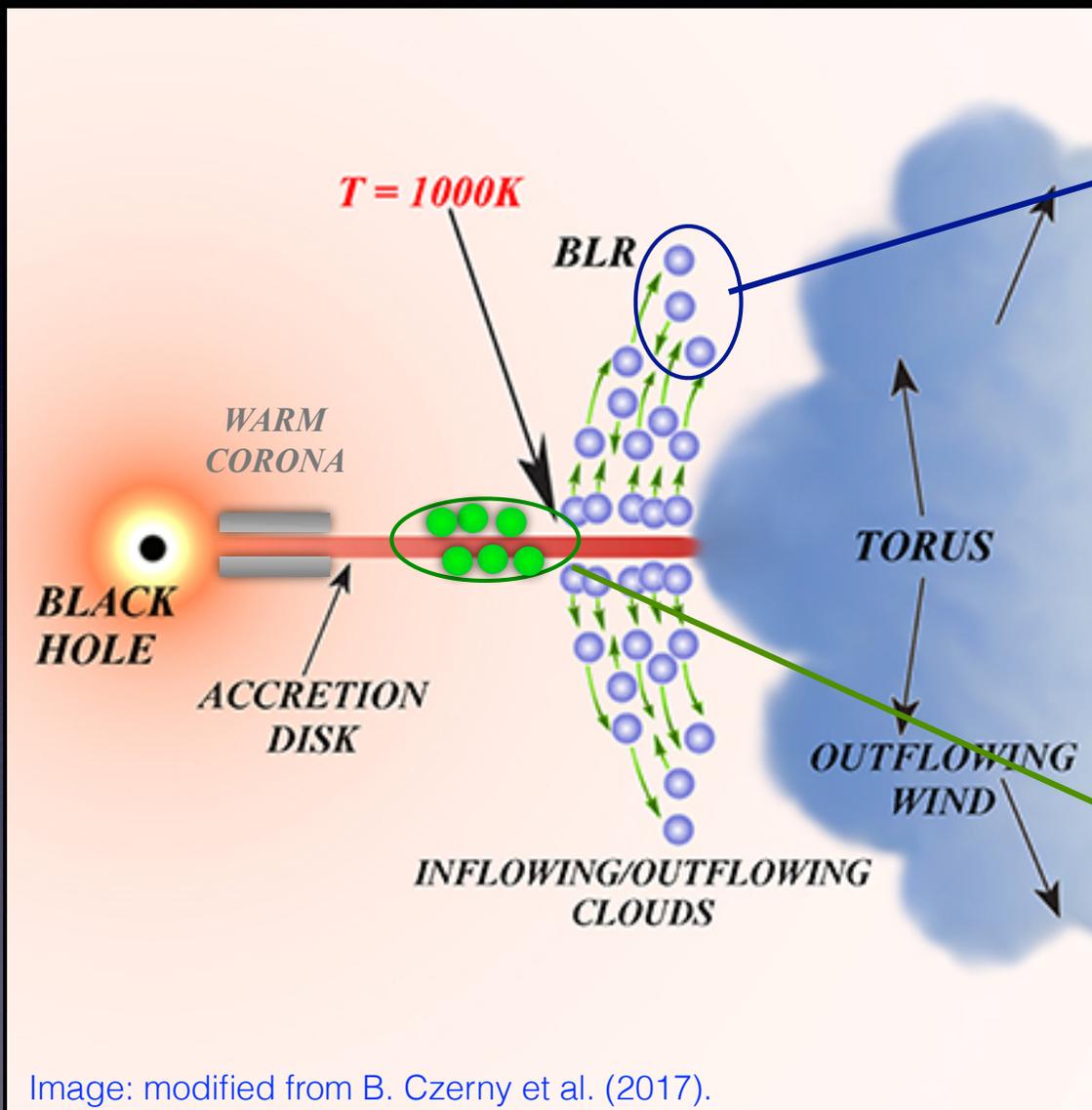
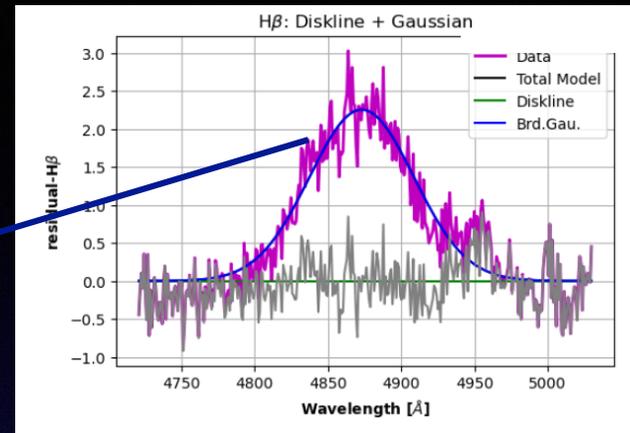
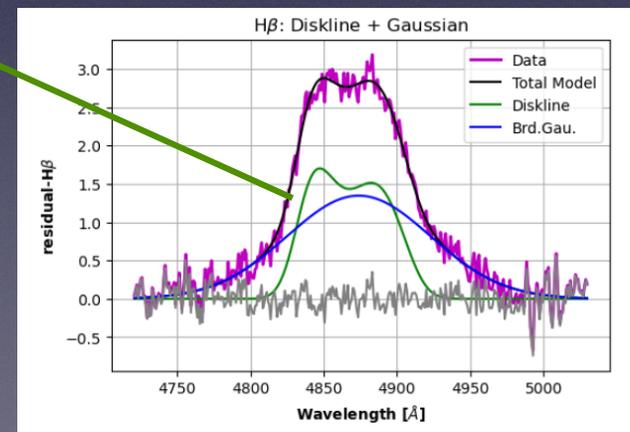


Image: modified from B. Czerny et al. (2017).



Elevated clouds at $R = 27$ lt-dy

Diskline clouds at $R = 7$ lt-dy



Two-component BLR with an evolving response:

During 2022:

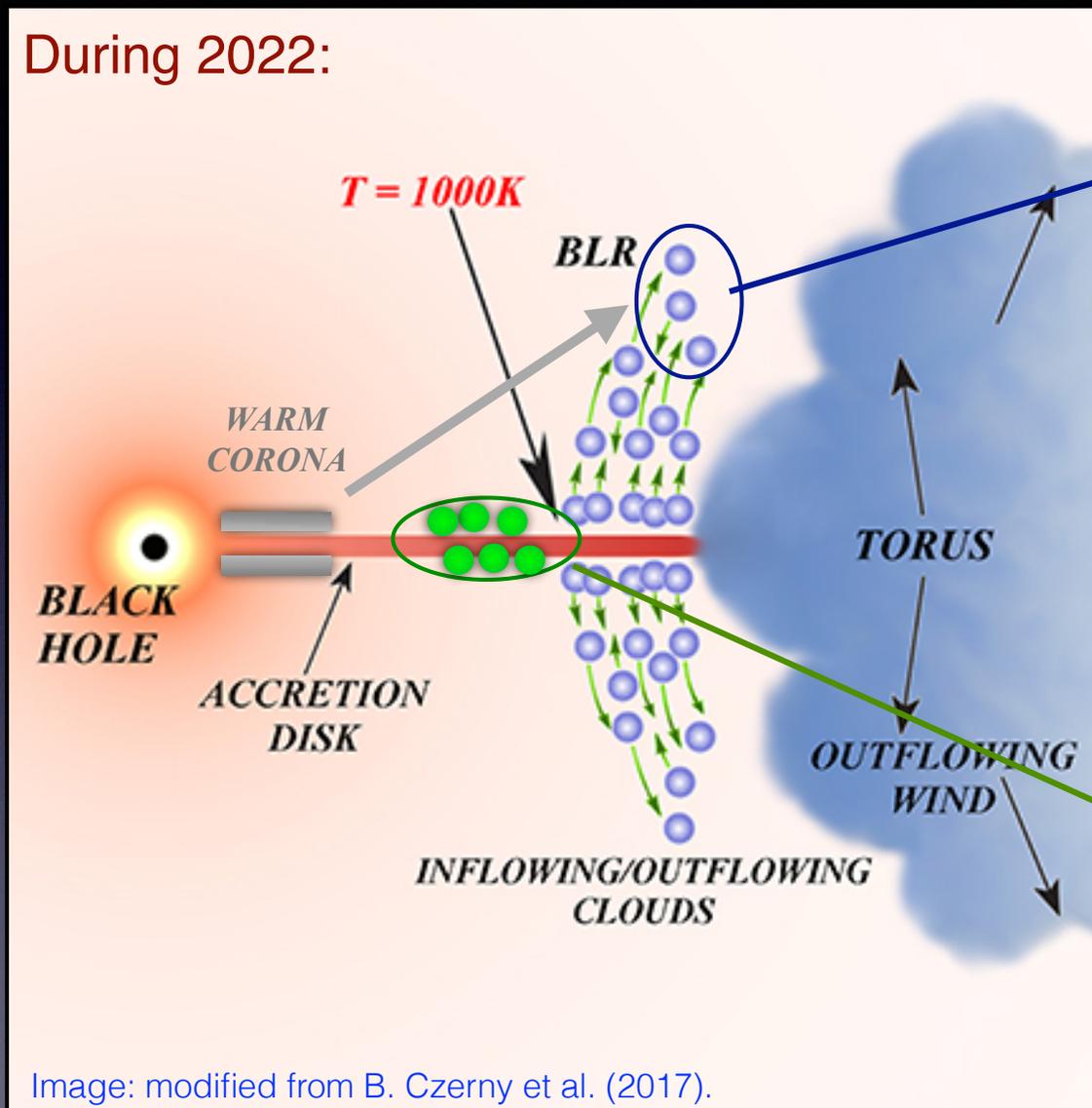
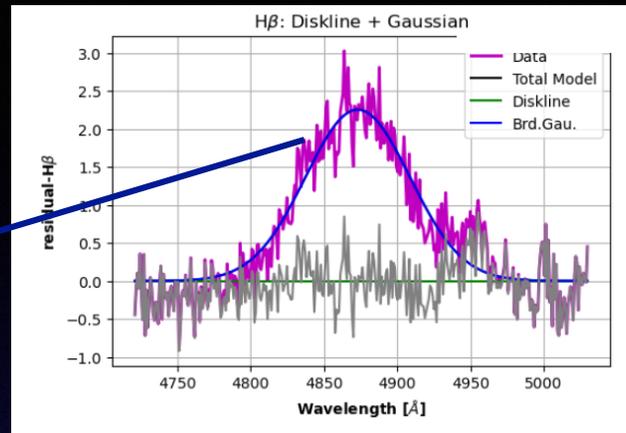
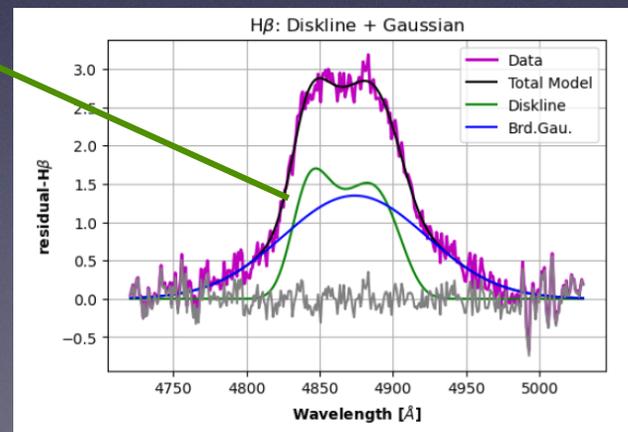


Image: modified from B. Czerny et al. (2017).



Elevated clouds
at $R = 27$ lt-dy

Diskline clouds at
 $R = 7$ lt-dy



Two-component BLR with an evolving response:

During 2023-4:

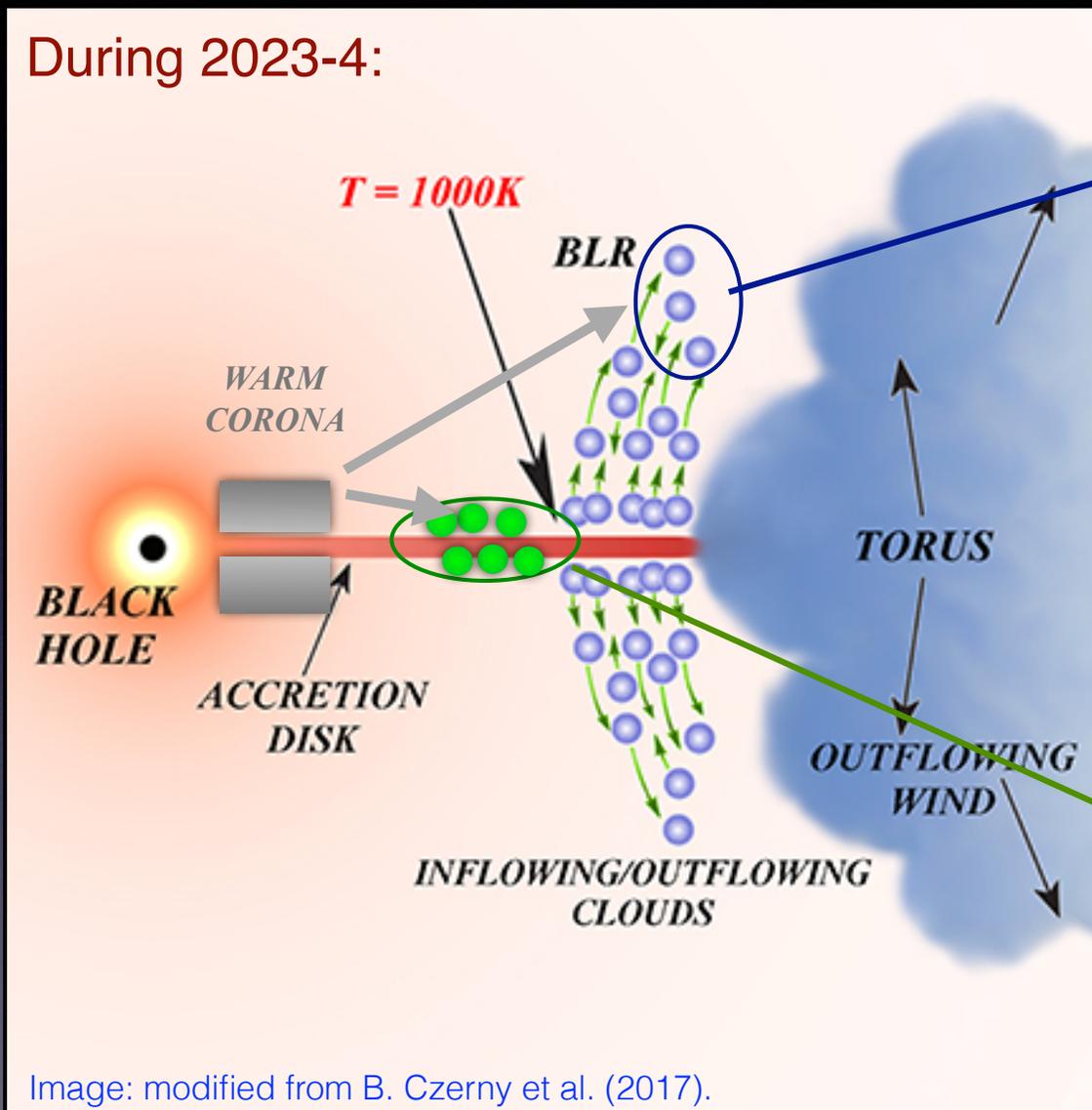
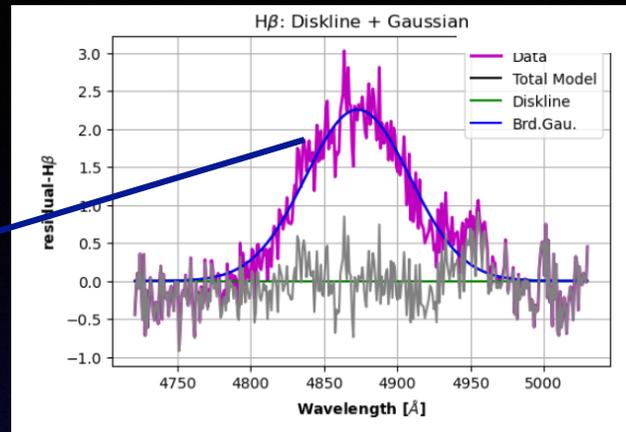
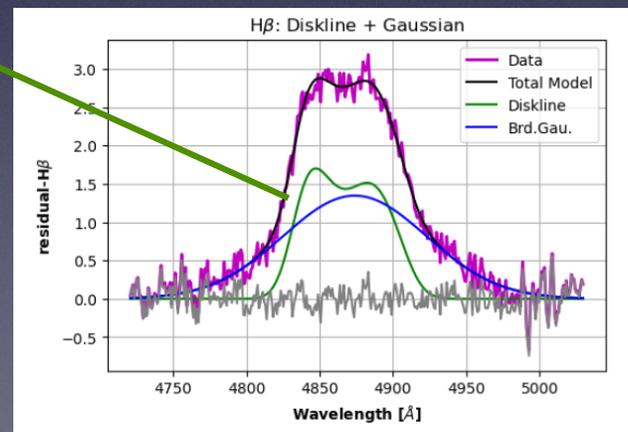


Image: modified from B. Czerny et al. (2017).



**Elevated clouds
at $R = 27$ lt-dy**

**Diskline clouds at
 $R = 7$ lt-dy**



Additional, co-author publications in 2025:

eROSITA: Flaring CLAGN J0428-00:

T. Saha, A. Markowitz, et al., 2025, A&A, 702, A28

eROSITA: Quasi-periodic modulations in a TDE/CLAGN:

A. Malyali et al., submitted, under review

eROSITA: constraints on SMBH binary population:

D. Tubin-Arenas et al., 2025, A&A, 698, A192

Re-awakening of CLAGN Mkn 590:

B. Palit et al., 2025, MNRAS, 540, L14

Thin-disk to ADAF transition in CLAGN Mkn 1018:

T. Saha et al., 2025, A&A, 699, A205

Observatory Science with eXTP (white paper):

P. Zhou et al., 2025, Sci. China Phys., Mech. & Astron., 68, 119507

Reformulation of NewAthena X-IFU:

P. Peille et al., 2025, Exp. Astron., 59, 18

2025 service:

Member of NewAthena XIFU Consortium and XIFU Science Advisory Team

SOC Deputy Chair, Event on AGN corona, 46th COSPAR General Assembly, Aug. 2026

3 lectures at Astron. Obs. of Univ. Warsaw on X-ray spectroscopy for bachelor's students

External reviewer: PhD theses at Univ. Potsdam & IUCAA, India

Journal Club talk @ CAMK, Dec. 1: Updates on T CrB

New observing proposals as PI: SALT, XMM

Member of

- Rada Naukowa CAMK
- Komisja ds nagród; Komisja ds konkursów