CAMK Annual Meeting

Marzena Śniegowska[1,2]

1. Nicolaus Copernicus Astronomical Center PAS
2. Department of Astrophysics, Tel Aviv University

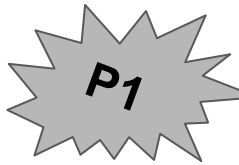
with collaboration:

Bożena Czerny[3], Agnieszka Janiuk[3], Mikołaj Grzędzielski[3]

3. Center for Theoretical Physics PAS

31.01-02.02.2024

This year I focused on flares in AGN:



★ Changing-Look (CL) AGN and accretion disk instabilities

- Seminars: *The challenges of the modelling Changing Look Active Galactic Nuclei phenomena:* Nicolaus Copernicus Astronomical Center in Warsaw, National Centre for Nuclear Research
- Contributed talk, The Time Domain in the era of Astronomical Big Data, Mitzpe Ramon, Israel
- Contributed talk, The Restless Nature of AGN: 10 years later, Napoli, Italy

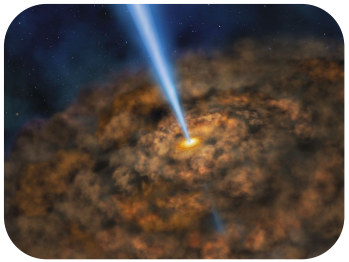
Off-topic project:

★ VLT spectropolarimetry of NLSy1 galaxies

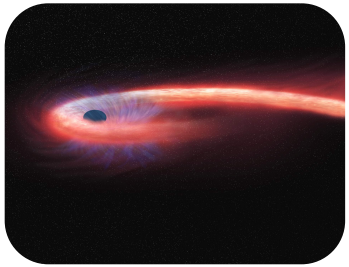
- Do Narrow-Line Seyfert 1 galaxies have smaller BH masses? Spectropolarimetric reverification, 10-14 July 2023, EAS Cracow

Possible scenarios of CL AGN

Variation of obscuration (Extrinsic)	Tidal disruption event (Intrinsic)	Changes in accretion rate (Intrinsic)
Inconsistent with broad line dimming and timescales	The flares are longer-lived than the typical TDE	Distinct physical processes from the rest of quasars



Credit: NASA/SOFIA/Lynette Cook



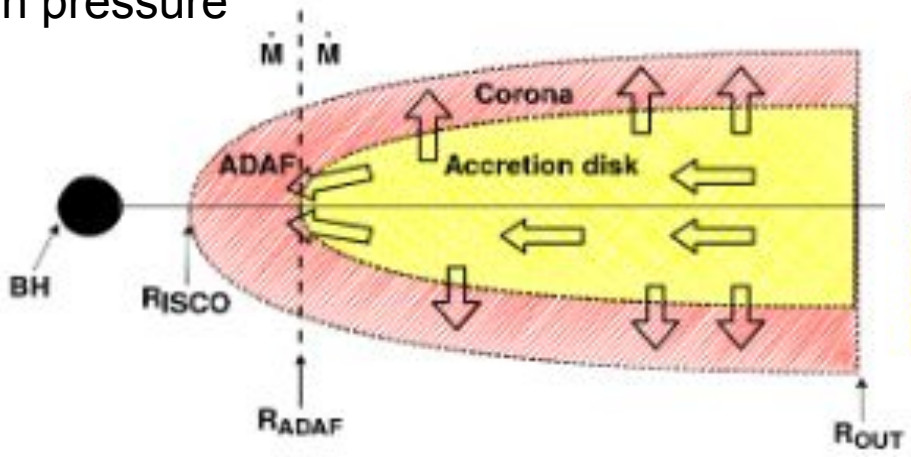
Credit: NASA / CXC / M. Weiss

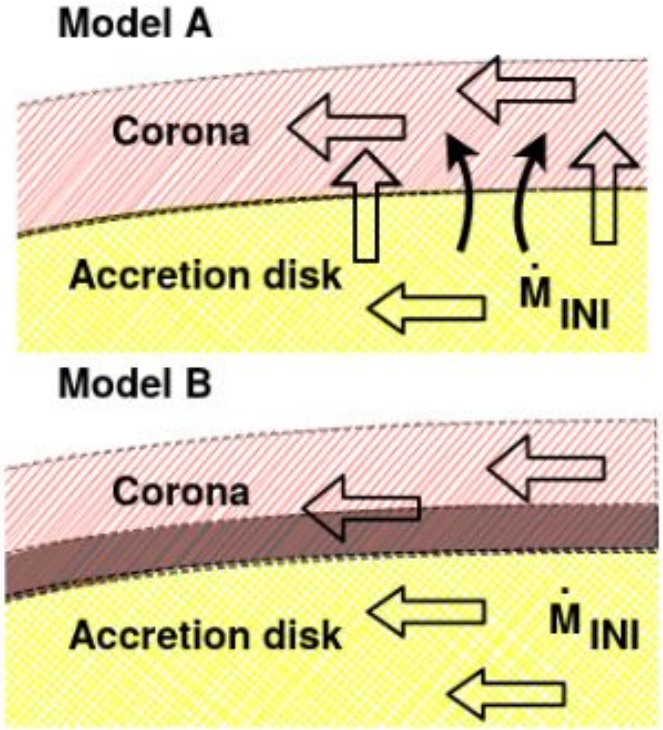
Credit: NASA/JPL-Caltech

P1

Marzena Śniegowska, Mikołaj Grzędzielski,
Bożena Czerny, Agnieszka Janiuk

- ★ We model luminosity changes for objects with 10, 10^5, 10^7 solar masses
- ★ We use the time-dependent evolution of a black hole accretion disk unstable due to the dominant radiation pressure

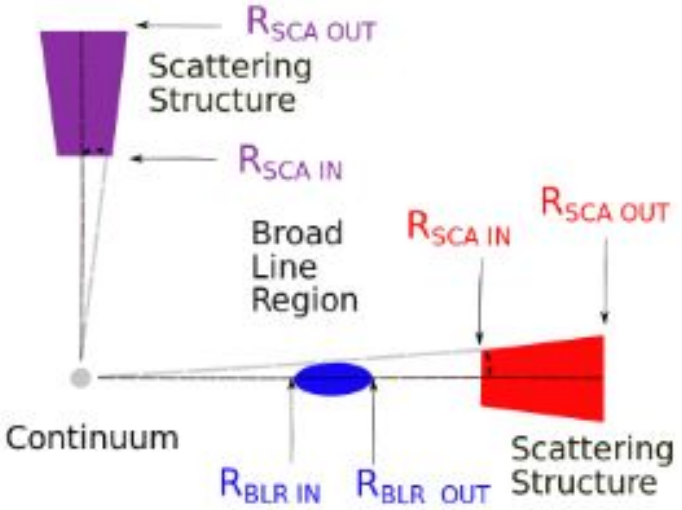




P2

Marzena Śniegowska, Swayamtrupta Panda, Bozena Czerny, Djorde Savic, Mary Loli Martınez-Aldama, Paola Marziani, Jian-Min Wang, Pu Du, Luka Popovic, Saraf, Chandra Shekhar

- ★ Spectropolarimetric data for 3 NLSy 1 candidates
- ★ We recover the viewing angles
- ★ We confirm the small values of the black hole mass in these sources and their high Eddington nature
- ★ We recover the observed Hα line profile both in the natural and polarized light using the STOKES modelling. We recover the polarization fractions of the order of 0.2-0.5%



To sum up this year:

Published:

★ ‘Modified models of radiation pressure instability applied to 10, 10^5, and 10^7 $M_\odot$ accreting black holes’, Śniegowska et al. 2023; Astronomy & Astrophysics, Volume 672, id.A19, 21 pp.

★ ‘Spectropolarimetry and spectral decomposition of high-accreting narrow-line Seyfert 1 galaxies’; Śniegowska et al. 2023; Astronomy & Astrophysics, Volume 678, id.A63, 25 pp.

GRANTS: PRELUDIUM 2021/41/N/ST9/02280

Joined SDSS-V collaboration, so more exciting projects ahead of me

Thank you!