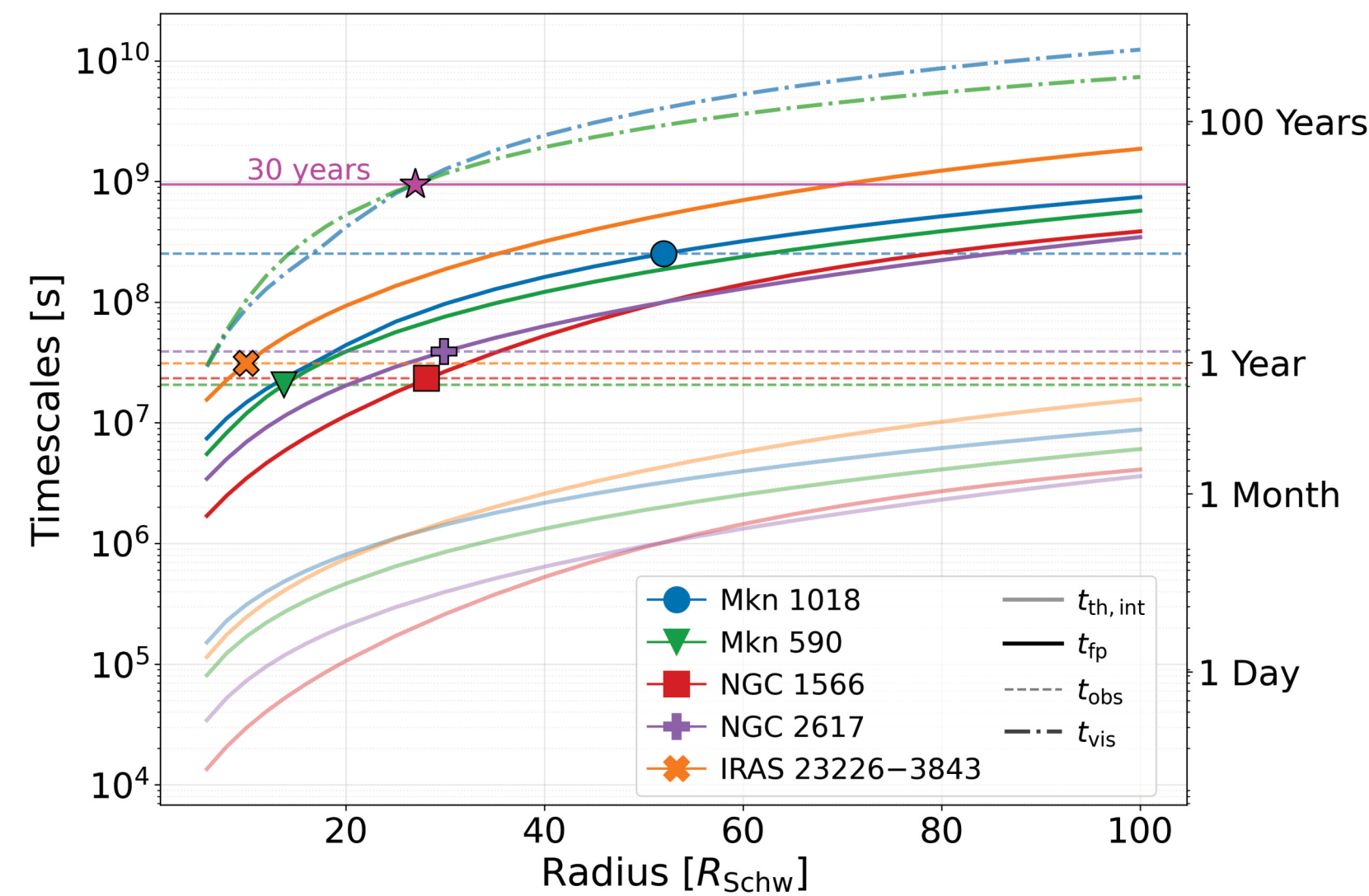


MAGNETICALLY-SUPPORTED DISK-CORONA MODEL FOR CHANGING-LOOK AGN TRANSITIONS

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- Magnetically supported disk-corona model is mostly stable for most Eddington ratios if magnetic field is strong enough
- Thermal instability at observed state transition luminosity in changing-look AGNs
- With time-scales fitting the duration of the transition (thermal front propagation t_{fp}) and the recurrence time (viscous timescale t_{vis} at the transition radius)

Vertically integrated thermal timescales t_{th} (faded curves), front propagation timescales t_{fp} (solid curves), and viscous timescales t_{vis} (dash-dotted curves), as a function of disk radius for five CLAGN in our sample. Horizontal dashed lines mark the observed transition duration. The magenta horizontal line marks the ~ 30 yr recurrence period.

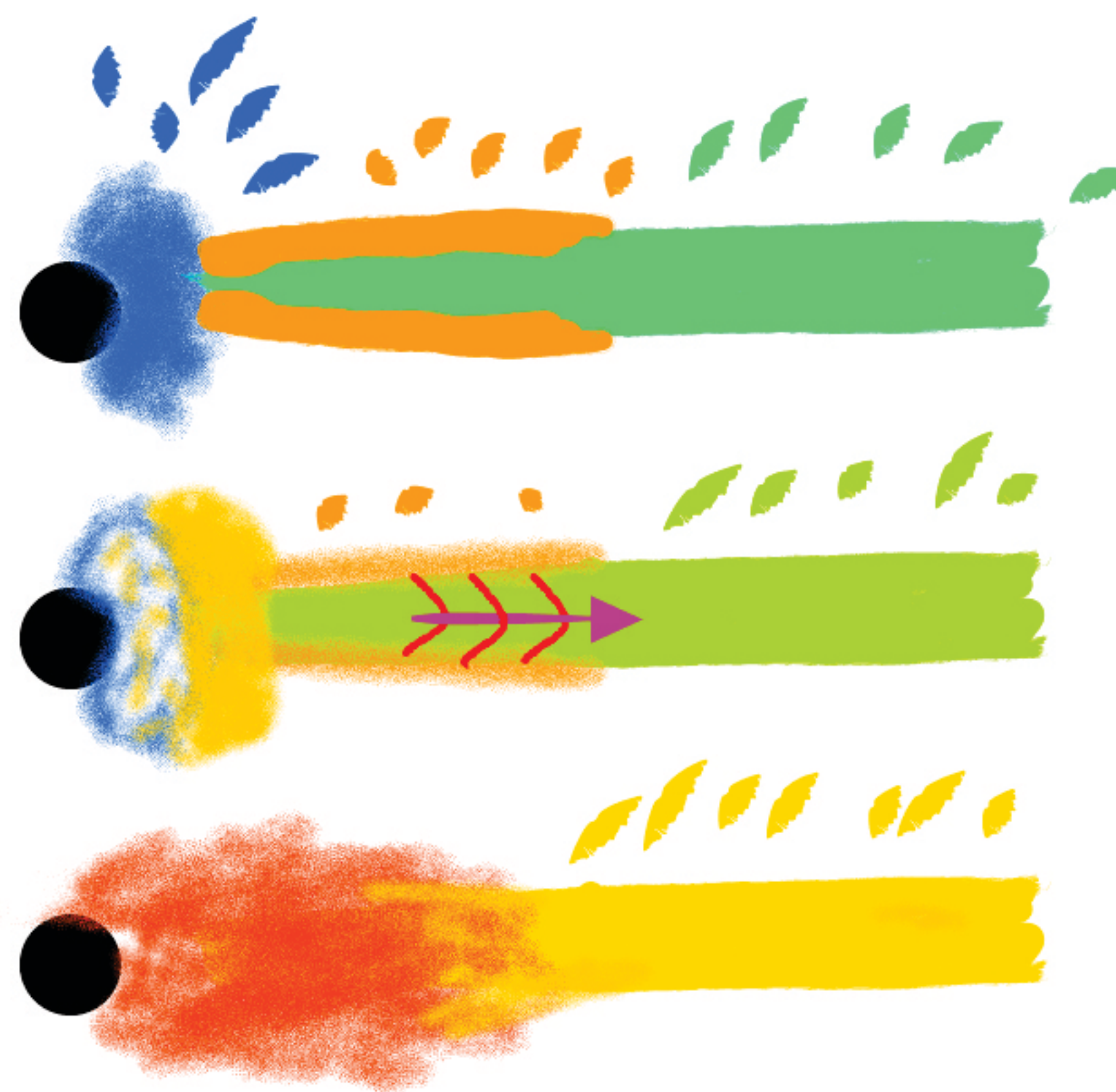
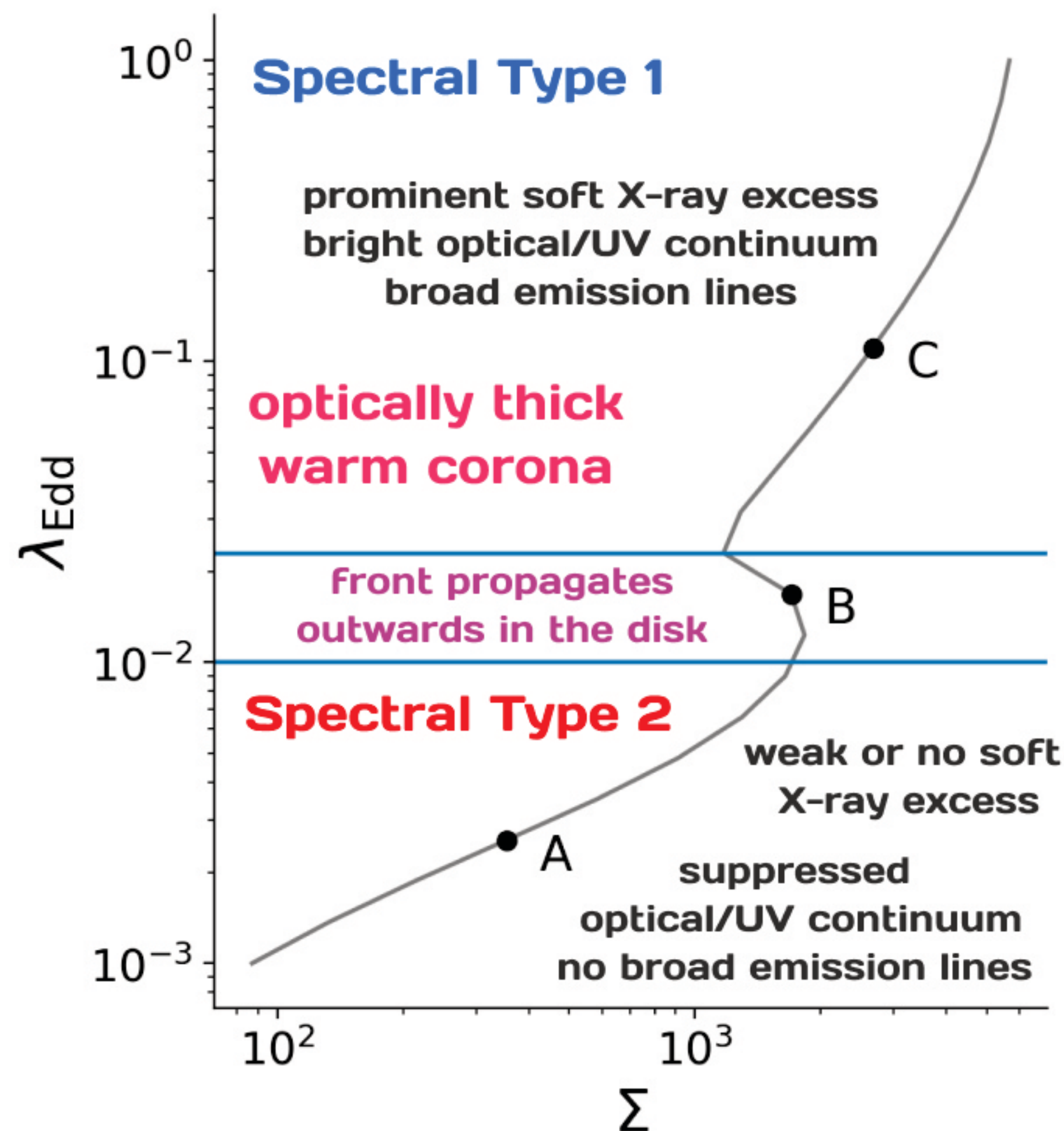
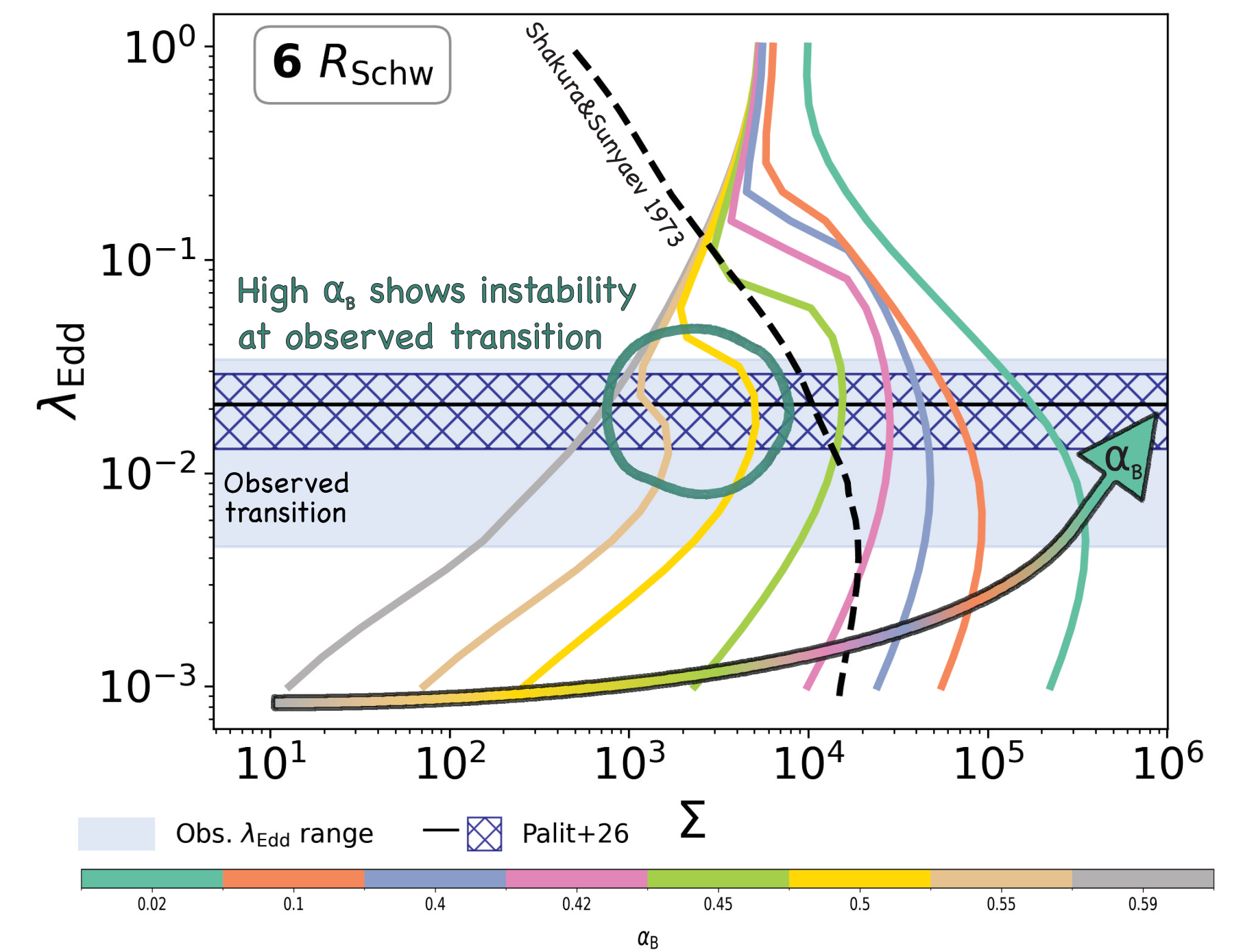


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DISKVERT code

Solves vertical structure of magnetized accretion disk from midplane to the photosphere (hydrostatic equilibrium, energy balance, radiative transfer (Różańska et al. 2015) and the magnetic-flux equation (Begelman et al. 2015)).

Self-consistently generated warm corona on top of a disc.

The total pressure P_{tot} is resolved into gas, radiation, and magnetic P_{mag} components, with a magnetic viscosity

$$\alpha_B = 2A P_{mag}/P_{tot},$$

where A is the constant vertically averaged ratio of magnetic torque over magnetic pressure.

Original paper:

Kouzis, M., Różańska, A., Lančová, D., Czerny, B., & Gronkiewicz, D. 2026, ApJL, 1007, doi: 10.3847/2041-8213/ae8d11.

DISKVERT code:

Gronkiewicz, D., & Różańska, A. 2020, A&A, 633, A35, doi: 10.1051/0004-6361/201935033

Observations:

Palit, B., Różańska, A., Markowitz, A. G., Lawther, D., Vestergaard, M., Ruan, J. J., Saha, T., Walsh, G., Borkar, A., Sniegowska, M., & Lu, K. X. arXiv e-prints, arXiv:2602.17572
Jana, A., Ricci, C., Temple, M. J., Chang, H.-K., Shablovinskaya, E., Trakhtenbrot, B., Diaz, Y., Ilic, D., Nandi, P., & Koss, M. A&A, 693, A35, doi: 10.1051/0004-6361/202451058