

Molecular gas around galactic nuclei

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Recent molecular line observations with ALMA in several nearby Seyferts have revealed the existence of molecular tori, and the nature of gas flows at 10-20pc scale [1]. At 100pc scale, or kpc-scale, previous NOEMA work on gravitational torques had shown that only about one third of Seyfert galaxies experienced molecular inflow and central fueling, while in most cases the gas was stalled in rings [2]. At higher resolution, i.e. 10-20pc scale, it is possible now to see in some cases AGN fueling due to nuclear trailing spirals, influenced by the black hole potential. This brings smoking gun evidence for nuclear fueling [3]. In our sample galaxies, the angular resolution of up to 60mas allows us to reach the BH-zone of influence and the BH mass can be derived more directly than with the M-sigma relation.

References

- [1] Combes, F., García-Burillo, S., Audibert, A. et al. *A&A* 623, A79 (2019)
- [2] Garcia-Burillo, S., Combes, F. : *Journal of Physics*, 372, 012050 (2012)
- [3] Audibert, A., Combes, F., García-Burillo, S. et al. *A&A* 632, A33 (2019)