Near infrared Adaptive Optics-assisted observations using Integral Field Spectroscopy make it possible to study the two-dimensional velocity fields in the central tens of parsecs of nearby AGNs. While the molecular gas is found to show ordered rotational patterns, the ionized lines often show non-circular components on top of circular motion which are most likely arising from an outflow. Both the lifetime and the geometry of these outflows do not resemble those detected in nearby star forming galaxies but are rather indicative of AGN-powered outflows. Their energy output is sufficient to provide the feedback needed in two-stage models that are able to explain the M_BH-M* relation. While co-evolution is supposed to mostly happen in distant and very luminous AGNs, there are indications from hydrodynamical simulations that the accretion and outflow physics in the most central parts of AGNs are independent of the large scale drivers of accretion. Can we test the central premise of co-evolution -- that AGN feedback regulates star formation -- using nearby Seyfert galaxies?

**Figure 1:** Stellar Populations in Mrk 1066, adapted from Riyi et al. (2007). The right 3 panels show the torus'' an observable (see right) consequence of the brightest local Seyfert galaxies (assuming T = 5200 K). The far right panel shows Post-processing the data: removing features not in the modelled signal.

**Figure 2:** H2 observations in the Seyfert 2 galaxy NGC 5643. The High H2 dispersion along minor axis shows that there are molecular outflows. But the flux is ~100x lower, i.e. relatively little mass is involved. Here: in a 30pc region, 1.0(21) line flux corresponds to 1200 Lsun i.e. there are 2 Msun of hot H2 (~106 total) at a velocity of 50-100km/s. The outflow is therefore M = Mn/R~ a few Msunyr.

**Figure 3:** The next step: A large sample of matched in/active galaxies. What can we expect to learn about AGN feedback from local galaxies?

1. How does the nuclear kinematics compare between active and inactive galaxies? Isolate and understand processes responsible for AGN activity, e.g. the cold envelope outflow signatures, star formation connection.
2. What is required to drive a massive molecular outflow? If we take L_H2 alone, we would expect to see significant molecular outflows in the brightest local Seyfert galaxies (assuming T_H2 ~ 10^4 K). Then L_H2 ~ 10^11 Lsun, i.e. L_H2 ~ 43.5, i.e. observable in the local universe.
3. Is there a connection between nuclear star formation and AGN activity? Is the obscuring torus an observable (see right) consequence of such a relation? (How) does it contribute to the outflow?

**Figure 4:** Mid-IR interferometry of AGN tori. Using mid-IR interferometry with MIDI at the VLTI, we now have a sample of ~25 resolved AGN tori for which we can determine e.g. the half-light radius as a fraction of the radius where dust would be expected if the material inside this radius were optically thick. We find that some AGNs actually lie very close to this radius -- a strong indication for a clumpy dust distribution -- but that others are much more compact than that.

**Figure 5:** Ionized outflows in nearby Seyfert galaxies [Si VI] in the rotation-dominated object NGC 6814. What is required to drive an AGN outflow? AGN luminosity seems to be only a necessary, not a sufficient, condition.

**Figure 6:** Massive molecular outflows in ULIRGs / Quasars. What is required to drive an AGN outflow? AGN luminosity seems to be only a necessary, not a sufficient, condition.

**Figure 7:** IRS spectra of AGN. Blue-shifted wing in OH transition at 79 μm shows outflows with >1000 km/s, probably AGN driven. But only a few of the more recent observations of BAT AGNs show this. Apart from AGN luminosity, "evolutionary phase" could be a strong determinant of whether or not outflows are observed.

**Figure 8:** H2 observations in the Seyfert 2 galaxy NGC 5643. The High H2 dispersion along minor axis shows that there are molecular outflows. But the flux is ~100x lower, i.e. relatively little mass is involved. Here: in a 30pc region, 1.0(21) line flux corresponds to 1200 Lsun i.e. there are 2 Msun of hot H2 (~106 total) at a velocity of 50-100km/s. The outflow is therefore M = Mn/R~ a few Msunyr.

**Figure 9:** Mid-IR interferometry of AGN tori. Using mid-IR interferometry with MIDI at the VLTI, we now have a sample of ~25 resolved AGN tori for which we can determine e.g. the half-light radius as a fraction of the radius where dust would be expected if the material inside this radius were optically thick. We find that some AGNs actually lie very close to this radius -- a strong indication for a clumpy dust distribution -- but that others are much more compact than that.

**Figure 10:** Ionized outflows in nearby Seyfert galaxies [Si VI] in the rotation-dominated object NGC 6814. What is required to drive an AGN outflow? AGN luminosity seems to be only a necessary, not a sufficient, condition.

**Figure 11:** Massive molecular outflows in ULIRGs / Quasars. What is required to drive an AGN outflow? AGN luminosity seems to be only a necessary, not a sufficient, condition.