Abstract. We have observed seven powerful FR2 radiogalaxies and seven quasars with the Spitzer IRS (Houck et al. 2004). Both samples are comparable in both, redshift range and isotropic 178 Hz luminosity. Both samples are found to have similar distributions in the luminosity ratios of Mid-IR high- and low-excitation lines ([NeV]/[NeII]), and of Mid-IR high-excitation line to radio power ratio ([NeV]/P_{178 MHz}). However, the MIR/FIR ratio is generally higher for quasars. We further observed Silicate features at 10 and 18 µm in emission. In our sample only quasars show emission features, while silicate absorption is seen only in the radio galaxies. These observations are all in agreement with unification schemes that explain both groups as the same class of objects seen under different orientation angles.

According to unification schemes, quasars (Type 1 AGN) and powerful radio galaxies (Type 2 AGN) are the same phenomenon seen from different aspect angles. A dusty molecular torus blocks the line of sight to the central engine and the broad line region when seen from the side. Narrow high ionization lines are seen in both AGN types and are thought to originate outside the torus. The same is certainly true for the radio emission originating from the lobes of the radio jets. The radio power is a measure for the total energy output of the AGN, and is correlated to the FIR luminosity (Meisenheimer et al. 2001).

The subsamples consist of 7 FR2 radio galaxies (3C079, 3C295, 3C303.1, 3C321, 3C356, 3C381, 3C459) as Type 2 objects and 7 quasars or broad line radio galaxies (3C047, 3C109, 3C249.1, 3C298, 3C323.1, 3C351, 3C445) as Type 1
objects (Haas et al. 2005). They are comparable in redshift (0.05 ≤ z ≤ 1.5) and isotropic 178 MHz luminosity (10^{26.5} W/Hz ≤ P_{178 MHz} ≤ 10^{29.5} W/Hz). The selection was taken from a subsample of the 3C catalogue, previously observed with ISO (Siebenmorgen et al. 2004; Haas et al. 2004) that had sufficient S/N and was not blocked by Spitzer guaranteed time reservations.

Both samples show similar high to low excitation line ratios ([NeV]/[NeII]) and are statistically indistinguishable, as expected for AGN (Genzel et al. 1998). Both samples show similar ratios of [NeV] and radio emission. The MIR/FIR luminosity, however, is generally higher for quasars than for the FR2 radio galaxies. If the FIR luminosity is correlated to the AGN power, as suggested by Meisenheimer et al. (2004), then the MIR/FIR ratio hints at substantial dust absorption in FR2 galaxies, since the radio powers of both AGN types in the sample are similar. For a diagram see Haas et al. (2005).

FR2 galaxies show more attenuated visible [OIII]_{500.7 nm} line emission compared to the infrared [OIV] line, than quasars, probably due to dust absorption. We conclude therefore that the [OIII]_{500.7 nm} line is not a good isotropic tracer for testing unification schemes in high luminosity objects.

The [Pier & Krolik] (1992) dust model for AGN predicted Silicates not only in absorption but also in emission, as observed with Spitzer IRS (Siebenmorgen et al. 2005; Hao et al. 2005). We see absorption in 3C079, 3C303.1, 3C321, and 3C459, which are all of AGN Type 2, while emission is observed in 3C109, 3C249.1, 3C323.1, and 3C351, which are all of Type 1. Within the statistical boundaries of our sample, we find accordingly a good correlation of silicate emission with AGN Type 1, and absorption with AGN Type 2.

The ≈11 μm emission bump can be modeled by a simple 3 component dust model without postulating exotic grain sizes, abundances, or dust cloud geometries. We use optically thin emission of Silicate dust with 3 radiating components and a primary powerlaw spectrum source radiating at 0.1-15 μm (α=-0.7). The position shift of the emission feature towards longer wavelengths is explained by the folding of the Silicate absorption coefficient with the steeply rising Planck function. We assumed a standard galactic dust mixture of carbon and silicate spheres of 0.1 μm radius with optical constants by Zubko, Dwek & Arendt (2004) and cross sections calculated from Mie-theory.

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