

S18c How do we see the nuclear region of narrow-line Seyfert 1 galaxies?

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We propose two statistical tests to investigate how we see the nuclear region ($r < 0.1$ pc) of narrow-line Seyfert 1 galaxies (NLS1s). [I] The high-ionization nuclear emission-line region (HINER) tests: Seyfert 1 galaxies (S1s) have systematically higher flux ratios of $[\text{Fe VII}] \lambda 6087$ to $[\text{O III}] \lambda 5007$ than Seyfert 2 galaxies (S2s). This is interpreted as that a significant part of the $[\text{Fe VII}] \lambda 6087$ emission arises from the inner wall of dusty tori which cannot be seen in the S2s (Murayama & Taniguchi 1998, ApJ, 497, L9). [II] The mid-infrared (MIR) test: S1s have systematically higher flux ratios of L band ($3.5 \mu\text{m}$) to $IRAS$ $25 \mu\text{m}$ band than S2s. This is also interpreted as that a significant part of the L band emission arises from the inner wall of dusty tori because the tori are optically thick enough to absorb the L band emission if the tori are viewed from a nearly edge on (Murayama et al. 2000, ApJ, in press). Applying these tests for a sample of NLS1s, we have found that the NLS1s have nearly the same properties of S1s. It is thus concluded that we see the dusty tori of NLS1s from a nearly face-on view. We discuss which model is feasible to explain the observed properties of NLS1s.