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THE POPULATION OF SEYFERT GALAXIES IN THE LOCAL UNIVERSE

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Assuming that SSRS2 is a fair sample of the local Universe, we examine how the AGN phenomenon correlates with the host's properties such as morphology, presence of bars, spatial density, and existence of close companions.

The selection criteria normally used to examine statistical properties of AGN hosts, generally based on UV or IR excess, is not easily translated into an isotropic optical property, thus introducing strong biases in the results (e.g.: Schmidt et al. 2001). We use the Southern Sky Redshift Survey - SSRS2 (da Costa et al. 1998), which may be considered a fair sample of the galaxies in the local Universe, to investigate the characteristics of Seyfert hosts. The SSRS2 contains about 5300 galaxies with magnitudes $m_B \leq 15.5$, covering 1.69 sr in the southern celestial hemisphere, with a redshift completeness >99%, while for 65% of the galaxies a spectrum is available in our database. Because of the high completeness level of the SSRS2, we will use it as a control sample to characterize some physical properties of AGN hosts. Using diagnostic diagrams of line intensity ratios proposed by Baldwin, Phillips, & Terlevich (1981), we identify 98 Seyfert galaxies. Searching the literature, we find an additional 38 Seyferts in the SSRS2. If we consider the distribution of Seyferts among the different morphological types and correct for the incomplete spectral information for each morphology, we determine that 2.6% of SSRS2 galaxies host AGNs. Thus, we are confident that we reached a high degree of completeness in the detection of AGNs in the SSRS2, allowing statistical studies having the entire SSRS2 as a control sample. Among the AGNs there are 25 Sy-1, 105 Sy-2 and 6 transition cases between Sy-1 and Sy-2. The morphological type distribution of AGN hosts is concentrated between Sa and Sb types, with similar distributions both for Sy-1 or Sy2. Previous observational evidence suggests that interacting systems seem to trigger/enhance nuclear activity (Dahari 1984; Coziol et al. 2000). In denser environments the number of interacting systems is supposed to be higher, thus increasing the likelihood of AGNs being present. Applying a group finding algorithm (e.g., Maia, da Costa, & Latham, 1989; Merchán, Maia & Lambas 2000) to the SSRS2 catalog, we find that 25% of AGNs are in groups with 4 or more members, 9% in triplets, 26% in binaries while 40% are isolated. For the entire SSRS2 the distribution is 42%, 3%, 8% and 47% respectively. AGNs are more often found in binary and triple systems but not in groups with larger number of members, when compared to the general galaxy population (SSRS2). This result is suggestive that AGNs are preferably found in systems with a close/interacting companion. Examining the distribution of "strongly interacting galaxies" in both the AGN and SSRS2 samples we find that Sy-1 are present in 20% of these cases, and Sy-2 in 7.6% (all AGNs 9.5%) while in the SSRS2 there are only 3.5% of galaxies in such systems. Therefore, AGNs are preferentially found in interacting systems. Another issue we examined is how frequently a bar is found in the host galaxy which may also trigger/enhance the nuclear activity. AGNs present 29% of barred hosts, while SSRS2 contains only 14% of barred galaxies. Clearly the AGNs occur more frequently in barred hosts.

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