

The host galaxies of luminous type 2 AGN at z 0.3-0.4.

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Abstract

We study the morphological and structural properties of the host galaxies associated with 57 optically-selected luminous type 2 AGN at $z \sim 0.3-0.4$: 16 high-luminosity Seyfert 2 (HLSy2, $8.0 \leq \log(L_{[\text{OIII}]}/L_{\odot}) < 8.3$) and 41 obscured quasars (QSO2, $\log(L_{[\text{OIII}]}/L_{\odot}) \geq 8.3$). With this work, the total number of QSO2 at $z < 1$ with parametrized galaxies increases from ~ 35 to 76. Our analysis is based on HST WFPC2 and ACS images that we fit with GALFIT. HLSy2 and QSO2 show a wide diversity of galaxy hosts. The main difference lies in the higher incidence of highly-disturbed systems among QSO2. This is consistent with a scenario in which galaxy interactions are the dominant mechanism triggering nuclear activity at the highest AGN power. There is a strong dependence of galaxy properties with AGN power (assuming $L_{[\text{OIII}]}$ is an adequate proxy). The relative contribution of the spheroidal component to the total galaxy light (B/T) increases with $L_{[\text{OIII}]}$. While systems dominated by the spheroidal component spread across the total range of $L_{[\text{OIII}]}$, most disk-dominated galaxies concentrate at $\log(L_{[\text{OIII}]}/L_{\odot}) < 8.6$. This is expected if more powerful AGN are powered by more massive black holes which are hosted by more massive bulges or spheroids. The average galaxy sizes ($\langle r_e \rangle$) are 5.0 ± 1.5 kpc for HLSy2 and 3.9 ± 0.6 kpc for HLSy2 and QSO2 respectively. These are significantly smaller than those found for QSO1 and narrow line radio galaxies at similar z . We put the results of our work in context of related studies of AGN with quasar-like luminosities. (See poster).