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SEARCHING FOR THE INFLUENCE RADIUS OF AGN IN NEARBY NARROW EMISSION-LINE GALAXIES USING THE CALIFA SURVEY

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In narrow emission-line galaxies, one important problem consists in discriminating gas ionization due to an AGN and gas ionization due to OB stars in active star-forming regions. This problem becomes more acute in case of AGNs classified as transition-type objects (TO), where star formation is relatively intense, and for LINERs, where the AGN is very weak. Thanks to the integral field spectroscopy, we have a new way to attack this problem. By definition, OB stars ionize a definite portion of space, the Strömgren's sphere, which size depends on the total luminosity of the star, its temperature, and the density of the surrounding gas. Therefore one expects gas ionized by OB stars to cover limited areas in a galaxy. On the other hand, due to the huge amount of ionizing photons emitted by an AGN, its "influence radius" is expected do be much more extended, in the order of kpc. Using a sample of galaxies from included in the CALIFA survey DR3, we will test a new way to measure the characteristic "influence radius" of AGN with different intensities.

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HIGH MASS BLACK HOLES IN NEARBY AGNS. AN IR CONNECTION

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From the SDSS DR7 we took a sample of 16733 galaxies which do not show all of the emission lines required to classify their activity according to the classical BPT diagram (Baldwin et al. 1981 PASP). Since they do not show these emission lines they are thought to be AGNs evolved enough so to host very massive Black Holes. We analyzed them in the IR region (WISE data) with the use of a new Infra Red Diagnostic Diagram (IRDD) (Coziol et al. 2015 AJ) and found that their position in the IR color space (W3W4 vs W2W3) corresponds to AGN activity with current low SF. We also found that the masses of the Black holes hosted by them are of the order of $10^9 M_{\odot}$. We then considered a subsample of nearby galaxies from the CALIFA survey DR3 (Sánchez et al. 2015) and using different apertures we estimate the velocity dispersion (using the Starlight code, Cid-Fernandez et al. 2005) and then the BH mass. Comparing these results with the pothometry (GALFIT code, Peng et al. 2003) for the same sample we observe that the estimated masses measured with both methods differ in almost 2 orders of magnitude (López-Cruz et al. 2014, Rusli et al. 2013). By using the IRDD we confirm that these galaxies are AGNs with low SF and host very massive black holes. Nevertheless, the photometry scaling relations should be reviewed to fully explain the big difference with the estimations of spectroscopic methods.

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