POPULATION OF NEIGHBORHOOD GALAXIES AROUND RADIO AGNs

Lopez, Claudio[1]; Donoso, Emilio[2]

[1] *Universidad Nacional de San Juan (UNSJ)*
[2] *ICATE-CONICET*

Abstract / We present a study of the environments of high and low excitation radio galaxies (HERGs and LERGs, respectively) selected from the SDSS, NVSS and FIRST surveys.
We focus on the distribution of absolute magnitude and colors of neighboring galaxies with available photometric redshifts around spectroscopic HERGs and LERGs with $14.7 < m_r < 17.77$ and $0.03 < z < 0.3$. To recover the true connection between AGN and their neighbors, we build control samples of non-active galaxies matched in stellar mass, redshift, absolute magnitude and $D_n(4000)$, and study galaxy properties of their neighbors. We find that neighbor galaxies of LERGs are, on average, brighter and redder than those of HERGs. We also applied the Kolmogorov-Smirnov test to analyze subsamples of AGN in bins of stellar mass and radio luminosity, and compare with their respective control galaxies.
Our results indicate that HERGs and LERGs are hosted in different environments. The difference in the distribution of stellar luminosity around both populations is larger for radio AGN with high stellar masses. At low stellar masses, the luminosity of nearby galaxies is indistinguishable. We also find that around LERGs of high radio luminosity, the neighbor galaxies differ respect to those of control galaxies in terms of absolute magnitude, yet not in color. These results suggest that galaxies in groups and clusters are affected differently due to the presence of an active radio AGN of either kind.

Contact / yoclaudioantonio1@gmail.com