

The quest for Dual AGN: The first spectroscopic sample

A large population of AGN pairs residing in the same galaxy - the so-called dual AGN - is expected at $z > 0.5$. These systems are crucial for predicting gravitational wave background levels and event rates in pulsar timing array experiments and by the future LISA mission. Furthermore, analyzing properties such as the mass function and separation distribution of the merging black holes, along with their fraction relative to the total AGN population, is essential to test numerous theoretical predictions on galaxy formation and evolution. Despite their importance, knowledge of dual AGN has been limited so far, with only a few systems detected at sub-arcsec separations. The all-sky survey Gaia is now playing a pioneering role in the search for dual candidates. In this talk, I will present the innovative 'Gaia multi-peak' (GMP) technique, which successfully selects multiple candidates at separations between $0.15''$ and $0.7''$ (~ 1 kpc at $z > 0.5$). Additional follow-up such as spatially resolved spectroscopy and high spatial-resolution imaging with HST and several ground-based AO-assisted instruments (Keck, VLT, and LBT) are fundamental to confirm the nature of these candidates and study their physical properties. In my poster, I'll showcase the first spectroscopic sample of confirmed GMP-selected dual AGN with the first statistical study to test model predictions on galaxy evolution.

Primary author: SCIALPI, Martina (University of Florence - UNITN - INAF OAA)