Contributed Talk

Splinter AGN

FR-type radio sources in COSMOS: relation to size, accretion modes and large-scale environment

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The radio sources associated with AGN can exhibit a variety of radio structures, from simple to more complex, and often they extend beyond the size of their host galaxy, giving rise to a complex classification scheme. The question which still remains open is whether this plethora of radio structures can be attributed to the physical properties of the host or to the environment. Here we present an analysis on the radio structure of radio AGN from the VLA-COSMOS Large Project at 3-GHz (JVLA-COSMOS) in relation to: 1) their linear project size, 2) the Eddington ratios of the black hole, and 3) the environment their hosts lie within. We classify these as FRI (jet-like) and FRII (lobe-like) based on the FR-type classification scheme, and compare them to a sample of jet-less radio AGN in JVLA-COSMOS. We measure their linear projected size using a semi-automatic machine learning technique. Their Eddington ratios are calculated from X-ray data available for COSMOS. As environmental probes we take the X-ray groups (hundreds kpc) and the density fields (∼Mpc-scale) in COSMOS. We find that FRII radio sources are on average larger than FRIs, which agrees with literature. But contrary to past studies, we find no dichotomy in FR objects in JVLA-COSMOS given their Eddington ratios, as on average they exhibit similar values. Furthermore our results show that the large-scale environment does not explain the observed dichotomy in lobe- and jet-like FR-type objects as both types are found on similar environments, but it does affect the shape of the radio structure intro-

ducing bents for objects closer to the centre of an X-ray group.