

The ever elusive blazar host galaxies: a guide to their characterisation

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One of the fundamental characteristics of blazars is their central black hole mass. In absence of broad emission lines, which is the case for the majority of blazars (i.e. BL Lacs), the black holes mass is estimated by analysing the luminosity of the host galaxies. To date, these galaxies are thought to be massive and luminous ellipticals, but the data sample supporting this conclusion is limited. While the most recent studies date back to the early 2000s, it is crucial to provide a detailed characterization of the host galaxies in order to build realistic models exploiting the large number of sources whose photometric and spectral properties are measured with greater precision. In this contribution I will show preliminary results of the adaptation of the QSFit software to the study of blazars. This is of interest for the creation of a criterion for discriminating (and quantifying) the host from the blazar jet, and also for the generation of a repeatable and reusable classification algorithm for more general purposes. This work provides for the first time a study of the host galaxies of blazars on a theoretical level using analytical and coherent spectra, and can be applied to large new-generation surveys such as JWST and Euclid to characterise blazars at various redshifts and contribute to understand better the relation between the black hole activity and the host galaxy.

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