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Disentangling AGN-Starburst composite cores using multifrequency radio data: The case of NGC3079

Galaxies with AGN-Starburst composite nuclei, like e.g. NGC1068, are candidates for a number of high energy processes. In particular, using radio data to understand the magnetic field strength and structure in these cores aids us in understanding the transport of cosmic ray electrons and in gaining an insight into the non-thermal outflow of both the starburst and AGN regions.

Here we study a nearby object of this class, namely NGC3079, a Seyfert 2 galaxy, which exhibits a nuclear blow-out similar to the Galactic Fermi-bubbles. In this work, we highlight efforts on distinguishing the AGN-starburst core of this galaxy through the analysis of total intensity data, as well as polarised light data. In addition, results on the large scale magnetic field of this galaxy will be presented, specifically focused on better characterising the polarisation patterns in the halo of the galaxy through modeling the X-shape morphology of the magnetic field. Work on studying the non-thermal emission properties of this galaxy has been conducted using CHANG-ES (Continuum Halos in Nearby Galaxies - an EVLA Survey) VLA data at 6GHz (C-band), 3GHz (S-band), and 1.6GHz (L-band). New results and discussions on the advantages of incorporating the CHANG-ES S-band data in our analyses will be presented.

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