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A Study of The Lobes of Radio Galaxy Hydra A using MeerKAT Observations

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Hydra A is a type I Fanaroff-Riley radio galaxy which hosts a pair of 300-kiloparsec diameter radio lobes that are being powered by the previous powerful AGN outburst. Radio observations provide us with an excellent probe for the study of high energy particles residing in the lobes. The MeerKAT radio telescope carried out observations of Hydra A, from which we obtained radio maps at several frequencies. A spatial analysis of the radio maps reveals a pair of inner lobes and a pair of outer lobes. Using these observations, we computed the radiative flux densities and combined them with previous results from low frequency VLA observations at 74MHz and 327 MHz. We found that the spectrum in the MeerKAT frequency range is well described by a power law. We set constraints on the magnetic field strength and the age of the outer radio lobes through electron spectrum modelling which includes electron ageing.

Apply to be considered for a student ; award (Yes / No)?

Yes

Level for award;(Hons, MSc, PhD, N/A)?

MSc

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