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UHF OBSERVATIONS OF THE TAIL-LIKE REGION OF HYDRA A

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Hydra A is a FR-I type radio galaxy located at the centre of the Abell 780 cluster with a redshift of $z = 0.054$. Previous observations of the radio galaxy have been conducted at low frequencies by the Very Large Array (VLA) telescope and using the L-band frequencies of the MeerKAT array telescope. The Chandra X-ray observatory also carried out a detailed survey of the X-ray emission from the radio galaxy. These observations gave us invaluable information regarding the morphology of the galaxy. They revealed that Hydra A is composed of: a bright central core, pair of relativistic jets, pair of inner radio lobes, pair of diffuse outer radio lobes with the south-facing lobe having a tail-like extension and three pairs of X-ray cavities surrounding the lobes.

A spectral break in the radio spectrum is exhibited by the low frequency observations of Hydra A and this has been ascribed to the process of spectral ageing. The spectral age is the time it takes an electron in the lobe region of a radio galaxy to radiate all of its energy through synchrotron and inverse-Compton emission. Minimal research has been done on the tail-like region of Hydra A. One of the few studies done used MeerKAT's L-band frequencies and reported the tail-like region as having a spectral index that is dissimilar to the lobe regions. This raised questions about the spectral age, electron injection history and possible emission mechanisms in the tail-like region.

Our research aims to directly measure the spectral break frequency in the radio spectrum of the tail-like region of Hydra A using MeerKAT's UHF band observations. By directly determining the spectral age of the tail-like region and we hope to investigate the possible emission mechanisms and history of electron injection in the region. In this talk, I will present preliminary UHF MeerKAT images of Hydra A.

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