

A MeerKAT Pulsar Survey of Fermi Unidentified Sources

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In the last decade, Fermi LAT has provided an amazing roadmap to assist with pulsar searches conducted in other parts of the electromagnetic system. Indeed, multiple surveys have used Fermi unidentified sources with pulsar-like structures as their targets. Following this strategy, we present in this poster a survey conducted using the MeerKAT telescope to find energetic new pulsars associated with gamma-ray sources. MeerKAT's expected performances have been compared to those achieved in previous surveys (conducted with Parkes, GBT, Arecibo and Effelsberg) in order to determine the required integration time to reach comparable sensitivity. As a result, we concluded that a 10-minute observation for each source would be sufficient, thus enabling us to perform a relatively swift survey of a large number of targets. We also investigated other observing parameters such as the optimal de-dispersion and acceleration search strategy that would maximise our chance of finding new pulsars. Lastly, we carefully selected sources from the latest Fermi LAT 4FGL catalogue for the first phase of our survey based on criteria such as declination, Galactic latitude, gamma-ray emission characteristics and localisation. After applying these criteria, 79 targets were selected for a two-pass survey.

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