

MeerKAT open time call 3 December - Proposal summary

Mining Minihalos with MeerKAT	
Proposal number 15	Thu Jan 31 2019 05:41:29 GMT+0200 (SAST)
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Abstract:

Minihalos are faint, diffuse radio sources at the centres of galaxy clusters. Only 28 minihalos have been discovered so far, and the origin of their synchrotron-emitting electrons is not well understood. According to one theory, old electrons from the central radio galaxy are re-accelerated to relativistic energies by turbulence generated by sloshing motions of the intra-cluster medium. This scenario has been supported by the observation that some minihalos are confined within X-ray cold fronts created by the sloshing gas. To test this theory, we request 16 hours of observation divided among 5 galaxy clusters. We will compare our results with Chandra X-ray observations and, for three sources, with upcoming LOFAR observations. Spectral analysis and detailed comparisons with X-ray images are powerful tools to validate theoretical predictions for minihalos. We aim to evaluate the potential of MeerKAT in studying faint minihalos with a look toward the future synergy of LOFAR, SKA1-Mid and eROSITA.

Observation parameters:

Targets	ACO 1795 (13:48:55.0, +26:36:01), ACO 3444 (10:23:54.8, -27:17:09), MACS J1115.8+0129 (11:15:54.9, +01:29:56), ACO 1413 (11:55:19.4, +23:24:26), MACS J2140.2-2339 (21:40:15.2, -23:39:40)		
Total time	16 in 14 epochs	Dump rate	8 s
Daytime	Nighttime preferred	Variable/Transient	No
Baselines	No more than one of the outer ring antennas should be excluded because we need high resolution		

List of files uploaded. Files in order of upload. Usually just revising their proposal, so click the last one, but some people attached several different files, so they may all be useful.

https://drive.google.com/open?id=1XCmjCiq9Evy4FgrPvy5O_dzUAWu-AqF5 .

File comments: