

MeerKAT open time call 3 December - Proposal summary

| MeerKAT Investigation of Planck-Herschel Galaxy Proto-Clusters at z=2-3 | |
|---|---|
| Proposal number 25 | Thu Jan 31 2019 08:50:25 GMT+0200 (SAST) |
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| Principal Investigator | Lerothodi L. Leeuw, University of South Africa (UNISA) |
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| Authors | Select H-ATLAS Consortium Members, particularly groups at Imperial College London (UK) and the University of California Irvine (USA). |

Abstract:

We have introduced a protocluster selection technique, combining Herschel/SPIRE images and Planck point source catalogues. Candidate protoclusters are selected from Planck point sources having Herschel source overdensities. Their FIR colours are consistent with a z=0 ULIRG redshifted to z=2-3. This technique is sensitive to dusty starbursts and dusty QSOs and currently approximately 30 candidate protoclusters have been found. Their FIR flux is greater than other optical-selected protoclusters at the same redshifts, such as using LBGs. Such excessive flux indicates that their member galaxies are undergoing a phase of dust enshrouded star-formation or AGN activity. This phase, although short, is important for understanding the stellar mass assembly of clusters. Since optical selection can miss the full protocluster population, only by comparing FIR- and optical- clusters can we understand the complete history of stellar mass assembly. Among our 30 candidate protoclusters, 6 have been awarded Spitzer/IRAC time for imaging in 3.6 and 4.5 micron. In this proposal we target at 3 which have scheduled Spitzer observations and observable by MeerKAT. Using MeerKAT imaging at 1.38 GHz, and including the outer-ring antennae, we can localise the counterparts of the dusty starbursts in the protoclusters, owing to the FIR-radio correlation, and along with IRAC observations. SED modeling will provide SFRs, stellar mass, etc., will uncover details of the mass assembly of these protoclusters. With modest observing time we can have an impact on cosmology, future SKA, JWST and WFIRST projects and showcase impactful MeerKAT observations that can be extended.

Observation parameters:

| | | | |
|-------------------|---|---------------------------|-----|
| Targets | G014.99-59.64 22:33:02.16 -32:08:16.80, G257.09-87.10 01:00:55.68 -29:07:19.20, G017.86-68.67 23:15:09.36 -30:35:27.60 | | |
| Total time | 16 in 1 epochs | Dump rate | 8 s |
| Daytime | Nighttime preferred | Variable/Transient | No |
| Baselines | If possible, no more than one of the nine 'outer ring' antennas may be excluded from the array | | |

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=1SVgcoGurWSow5JGPo89JVq7fTCwhGWMk> .

File comments: