

# MeerKAT open time call 3 December - Proposal summary

| Mapping the NGC 7232 galaxy group with MeerKAT-64 |  |
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| <b>Proposal number</b> 24                         | Thu Jan 31 2019 08:27:30 GMT+0200 (SAST)   |
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## Abstract:

We propose to observe the nearby NGC 7232 galaxy group at 1.4 GHz with MeerKAT-64 (in 4K mode) using a single pointing. The group, which consists of at least four interacting galaxies, was shown to be rich in HI debris by Lee-Waddell et al. (2019) using WALLABY Early Science data. With MeerKAT-64 our primary science goal is to map the star formation activity via the 20-cm radio continuum emission at high angular resolution within and between the group members, taking advantage of the high MeerKAT-64 sensitivity and baselines up to 8 km. The wide channels (44 km/s) will also allow us to map the HI distribution of the group members at much higher sensitivity and (spatial) resolution than currently feasible with ASKAP (or ATCA), while also delivering excellent sensitivity to extended HI emission within the group. The proposed observations, if successful, could become part of a much larger project, mapping the star formation and HI gas distribution within nearby galaxy groups to assess their evolutionary state and formation history. The availability of high velocity resolution in future will allow for much advanced kinematic analysis of galaxy dynamics and interactions. From the deep continuum images, we also aim to explore the magnetic field structure of the NGC 7232 galaxy group. Our "shared-risk" proposal contributes to testing MeerKAT-64 20-cm observing and data reduction routines, possibly achieving a 10-fold sensitivity increase over ASKAP wide-field imaging and ~3 times higher angular resolution. We aim to supplement our observations with readily available multi-wavelength data (DECam, PanSTARRS, GALEX, etc.).

## Observation parameters:

|                   |   |                           |     |
|-------------------|---|---------------------------|-----|
| <b>Targets</b>    | NGC 7273 (RA: 22:15:38.4, DEC: -45:51:00.3)                     |                           |     |
| <b>Total time</b> | 16 in 2 epochs  | <b>Dump rate</b>          | 8 s |
| <b>Daytime</b>    | Nighttime required  | <b>Variable/Transient</b> | No  |
| <b>Baselines</b>  | No baseline constraints, 60 antennas active are fine on average |                           |     |

**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=1j-VNgAd\\_YQ\\_MF9TtYdwRgLrUgW6-VBcS](https://drive.google.com/open?id=1j-VNgAd_YQ_MF9TtYdwRgLrUgW6-VBcS) .

## File comments: