

MeerKAT open time call 3 December - Proposal summary

Toward unveiling the nature of the largest shock structure in the Universe	
Proposal number 2	Wed Jan 30 2019 09:06:18 GMT+0200 (SAST)
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Abstract:

Radio relics in merging galaxy clusters exhibit cosmic-ray acceleration to extreme energies at low-Mach number shocks. We have claimed discrepancies between the shock Mach numbers derived from radio and X-ray at several radio relics. We suspect some observational effects, otherwise the standard model of shock acceleration needs to be re-examined. We propose MeerKAT observations of Abell 3376, in which a textbook example of double radio relics exists. MeerKAT provides us with an unprecedented high-sensitivity and the best angular resolution in southern hemisphere, and allows us to examine the detailed radio properties of these southern radio relics for the first time. This observation will deliver spatially-resolved maps of the total intensity and its spectral index of the radio relics, and make the strongest constraint on the potential radio halos. Image quality can be assessed by comparing with previous works. This observation significantly advances our understanding of particle acceleration at low-Mach number shocks in galaxy clusters.

Observation parameters:

Targets	Abell 3376 West 06h00m22.919s -40d00'07".62; Abell 3376 East 06h02m37.35s -39d55'55".0		
Total time	16 in 1 epochs	Dump rate	8 s
Daytime	No preference	Variable/Transient	No
Baselines	No baseline constraints		

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=1n8rQZbD0PTwS9B_axpQqiwKeoZ4XR8zI,

<https://drive.google.com/open?id=1jfmtYdpvdN55b6ksT06SXFsygv4SZLaY> .

File comments:

A 4-page science case, technical justification and capacity development along with a separate observation plan (showing some details for the scheduling) are attached.