

# MeerKAT open time call 3 December - Proposal summary

Radio Emission from Tidal Disruption Events	
<b>Proposal number</b> 35	Thu Jan 31 2019 12:10:10 GMT+0200 (SAST)
<b>Email address</b>	michael@hartrao.ac.za
<b>Principal Investigator</b>	Michael Bietenholz (HartRAO/SARAO)
<b>Lead technical contact</b>	Michael Bietenholz (HartRAO/SARAO)
<b>Authors</b>	Rob Fender (Oxford, UK and UCT), James Miller-Jones (Curtin, Australia), Patrick Woudt (UCT), Markus Böttcher (NWU), Alet de Witt (HartRAO/SARAO)

## Abstract:

idal disruption events (TDEs) occur when the supermassive black hole (SMBH) in the centre of a galaxy tidally disrupts a star, and can produce bright radio emission which lasts from months to years. There are many open questions about TDEs for which radio observations can provide crucial input: which ones produce powerful jets? Is there a dichotomy of radio-loud and radio-quiet TDEs or is there a continuum in radio power? Does the radio emission in thermal TDEs arise from jets, from a wind or outflow, or from shocks in tidal streams? What fraction of TDEs produce jets? How much energy do TDE jets deposit into their surroundings? Furthermore TDEs give us an observational probe into the gas density near the black hole, and can allow us to detect low-mass and quiescent SMBHs. Only ~5 TDEs have been detected in radio at present, so a wider range of radio observations is clearly needed. New missions such as eRosita are expected to detect large numbers of TDEs in the coming year. We propose to observe selected new TDEs with MeerKAT, concentrating on either nearby ones where even faint radio emission could be detected and more distant ones which have already detected radio emission or are gamma-ray detected and thus likely to have a radio-bright relativistic jet.

## Observation parameters:

<b>Targets</b>	[to be determined]		
<b>Total time</b>	16 in 8 epochs	<b>Dump rate</b>	8 s
<b>Daytime</b>	No preference	<b>Variable/Transient</b>	Variable or Transient
<b>Baselines</b>	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=1U0XVGYbhimusQKvY7TjDbbkVcdc4IQj9>,

[https://drive.google.com/open?id=0By\\_XVT3j8uq5cmxHSzhwQXdfcHY0TUVEQVgwX1hvNW1xY2Zn](https://drive.google.com/open?id=0By_XVT3j8uq5cmxHSzhwQXdfcHY0TUVEQVgwX1hvNW1xY2Zn) .

## File comments: