

Title

**The Westerlund 1 cluster as seen by MeerKAT**

Abstract

With the present proposal, we request to observe the 1-degree X 1-degree region of the Galactic Plane centered in the Westerlund 1 cluster at  $l=339.549$ ,  $b=-0.404$  at 2.4 GHz and 3.1 GHz.

Westerlund 1, which is the most massive open cluster in our Galaxy and also one of the closest superstar cluster to us, is the target of an extensive observing campaign primarily based on new observations with Chandra/ACIS-I and the James Webb Space Telescope (JWST), along with a rich collection of archival data from the Hubble Space Telescope, ALMA, and other high-performance telescopes and facilities.

We intend to perform a morphological study of the cluster and its environment, with a spatial resolution better than 4 arcsec, and to gather spectral information over a large area surrounding the cluster.

This will allow us to investigate the complex interactions between stellar winds, the diffuse emission in and surrounding the cluster, the presence of a global cluster wind, the distribution of material around the cluster and their role in the observed gamma-ray emission associated with the cluster. The proposed observations will be analysed and interpreted with a synergistic use of the archive data available including the new JWST images.