

Title

The first multiphase study of star-formation driven outflows below the star-forming main sequence

Abstract

Recent VLT/MUSE observations have uncovered examples of satellite galaxies with low star formation rates (SFRs), yet exhibiting prominent ionised gas outflows, challenging the notion that such outflows are exclusive to galaxies on or above the star-forming main sequence (SFMS). This pilot MeerKAT proposal is aimed at targeting one of the most clear-cut cases of outflows below the SFMS: NGC 4064, a backplash galaxy in the outskirts of the Virgo cluster featuring a spectacular bi-polar outflow of ionised gas extending ~ 2.5 kpc in projection (currently unpublished). We aim to provide the first characterisation of the atomic hydrogen in the outflow (archival VLA data hint at HI co-spatial with the outflow). For this, we request ~ 12 hours of MeerKAT on-source integration time to obtain a $\sim 8''$ spatial and ~ 1 km/s spectral resolution cube, which, combined with VLT/MUSE and ALMA data already obtained, will enable the first sub-kpc characterisation of the multiphase properties of outflows in such unique conditions.