

MeerKAT deep observation of the X-ray filament

Abstract

The Abell 2384 (hereafter A2384) is a low mass, bimodal system consists of two merging sub-clusters A2384(N) and A2384(S) spatially coincident along a dense X-ray filament forming a bridge. Its previous (shallow) L-band MeerKAT observation has revealed many new radio features; in particular the presence of an extended \sim Mpc size radio relic perpendicular to the merger axis and a candidate radio ridge situated in the hot X-ray filament between the two sub-clusters. This observation was not sufficient to well study the extended radio sources due to the poor signal to noise (SNR) of the data. Hence we want to propose {the new MeerKAT L-band deep observation of A2384} to characterise properties of the candidate radio ridge and relic to understand their origins and nature. {We propose a total of 16 hrs observation time.} This observation will allow us to do better imaging of the radio relic and ridge as well as to study their broadband spectra to investigate particle acceleration mechanisms.