

Low-frequency MeerKAT deep observation of the X-ray filament

Abstract

The Abell 2384 (hereafter A2384) is a low mass, bimodal galaxy cluster 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. In this proposal, we want to propose the {MeerKAT UHF-band (580-1015 MHz) deep observation of A2384} to characterise properties of the candidate radio ridge and relic to understand their origins and nature. These both newly detected diffuse radio sources are steep spectrum sources. Hence they are more luminous and best studied at low frequencies. {We propose a total of 12 hrs observation time.} This observation will allow us to do better imaging of the radio relic and ridge as well as allowing to study their broadband spectra to investigate particle acceleration mechanisms.