

Abell 3685 and its peculiar double relics

Abstract

Abell 3685 (a.k.a. SPT-CL J2032-5627, $z=0.28$) is a merging galaxy cluster hosting a pair of recently discovered radio relics. Resolved spectral index and polarization information are still missing for the two relics.

We propose broad-band (UHF, L, and S bands) observations of this cluster. This study is needed not only to characterize the spectral-polarimetric properties of this double relic system but also to answer the remaining open questions about radio relics' origin. The peculiar low power of the two relics, together with their detection at high frequency, make them a peculiar system to test particle acceleration mechanisms. The fractional polarization and Faraday rotation properties of this system will be compared to other double radio relics to study the relation between the strength of the shock and the magnetic field topology as well as the level of turbulence within relics. Due to the low declination of the target, MeerKAT is the only facility able to carry out these observations.