

Contributed Talk

Splinter CCAT

CLUSTER COSMOLOGY WITH CCAT-P

Kaustuv Basu¹

*¹Argelander-Institut for Astronomy, University of Bonn
Auf dem Hügel 71, 53121 Bonn, Germany*

A main focus of CCAT-p cosmological research will be to carry out a wide-area, multi-band survey of galaxy clusters in the Sunyaev-Zel'dovich (SZ) effects. CCAT-p will be the first survey telescope to clearly detect the three main types of SZ effects in a large sample of clusters. Already with its first-light survey of 1000 deg² CCAT-p will detect over 2000 galaxy clusters from their thermal SZ signal. A significant fraction of these will have good signal-to-noise for a measurement of their line-of-sight peculiar motion from the kinetic SZ effect and also the average temperature from the relativistic SZ effect. These data will provide unique and high-precision tests for the standard cosmological model. The power spectrum of the kinetic SZ effect will be a probe for the epoch of reionization and can be combined with intensity mapping results. An important application for the high-frequency observing capability of CCAT-p will be to measure the FIR emission associated with galaxy clusters, which will be important for the precise characterization of the individual cluster properties as well as the thermal SZ power spectrum and bispectrum.