

Abstract Submitted
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Cosmology with CMB measurements from ACTPol: current status and future constraints FRANCESCO DE BERNARDIS, Cornell University, ACTPOL COLLABORATION — Measurements of the polarization of the Cosmic Microwave Background (CMB) contain important information complementary to the temperature anisotropies. The ACTPol polarization sensitive receiver for the Atacama Cosmology Telescope (ACT) is measuring CMB polarization from arcminute to degree scales. These data will improve constraints on cosmological parameters, in particular on neutrino mass, dark energy and inflationary models. One of the unique advantages of ACTPol is its ability to overlap with several large scale structure surveys, allowing cross-correlation studies that will achieve even stronger constraints on the cosmological parameters. Additional science is enabled by the combination of high sensitivity and arcminute resolution, such as surveys of galaxy clusters and new probes of dark energy via the thermal and kinematic Sunyaev-Zel'dovich (SZ) effects. Beyond ACTPol is the stage III Advanced ACTPol project, which offers greater sensitivity and frequency coverage than ACTPol. I will discuss ACTPol constraints and projections achievable with the Advanced ACTPol experiment. I will focus in particular on neutrino mass and on dark energy constraints from measurements of galaxy clusters peculiar velocities made by combining SZ effect measurements with galaxy surveys data.

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