38th INTERNATIONAL CONFERENCE
ON HIGH ENERGY PHYSICS
AUGUST 3 - 10, 2016
CHICAGO

Contribution ID: **1572** Type: **Oral Presentation**

The Atacama Cosmology Telescope: recent results and future prospects (15' + 5')

Saturday 6 August 2016 09:30 (20 minutes)

I will present recent results and show future directions for the Atacama Cosmology Telescope (ACT) project. Over the past three years, ACT has surveyed 3000 square degrees of the Northern and Southern galactic caps, at 150 and 90 GHz, in both intensity and polarization, with resolutions of 1.3 and 2.0 arcminutes. These data have sufficient depth and angular scale coverage to provide verification of Planck results, while the high resolution provides sensitivity to point source populations, galaxy clusters, and a better understanding of unresolved foregrounds. In the next phase, called Advanced ACTPol, the survey will be expanded to several thousand square degrees and four frequency bands. The use of multi-chroic detectors to increase detector density and rapidly rotating half-wave plates to overcome atmospheric contamination of polarization on large angular scales will allow the instrument to make important contributions to studies of the primordial power spectrum, B-mode science, CMB lensing, galaxy cluster cosmology, and a host of cross-correlation studies.

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Session Classification: Astro-particle Physics and Cosmology

Track Classification: Astro-particle Physics and Cosmology