



Contribution ID: 419

Type: **Oral Presentation**

## **Constraining Cosmology with Galaxy Clusters Discovered by the South Pole Telescope**

*Wednesday, 31 July 2019 17:20 (20 minutes)*

The abundance of massive galaxy clusters is a powerful cosmological probe as it depends sensitively upon both the expansion history of the universe and the growth of density fluctuations. To derive precision constraints with these systems a large and well-characterized sample of clusters is required. To produce such a sample, the 10-m South Pole Telescope has been used to conduct high-resolution cosmic microwave background surveys of approximately 1/8 of the sky from which clusters are identified via the Sunyaev-Zel'dovich (SZ) effect. In this talk I will discuss the three completed surveys that have imaged this sky area (the 2500-square-degree SPT-SZ survey, 500-square-deg SPTpol Survey, and 2700-square-degree SPTpol Extended Cluster Survey), the sample of over 1,000 SZ-selected clusters, and our progress in extracting cosmological constraints from these clusters. I will also highlight several multi-wavelength analyses of these systems using optical imaging data from Dark Energy Survey. The results presented in this talk will significantly improve with data from both the ongoing SPT-3G and future CMB-S4 surveys. These surveys will identify an order of magnitude more clusters than previous generation SZ surveys.

**Primary authors:** BLEEM, Lindsey (Argonne National Laboratory); SOUTH POLE TELESCOPE COLLABORATION

**Presenter:** BLEEM, Lindsey (Argonne National Laboratory)

**Session Classification:** Astroparticles & CMB

**Track Classification:** Astroparticles & CMB