

Abstract Submitted
for the APR20 Meeting of
The American Physical Society

Cosmological Constraints with Clusters from the SPT-SZ and SPTpol Extended Cluster Surveys LINDSEY BLEEM, Argonne Natl Lab, SOUTH POLE TELESCOPE COLLABORATION — Clusters of galaxies selected by the Sunyaev-Zeldovich (SZ) effect are powerful tools with which to constrain cosmological models. Here I will present the latest cosmological results using clusters identified by the South Pole Telescope (SPT) particularly focusing on results from the 2500 deg² SPT-SZ and new 2700 deg² SPTpol Extended Cluster Survey (SPT-ECS); with the publication of SPT-ECS, SPT has released over 1,000 optically-confirmed SZ-selected clusters. While the primary focus of the SPT effort has been on constraining cosmological models via cluster abundances, we have also explored in detail the overlap between the SPT cluster samples and the optical redMaPPer cluster samples from the Dark Energy Survey to derive constraints on the optical richness-mass relation. From this work we find significant (28%, 4 sigma) differences in the slope of the mass-richness relation compared to results from a weak lensing analysis of the DES clusters; to reconcile this difference would require a significant shift in the assumed cosmological parameters along the $\Omega_{\text{matter}}-\sigma_8$ degeneracy axis. In this talk I will provide an overview of this work as well as discuss next steps with the upcoming SPT-3G cluster samples.

Lindsey Bleem
Argonne Natl Lab

Date submitted: 15 Jan 2020

Electronic form version 1.4