Abstract

The 10-meter South Pole Telescope (SPT) is a millimeter wavelength telescope designed to conduct sensitive measurements of the cosmic microwave background (CMB) at arc-minute resolution. The SPT has successfully conducted a 2500 square degree survey to find clusters of galaxies from their distortion of the CMB, known as the Sunyaev-Zel'dovich (SZ) effect. The surface brightness of the SZ effect is redshift independent which allows a SZ survey to provide a nearly mass limited cluster sample out to the earliest epochs of cluster formation. The SPT has identified ~700 of cluster candidates. Of these, ~500 have been optically confirmed, with the majority being newly discovered clusters at $z > 0.5$. I will summarize the main results from the SPT cluster survey, including cosmological constraints from their measurement of the growth of structure.