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CMB lensing from SPT+Planck and cross-correlations YUUKI OMORI, McGill Univ, SPT COLLABORATION, DES COLLABORATION — The South Pole Telescope (SPT) SZ survey has observed 2500 square degrees of the Cosmic Microwave Background (CMB) to high accuracy down to 1 arcminute resolution at 150GHz. The Planck satellite has also observed the same patch of the CMB sky at 143GHz, but the two experiments were designed to measure temperature anisotropies optimally at different angular scales. By combining data from these two experiments, we are able to produce a temperature map that has an improved signal-to-noise ratio at all scales. This combined temperature map is used to produce a CMB weak lensing map, which we use for cosmological parameter and cross-correlation analyses. In particular, the SPT footprint has significant overlap with the Dark Energy Survey (DES) observing region, which allows us to cross-correlate the CMB lensing map with galaxy density and galaxy shear measurements obtained by DES. In this talk, I will present the SPT+Planck combining procedure, the CMB lensing reconstruction pipeline, tests performed to verify the lensing map, and finally the cross-correlation measurements.

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