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CMB Polarization Results from the QUIET Experiment

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QUIET is a ground-based CMB Polarization experiment, which aims to detect the degree-scale B-modes (curl components) induced by primordial gravitational waves. The existence of the primordial gravitational wave is a generic prediction of inflationary universe, therefore the detection of the B-modes is a “smoking-gun” signature of the inflation. The B-mode signal is expected to be orders of magnitude smaller than the temperature anisotropy so having a large detector array with precise control and mitigation of systematic effects is essential.

QUIET employs the world largest coherent receiver arrays in 43 GHz and 95 GHz frequency bands, and had accumulated CMB data for over 10000 hours at 5,000m altitude in Chile: the Chajnantor plateau. Our unique instruments design and the calibration strategy lead to the lowest levels of systematic errors to date. Those advantages enable us to begin to prove the B-modes.

In this talk, I will describe the QUIET experiment and the results for the CMB polarization measurements.

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